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Decent Work and the Informal Sector in Brazil

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Abstract

Brazil has a substantial share – about 60% by some measures - of its employees working without labor registry and 62% of its private sector workers not contributing to social security. Informality is important because its job precaurioness, social desprotection consequences, and it is also very correlated with poverty and other social welfare concepts measured at a family level. 58% of the country population that is found below the indigent line live in families headed by informal workers.

The complexity of the informal sector is derived from the multiple relevant dimensions of jobs quality. The basis used for guiding policy interventions depends on which effect of informality one is interested such: as lowering job precaurioness, increasing occupational risks, increasing the degree of protection against adverse shocks, allowing that good oportunities to be taken by the credit provision, improving informal workers families living conditions, implementing afirmative actions, reducing tax evasion etc.

This report gauges various aspects of the informal sector activities in Brazil over the last decades. Our artistic constraint are the available sources of information. The final purpose is to help the design of policies aimed to assist those that hold "indecent" jobs.

Social security perspective - The rate of social security evasion in the private sector amounted to 62% in 1999 against 52.8% found in 1985. *T*he rate of informality is higher for females 66% than for males 59%. The rate of growth during the 1985-99 period were also higher for females. Access of heads to social security (56%) is smaller than for other groups. Heads are normally the main income earner in the household, so the existence of insurance against unemployment shocks, maternity and old age plays a crucial role there. The age profile of social security evasion rates presents an U-shaped format. It falls rapidly from 72% for the 15-20 years old groups to its lowest level corresponding to 52% in the 25-30 years old group and rising to 87% in the 65-70 years of age. The rate of social security evasion falls with schooling levels - departing from 0.86% among illiterates - and income quintiles - departing from 0.96% in the first quintile. The highest levels of evasion among economy sectors are found in agriculture (90%) and construction (72%). Finally, in spatial terms the highest levels of evasion are found among workers in rural areas (86%) and in the Northeast region (82%).

Labor Market Perspective

How big is the informal sector? -There are 71 million occupied individuals which corresponds to 44.7% of the total population. When restricting the analysis to active age individuals (AAI - 15 to 65 years of age) this statistics reaches 64.4%. The working class structure of the AAI population reveals that 23% are employees with card, 11% are public servants and 4.1% are employers. The remainder can be roughly refered as the informal sector: 23.4% are self employed, 11.2% are unpaid employees, 11.1% private sector employees with no card, 7.6% domestic servants and 6.5% agricultural workers.

What is the size of earnings and schooling differentials? - Earnings differentials between formal and informal sectors are: 83% between employees with card compared with those without card and 284% of employers as compared to the self-employed. Average completed years schooling differences found typically do not explain all earnings differences. Relative earnings and schooling differentials of the so-called informal workers are: -2.3% and -19% for the self employed, minus infinity (naturally) and -39% for unpaid employees, -29.9% and 1.67% for private employees without card, - 62% and -30% for domestic servants and - 64% and -57% for agricultural workers.

Where are informal workers located? – According to city size the share of informal sector jobs excedes occupied population shares in rural areas (31.6% and 24.55, respectively) and small cities (15.1%, 14.6%). The opposite occurs in larger cities: medium cities (14.2%, 15.2%), larger non metropolitan cities (15.7%, 17.8%), metropolitan suburbs (9.3%, 11%) and Metropolitan core (14%, 16.9%).

Occupational risk - Transitional data constructed from household surveys show that ex-post risk of changing working class be divided into three groups according to their magnitude: (i) Informal employees (63.14%), unemployed (42.06%) and unpaid workers (57.91%) are the more unstable states, that is those with smaller probability of keeping their initial state between consecutive months. (ii) Formal employees, public employees, and inactive present higher staying probabilities around 90%. (iii) Self-employed and employers are in an intermediary position with respect to the two groups mentioned above with staying probabilities equal to 75.58% and 77.28%, respectively.

Income Risk *(*of those that did change jobs) - The differential between income risk between self-employed and the whole sample of continuously occupied ranged from 54% to 26% across a period of two decades. Although self-employed present an additional risk with

respect to other occupations, they are relatively more able to avoid additional risk increases in times of higher aggregate instability.

Macro-economic issues - The possibility of constructing monthly series allowed us to estimate the partial elasticity of informal sector earnings with respect to key macro variables. **Unemployment -** Formal employees unemployment elasticity (-0.24) is smaller than the ones found for informal workers (illegal employees (-0.42) and the self-employed (-0.62)). **Inflation -** Informal employees elasticities are not statistically significant from the ones estimated for the whole population. **Real interest rates -** The point estimates of interest rate elasticity of earnings in informal sector is higher in module (illegal employees (-0.99) and the self-employed (-0.98)) than the one found for formal employees (-0.73). **Minimum Wages -** partial elasticity corresponds to 0.32. The effect is higher among formal employees than in the informal sector (illegal employees (0.16) and the self-employed (0.23)). **Exchange Rates –** The impact of exchange rates on per capita income is not statistically different from zero in either total average, formal emplyees and informal employees earnings. Self employees average earnings fall when real exchange rates are devaluated (elasticity equals to -0.24).

Health status - The subjective self-evaluation of health conditions show that employees with card (86.1%) are more likely to find their health status good or very good than self-employed (71.2%), employees with no card (83.4%), agricultural workers (78.5%), domestic servants (75.7%) and unpaid workers (72.1%).

The incidence of health problems (in the last two weeks) are less common in employees with card (2.27%) than informal workers group: self-employed (4.26%), employees with no card (2.93%), agricultural workers (3.13%), domestic servants (3.56%) and unpaid workers (3.88%). The high incidence among the self-employed of hypertension (14.5%) and heart disease (4.62) is anotner aspect that caught our attention. The high income volatily observed among the self employed combined with their higher average age are natural candidates to explain these differences.

Access to Health Services - Access to private health services are much higher employees with card (42.9%) than among the self-employed (15.3%), employees with no card (16.3%), agricultural workers (18.4%), domestic servants (15.9%) and unpaid workers (24.3%). The reported quality of the plan among those who have a private health plan is not very different among different working classes.

Professional Associations Membership - A first set of social capital indicators is related to enrollment rates in trade unions and non-community associations activities. Looking at

metropolitan areas. We observe an inverse relation between membership rates in such organizations and informality (43.3% for formal employees and 14.5% for both informal employees and the self employed). The rates of effective current participation on these activities is much smaller in all these groups only 8.8% of formal employees attend at least one meeting per year. The same statistic corresponds 14.5% for informal employees and 3.25 in the case of the self employed.

Non professional associations - Membership rates in community associations are much lower for formal employees (12.6%) and closer to informal sector occupations (12.3% for informal employees, and 12.7% for the self employed). Nevertheless, the proportion of individuals that attend to at least one meeting per year is higher for community associations than the other types of relationships with associations analyzed. Informal workers are also slightly more likely to attend meetings. Analysis of community associations membership composition revealed the importance of neighborhood associations (31.4% for formal employees, 34.7% informal employees and 37.6% for the self employed) and religious associations (34.9% for formal employees, 38.1% informal employees but 33.1% for the self employed).

Political Activities - Given the low rate of formal affiliation to political parties we used the less stringent concept of having *sympathy for political parties* (24.8% for formal employees, 22.3% informal employees and 21.4% for the self employed). One final set of questions on political literacy shows that 88% for formal employees, 80.2% informal employees and 82.3% for the self employed knew *the correct name of the Brazilian President* (Fernando Henrique Cardoso). When one imposes the more stringent condition that the head knew the name of the president, and respective governor and mayors these statistics fell to 74.7%, 66.4% and 68.8%, respectively.

Dealing with new technologies - The new requirements on labor skills imposed by information age puts specific capital importance into new heights. Formal technical education and access to new equipment, where one can *learn by doin,g* are today considered household units strategic resources. 15.1% of formal employees against 9.9% for both informal employees and 10% the self employed) did a technical course equivalent to a high school degree. 33.2% of formal employees, 18.7% for both informal employees and 15.7% of the self employed perceived a regular incorporation of new equipment on their work. The results area also consistent with the idea that informal workers are victims of technological jobs displacement. When asked about what is the perspective of the occupation exerted five years

in the future: 66% of formal employees and 57-58% for both informal employees and the self employed) said that they will need greater knowledge. While respectively 84.6%, 78.2% and 80.2% of these categories said that they believe that without new knowledge there is a big risk of losing the current occupation.

Linkages between the formal and informal sectors - Our main finding here is that many characteristics found in the legal labor market in Brazil are also found in the illegal segment. Furthermore, this similarity appears to be largely influenced by labor market regulations set by the government. In other words, we show that labor laws affect not only the regulated sector, but the "unregulated" sector as well. In most cases, we find that the typical kinks and corners produced by legislation on wages, hours, and payment practices are also present in the informal labor market segment. The main difference between informal and formal employees is in their relationship – and hence of their employers – with the government in terms of payroll taxes (the main one being social security contributions). While the employers of about 95% of workers classified as formal (having a ratified work contract) had paid INSS dues, this ratio was less than 5% for informal employees and 15% for the self-employed.

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I. Introduction

i. Objective

Brazil has a substantial share – about 60% by some measures - of its employees working without labor registry and 62% of its private sector workers not contributing to social security. Informality is important because its job precaurioness, social desprotection consequences, and it is also very correlated with poverty and other social welfare concepts measured at a family level. 58% of the country population that is found below the indigent line live in families headed by informal workers.

The complexity of the informal sector as subsisting in a continuum with the formal sector cannot be left out. As (ILO 2001) puts it: "Frequently we find legally established workes with lower job quality than many informal jobs. In other words, not all informal sector jobs is "indecent"". The problem occurs when there are multiple relevant dimensions to quantify a job quality. When one overlaps many yes or no (or black and white) classifications we get various maybes (or tones of grey). To make matters even more complex, many isolated aspects of the so-called informal sector are not discrete, but continuos[2]. Futhermore, these aspects change frequently over time. Finally, the basis used for targeting policy and programme interventions are quite different for different perspectives on how to view informality such as lowering job precaurioness, decreasing occupational risks, increasing the degree of protection against adverse shocks (idiossincratic or aggregate), allowing that good oportunities to be taken by the credit provision, improving informal workers family living conditions, implementing afirmative actions, reducing tax evasion etc.

The problem addressed in this report is to gauge various aspects of the informal sector activities. Our artistic constraint are the available sources of information. The final purpose is to help the design of policies aimed to assist those that hold "indecent" jobs.

ii. Brazilian characteristics

Brazil's experience over the last decades offers special conditions to analyze the causes and consequences of low quality jobs and informality.

- First, labor markets surveys in Brazil have traditionally asked direct questions if employees possess or not working permits (*carteira de trabalho*) allowing us to

[2] . For example, a formal worker may contribute a small part of what he should be paying according to the law.

distinguish formal from informal employees. Some of these surveys also ask if workers, in general, contribute or not to social security.

- Second, Brazil is very well served in terms of large household surveys that offer the possibility of following the same individuals through short periods of time. This longitudinal aspect allow us to analyze changes in several labor market outcomes at an individual level. The changing nature of jobs attributes will be captured using panel data.
- Third, there are very detailed surveys available on the functioning of small firms (below five employees) at a national urban level. Since the emphasis o fthe report are workers conditions we will use these surveys as a way to gauge working condition. There are also similar surveys that investigate these characteristics at low income communities (*favelas*) where poverty can be defined at a spatial level.
- Fourth, Brazil offers not only a regulated labor market, but these regulations also change from time to time offering 'natural experiments' to study the effects of regulation on informality. The high instability of macro and microeconomic enviroment also offers a lot of variation to explain.
- Finally, and perhaps most importantly, the size of the country combined with the increasing profusion of various local initiatives generate a rich laboratory to study the outcomes of policies designed to foster informal jobs quality.

II. The informal sector in the 21st century: Changing nature and trends

1. Conceptual and measurement issues

i. Sources of Information:

We present below an overview of existing sources of microdata on informality and job quality in Brazil followed by detailed information of the databases used in this report.

Informal and Micro-entrepreneurial Activities - Data Sources Map:

Standard Household Surveys

PNAD 1976-99*

- Cross-section (100.000 per year)

-Detailed Maps: Spatial, Ocupational, Sectors, Firms Size

Health Supplement 98*

PPV

PME 1980-99*

- Cross-section (40.000 per month)

-Longitudinal

- Cohort

- Time Series

Social Capital Supplement 96*

POF 87/88 and 95/96

- Assets and Liabilities Data

Micro-entrepreneurial Surveys

INFORMAL ECONOMY*
ENCIF - 94 and 97

Poor Enterpreneurs

ROCINHA 97*

LOW INCOME SMALL COMMUNITIES*
98 and 99

Establishment Level Surveys

CADASTRO DE EMPRESAS - IBGE

CAGED, RAIS
Ministério do Trabalho

* Obs.: Micro-Data was used in the current report.

a. ***Pesquisa Nacional de Amostras a Domicilio - PNAD*** (an annual national household survey).

This is an annual household survey performed in the third quarter that interviews 100,000 households every year. It is conducted by Instituto Brasileiro de Geografia e Estatística - IBGE since 1967.

This survey has extensive information on personal and occupational characteristics of individuals. PNAD underwent a major revision between 1990 and 1992 increasing the size of the questionnaire from 60 to 130 questions. The new questionnaire that is available for 1992, 1993, 1995, 1996 and 1997 has retrospective information on on previous working classes and sectors activitities that also allow us to estimate transition probabilities into and out of self-employment on an national basis.

b. ***Pesquisa Mensal do Emprego - PME*** : This monthly employment survey is performed in the six main Brazilian metropolitan regions by IBGE. It covered an average of 40000 monthly households since 1980. This survey has also detailed characteristics on personal and occupational characteristics of all household members. PME replicates the US Current Population Survey (CPS) sampling scheme attempting to collect information on the same dwelling eight times during a period of 16 months. More specifically, PME attempts to collect information on the same dwelling during months t, t+1, t+2, t+3, t+12, t+13, t+14, t+15. This short-run panel characteristic will allow us to assess occupational mobility and to study the closest determinants of movements into and out of informal activities. PME large sample size combined with its high frequency also allow us to construct monthly time series on earnings based social indicators at a reasonably detailed level of desegregation.

c. ***ENCIF 94 and 97 :*** This survey collected data on small business and on self-employed units in the Rio de Janeiro metropolitan region during the second semester of 1994. This survey was extended in 1997 to all Brazilian urban areas. The data collection process was done in two steps: first, a standard household survey that while collecting personal characteristics of the target population mapped where the small firms (less

than five employees) are located. The second and most important part of the survey studied in detail the operation of small business and self-employed units. The survey included questions related to volume of sales, volume of imputes bought, volume of investments made, value of equipment, credit sources, future plans, technical assistance received, number of employees hired, sectors of activity, duration, place of operation, etc. We will emphasize here the worker dimension so microentreprises surveys will be only used as a way to gauge jobs quality.

d. ***Rocinha 97:*** the surveys regularly conducted by IBGE – the Brazilian Central Statistical Office mentioned above cannot be expected to provide such detailed information on a local level. The target population was composed of business establishments located in residential and non-residential housing within the largest slum of Rio de janeiro: Rocinha.

   The survey collected information on the revenue, employment, wages, sales, expenditure, and other economic variables, of the business establishments, located in the various communities. In addition, information about the business organization and the characteristics of the proprietors (and employees) was also collected, as was their future business plans.

e. ***Census of Business Establishments of the Slums of Rio de Janeiro (CBR) -*** Between March of 1998 and March of 2000 a specific household survey and a census of business establishments were carried out in 51 slums of the city of Rio de Janeiro. The objective of the establishment census was to identify the basic structural characteristics of economic units located in the communities.

   A difficult part of the census was the detection of the establishments operating within households but not visible from the outside. In such environments it is not unusual to find small informal counters set up as storefronts extending from living rooms, garages and front porches. These were all targeted by this census. For that reason, a definition of the target population is in some sense peculiar. Establishments that are within the scope of the survey were those, which are located in non-residential housing or in residential ones with at least one independent entranceway from the rest of the

household, and also those having counters or windows through which business is conducted separate from domestic affairs. Therefore, an important issue involved in this survey was what to consider an establishment and how to define it in terms of the survey.

f. ***Pesquisa de Orçamentos Familiares - POF:*** This consumer expenditure survey was performed only twice in 1987 and 1996 by IBGE. It covers the eleven main Brazilian metropolitan regions. Besides information on personal and occupational characteristics of individuals, the survey has a very broad and desegregated data on income sources, consumption expenditures and on how durable goods purchases are financed. POF also has data on the access to financial services (credit cards, checking accounts etc.) and how much they do contribute to social security.

g. ***Pesquisa de Padrões de Vida - PPV:*** The Brazilian version of the Living standard measurement survey (LSMS) was implemented only once in 1995-96 in a joint project between the World Bank and IBGE. Even tough, PPV data has already been processed, we did not warrant its use for this project at this point.

PPV sample of 5000 covers only the densely populated north-east and south-east regions. Like PNAD, this survey also has detailed information on personal and occupational characteristics of individuals. PPV has detailed information on personal and occupational characteristics of individuals, on the possession of durable goods and on housing conditions. PPV questionnaire has special sections devoted to consumption (at a desegregated level), to individual financial behavior, to micro-enterprises and self-employment finance.

ii. Definitons:

The literature on Brazilian labor markets often groups together self-employed units and illegal employees and label them as the informal sector. The unifying feature according to this classification would be the precariousness level of these occupations. Both of these ways of splitting formal and informal sectors are not in line with questions on working

class implicit in labor market and household surveys questionnaires which constitute the main source of information used here. According to the typical survey questionnaire self-employed would be much closer to employers in terms of contractual labor relations. The basic distinction between self-employed and employers is the fact that the former does not hire labor. There is an extensive empirical literature for the US and the UK that uses the movements towards self-employed as a proxy for the creation of enterpreneurship in the economy.

In Brazil, formal employment usually implies that the worker is an employee with a signed employment booklet (*card*). Informal employment in Brazil is understood to imply that the worker is an employee without a signed employment booklet (*no card*), which means that the employment relation is not registered with the Ministry of Labor and is therefore not legally covered by the labor code (meaning that the worker probably does not receive certain benefits and protections).

Unemployment is usually a narrowly defined concept: the worker must have looked for work in the week prior to the interview, and not be engaged in any employed activity. Any worker who is not employed and has not undertaken such a search is defined as inactive. This category is, as a consequence, more heterogeneous than the others, comprising anyone from the leisure-seeking plutocrat to the discouraged jobless. We follow other definitions recomended by ILO and separate unemployed and inactive workers in the analysis.

This report also uses as key elements to characterize empirically the decency of jobs a vast array of attributes such as questions related to the degree of social security evasion, various forms of fiscal evasion, jobs precariousness level, occupational and work related health risks measures at an individual level and low living conditions at family levels. The informal sector is perceived as a continuum with the formal sector working conditions.

2. Magnitude, heterogeneity and size: sub-regional variations

i. Social Security Perspective

An initial way to segment workers between formal and informal occupations is to use social security contribution. Instead of using the more tradidional working class criteria

which divides employees according to having or not a registry in the Labor Ministry (MTE) to the new criteria that uses register in the Social Security Ministry (MPAS). This later category is perhaps more appropriate to analyze social protection and fiscal evasion issues.

a. *What is the size of the unprotected sector in Brazil? How did it evolved across time?*

According to PNAD 99, the latest survey available at a national level, there are 63.7 million individuals occupied in the private sector. The rate of social security evasion amounted to 62% against 52.8% found in 1985.

Table 1

INFORMALITY AS EVASION FROM SOCIAL SECURITY - BRAZIL

	Evasion Rate		Private Occupied Population (1000`s)	
	1985	1999	1985	1999
Total	0.53	0.62	53628	63742
Gender				
Male	0.51	0.59	35712	39203
Female	0.56	0.66	17916	24540
Family Status				
Head	0.43	0.56	25732	30841
Spouse	0.57	0.69	7820	13218
Son/Daugther	0.65	0.67	16982	16543
Other relatives	0.54	0.64	1932	2336
Aggregated members	0.59	0.65	240	269
Pensioner	0.24	0.37	191	93
Domestic servant	0.77	0.63	731	439
Domestic servant relative	1.00	0.10	0	2
Age				
Less than 15 years	0.94	0.98	4055	3424
15 to 20 years	0.70	0.72	7970	7536
20 to 25 years	0.47	0.54	8257	8389
25 to 30 years	0.40	0.52	7347	7939
30 to 35 years	0.40	0.53	6449	7924
35 to 40 years	0.42	0.54	5392	7361
40 to 45 years	0.44	0.56	4330	6186
45 to 50 years	0.48	0.59	3427	4826
50 to 55 years	0.52	0.66	2544	3647
55 to 60 years	0.56	0.71	1815	2635
60 to 65 years	0.64	0.79	1122	1733
65 to 70 years	0.75	0.87	528	1126
More than 70 years	0.78	0.92	393	1017
Years of Schooling				
0 years	0.83	0.86	10260	8410
0 to 4 years	0.70	0.80	11324	11487
4 to 8 years	0.51	0.66	17376	20949
8 to 12 years	0.24	0.44	10582	18120
More than 12 years	0.10	0.27	3850	4777
Sector of Activity				
Agriculture	0.93	0.90	14430	16474
Constuction	0.51	0.72	3099	4523
Public Sector	0.12	0.36	5731	1551
Service	0.47	0.54	21245	31877
Industry	0.30	0.38	9122	9318
Population Density				
Rural	0.86	0.86	15454	16538
Urban	0.46	0.59	21541	29552
Metropolitan	0.30	0.44	16632	17652
Region				
Center	0.80	0.69	5001	4927
Northeast	0.32	0.82	12551	18230
North	0.36	0.75	5179	2190
Southeast	0.52	0.49	9298	27419
South	0.59	0.55	6820	10977
Income Quintile				
1 (poorest)	0.96	0.96	11727	13899
2	0.69	0.83	11257	13282
3	0.49	0.53	11080	11519
4	0.25	0.42	9802	13488
5 (richest)	0.16	0.29	9761	11554

Source: PNAD/IBGE Elaboration: CPS/IBRE/FGV

b. *How heterogeneous are desprotection rates among socio-economic groups?*

Bivariate analysis

As expected the rate of informality is higher for females 66% than for males 59%. The rate of growth during the 1985-99 period were also higher for females. Access of heads to social security (56%) is samller than for other groups, except for the small group pensioners. Heads are normally the main income earner in the household, so the existence of insurance against as unemployment shocks, maternity and old age plays a crucial role there. The age profile of social security evasion rates presents an U-shaped format. It falls rapidly from 72% for the 15-20 years old groups to its lowest level corresponding to 52% in the 25-30 years old group and rising to 87% in the 65-70 years of age. The rate of social security evasion falls monotonically with schooling levels - departing from 0.86% among illiterates - and income quintiles - departing from 0.96% in the first quintile. The highest levels of evasion among economy sectors are found in agriculture (90%) and construction (72%). Finally, in spatial terms the highest levels of evasion are found among workers in rural areas (86%) and in the Northeast region (82%).

Multivariate analysis

When we control for all attributes mentioned above simultaneously, by means of a logistic regression of the probability of evasion, most of the individual attributes effects becomes milder. This is because, there is a positive correlation between characteristics that lead to social security evasion[3]. For example, spouses are more likely to be females. The controled gender effect is almost zero. The only exception are most of sector of activity classes where the controled effects are greater than total effects. Once we control for other attibutes the chances of evasion are higher in construction and services than if we do not implement these controls.

We observe only a few inversions of the sign when we perform the controled experiment[4]. The most prominent examples are domestic servants as family status and the south region.

[3] Manifested through an unconditional odds ratio futher from unity than its respective conditional odds ratio.

[4] This is captured by a switch from unconditional odds ratio above one to a conditional odds ratio below one, or vice-versa.

Table 2

LOGISTIC MODEL - 1999
Does Not Contribute to Social Security
OCCUPIED

Sample : Occupied population in the private sector

		Estimate	t-statistic		PRED	Odds Ratio Condicional	Odds Ratio Not Condic.	Prop	Standard error	Total Pop. (%)
Gender	**Female**	-0.0004	-0.44		0.5004	0.9996	1.3353	0.66	0.0019	38.50
Family Status	**Spouse**	0.2674	243.09	**	0.5669	1.3066	1.7838	0.69	0.0025	20.74
	Son/Daugther	-0.0089	-8.90	**	0.4983	0.9911	1.6360	0.67	0.0023	25.95
	Other relatives	-0.0296	-16.44	**	0.4931	0.9708	1.3978	0.64	0.0063	3.67
	Aggregated members	0.2323	46.46	**	0.5583	1.2615	1.5024	0.65	0.0178	0.42
	Pensioner	-0.0668	-8.79	**	0.4838	0.9354	0.4669	0.37	0.0300	0.15
	Domestic servant	-0.4789	-129.43	**	0.3830	0.6195	1.3750	0.63	0.0131	0.69
Age	**Less than 15 years**	1.6734	408.15	**	0.8423	5.3303	29.1580	0.98	0.0005	5.37
	15 to 20 years	0.2878	169.29	**	0.5719	1.3335	1.7864	0.72	0.0031	11.82
	20 to 25 years	-0.1421	-94.73	**	0.4650	0.8675	0.8313	0.54	0.0036	13.16
	25 to 30 years	-0.1460	-104.29	**	0.4640	0.8642	0.7743	0.52	0.0037	12.45
	30 to 35 years	-0.1130	-80.71	**	0.4723	0.8932	0.8054	0.53	0.0037	12.43
	35 to 40 years	-0.1078	-77.00	**	0.4735	0.8978	0.8165	0.54	0.0038	11.55
	40 to 45 years	-0.0463	-30.87	**	0.4889	0.9548	0.8858	0.56	0.0042	9.71
	50 to 55 years	0.1143	67.24	**	0.5290	1.1211	1.3498	0.66	0.0050	5.72
	55 to 60 years	0.1892	94.60	**	0.5476	1.2083	1.7442	0.71	0.0054	4.13
	60 to 65 years	0.4906	196.24	**	0.6207	1.6333	2.7060	0.79	0.0053	2.72
	65 to 70 years	0.9734	286.29	**	0.7262	2.6469	4.6895	0.87	0.0047	1.77
	More than 70 years	1.2514	284.41	**	0.7779	3.4952	8.2908	0.92	0.0031	1.60
Years of Schooling	**0 years**	1.0698	594.33	**	0.7449	2.9148	16.2073	0.86	0.0018	13.19
	0 to 4 years	0.9486	592.88	**	0.7212	2.5821	10.4473	0.80	0.0020	18.02
	4 to 8 years	0.8023	573.07	**	0.6909	2.2307	5.1431	0.66	0.0021	32.87
	8 to 12 years	0.3573	274.85	**	0.5888	1.4295	2.0770	0.44	0.0024	28.43
Sector of Activity	**Agriculture**	1.3277	948.36	**	0.7908	3.7724	14.5258	0.90	0.0010	25.84
	Constuction	1.6709	1,193.50	**	0.8419	5.3170	4.1568	0.72	0.0039	7.10
	Public Sector	0.4483	213.48	**	0.6107	1.5656	0.9399	0.36	0.0076	2.43
	Service	0.7482	831.33	**	0.6792	2.1132	1.9534	0.54	0.0018	50.01
Populacion Density	**Rural**	0.4149	345.75	**	0.6027	1.5142	7.9461	0.86	0.0013	25.94
	Urban	0.1583	226.14	**	0.5400	1.1715	1.8452	0.59	0.0020	46.36
Region	**Center**	0.5196	433.00	**	0.6275	1.6814	2.3092	0.69	0.0033	7.73
	Northeast	0.7135	792.78	**	0.6716	2.0411	4.9057	0.82	0.0014	28.60
	North	1.0400	577.78	**	0.7392	2.8292	3.1858	0.75	0.0044	3.44
	South	-0.1037	-115.22	**	0.4746	0.9015	1.2978	0.55	0.0030	17.22
Quintile	**1º**	2.9608	1,644.89	**	0.9509	19.3134	65.7065	0.96	0.0004	21.80
	2º	1.6492	1,374.33	**	0.8390	5.2028	11.5622	0.83	0.0016	20.84
	3º	0.4901	445.55	**	0.6206	1.6325	2.7961	0.53	0.0030	18.07
	4º	0.2772	277.20	**	0.5693	1.3194	1.7642	0.42	0.0028	21.16

	DF	Value	Value/DF
Number of observations : 137665 ; Log Likelihood : ; Pearson Chi-Square :	28000	14671448	517

i)Statistically different from zero: *90% **95%.

iii) Omitted dummies:male, head, 45-50 years of age, more than 12 years of schooling, industry, metropolitan, Southeast and 5º quintile.

	Univariate Analysis	%
Does not contribute	39,489,843	62.0
Contribute	24,252,466	38.0

Source : PNAD/IBGE **Elaboration : CPS\IBRE\FGV**

Table 3

LOGISTIC MODEL - 1985
Does Not Contribute to Social Security
OCCUPIED

Sample : Occupied population in the private sector

		Estimate	t-statistic		PRED	Odds Ratio Condicional	Odds Ratio Not Condic.	Prop	Standard error	Total Pop. (%)
Gender	**Female**	-0.0869	-72.42	**	0.4790	0.9168	1.2385	0.56	0.0018	33.41
Family Status	**Spouse**	0.6642	442.80	**	0.6609	1.9429	1.7492	0.57	0.0027	14.58
	Son/Daugther	0.2008	154.46	**	0.5507	1.2224	2.5224	0.65	0.0018	31.67
	Other relatives	0.1342	61.00	**	0.5342	1.1436	1.5501	0.54	0.0055	3.60
	Aggregated members	-0.0224	-3.61	**	0.4951	0.9778	1.9207	0.59	0.0155	0.45
	Pensioner	-0.1378	-20.57	**	0.4663	0.8713	0.4200	0.24	0.0132	0.36
	Domestic servant	0.2564	73.26	**	0.5645	1.2923	4.5193	0.77	0.0058	1.36
Age	**Less than 15 years**	1.5736	491.75	**	0.8287	4.8240	18.0679	0.94	0.0009	7.56
	15 to 20 years	0.7559	359.95	**	0.6811	2.1295	2.4605	0.70	0.0024	14.86
	20 to 25 years	0.2161	113.74	**	0.5545	1.2412	0.9332	0.47	0.0027	15.40
	25 to 30 years	0.1235	65.00	**	0.5316	1.1315	0.7233	0.40	0.0028	13.70
	30 to 35 years	0.0425	22.37	**	0.5113	1.0434	0.7051	0.40	0.0029	12.03
	35 to 40 years	0.0314	15.70	**	0.5086	1.0319	0.7888	0.42	0.0033	10.05
	40 to 45 years	-0.0635	-31.75	**	0.4849	0.9385	0.8393	0.44	0.0037	8.07
	50 to 55 years	-0.0407	-17.70	**	0.4906	0.9601	1.1397	0.52	0.0050	4.74
	55 to 60 years	-0.0461	-17.73	**	0.4892	0.9549	1.3505	0.56	0.0058	3.38
	60 to 65 years	0.1446	46.65	**	0.5368	1.1556	1.8867	0.64	0.0071	2.09
	65 to 70 years	0.5212	115.82	**	0.6281	1.6840	3.2827	0.75	0.0083	0.98
	More than 70 years	0.2787	52.58	**	0.5699	1.3214	3.7688	0.78	0.0090	0.73
Years of Schooling	**0 years**	1.5226	634.42	**	0.8213	4.5841	45.0600	0.83	0.0014	19.13
	0 to 4 years	1.2126	551.18	**	0.7713	3.3622	21.5914	0.70	0.0020	21.12
	4 to 8 years	0.8465	403.10	**	0.7004	2.3315	9.5450	0.51	0.0019	32.40
	8 to 12 years	0.2489	118.52	**	0.5626	1.2826	2.9014	0.24	0.0017	19.73
Sector of Activity	**Agriculture**	2.7018	1,688.63	**	0.9373	14.9065	30.5146	0.93	0.0006	26.91
	Constuction	1.1389	711.81	**	0.7580	3.1233	2.4069	0.51	0.0043	5.78
	Public Sector	-0.8648	-480.44	**	0.2969	0.4211	0.3216	0.12	0.0013	10.69
	Service	0.7749	704.45	**	0.6852	2.1704	2.0364	0.47	0.0016	39.62
Populacion Density	**Rural**	0.5826	416.14	**	0.6423	1.7907	14.6025	0.86	0.0010	28.82
	Urban	0.1099	109.90	**	0.5282	1.1162	1.9817	0.46	0.0018	40.17
Region	**Center**	1.0046	528.74	**	0.7325	2.7308	3.6886	0.80	0.0023	9.32
	Northeast	0.1404	108.00	**	0.5358	1.1507	0.4439	0.32	0.0025	23.40
	North	0.4011	250.69	**	0.5996	1.4935	0.5311	0.36	0.0036	9.66
	South	0.3917	261.13	**	0.5974	1.4795	1.3159	0.59	0.0028	12.72
Quintile	**1º**	3.1520	1,576.00	**	0.9591	23.3828	112.6416	0.96	0.0004	21.87
	2º	1.3087	872.47	**	0.7878	3.7014	11.4644	0.69	0.0020	20.99
	3º	0.7646	546.14	**	0.6830	2.1481	4.9643	0.49	0.0023	20.66
	4º	0.1550	110.71	**	0.5394	1.1677	1.7791	0.25	0.0019	18.28

	DF	Value	Value/DF
Number of observations : 207577 ; Log Likelihood : -20216866.35 ; Pearson Chi-Square :	37000	14761378	398

i)Statistically different from zero: *90% **95%.

iii) Omitted dummies:male, head, 45-50 years of age, more than 12 years of schooling, industry, metropolitan, Southeast and 5º quintile.

	Univariate Analysis	%
Does not contribute	28,327,397	52.8
Contribute	25,300,605	47.2

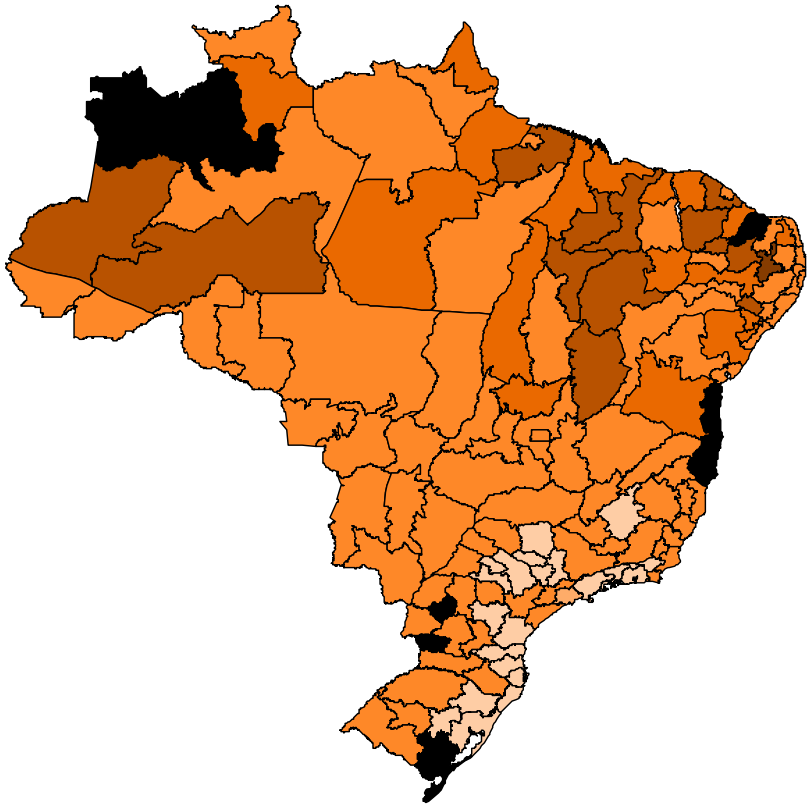
Source : PNAD/IBGE **Elaboration : CPS\IBRE\FGV**

c. *Where social security evasion is most likely to occur?*

We use as a geographical unities meso-regions of states. We answer this spatial question in two steps, ploting maps for the conditional and the unconditional effects. The unconditional comes directly from the evasion rate found in the private sector of each region. While the conditional analysis plots the dummies for each mesoregion once the other variables are taken into analysis in a regression similar to the ones presented above.

Map 1

Does not Contribute to Social Security
not Conditional Odds Ratio
Occupied Population in the Restricted Private Sector



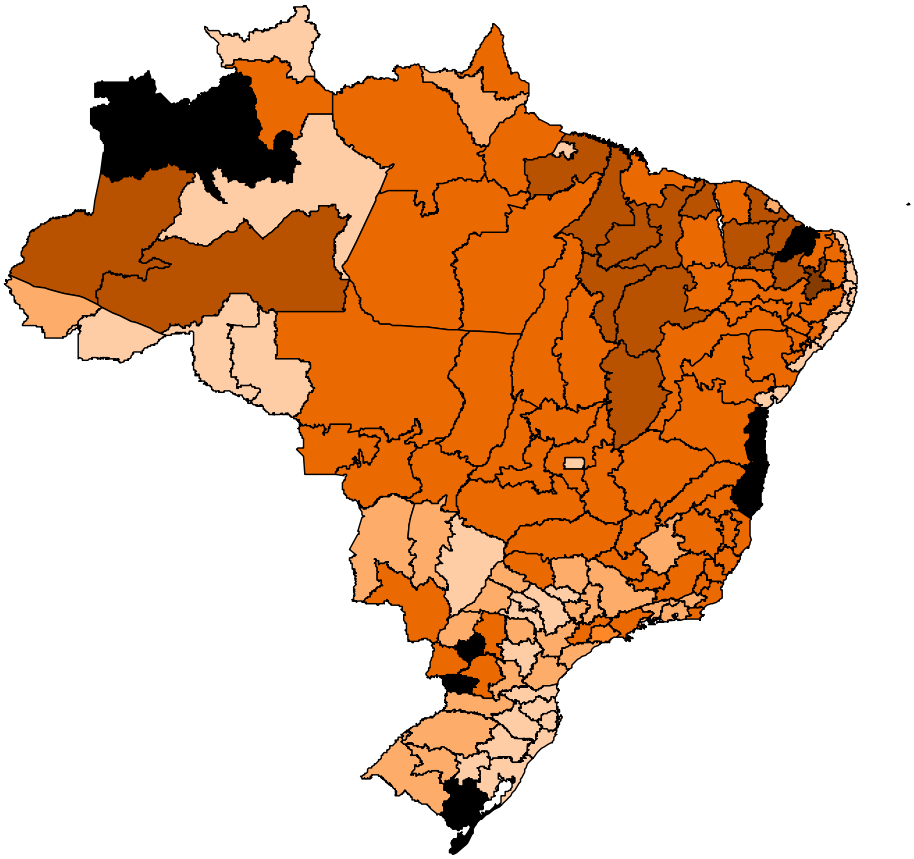
ODDS Ratio - Does not contribute to Social Security

- No Information
- 0 - 0.999
- 1
- 1.001 - 6.089
- 6.089 - 14.169
- 14.169 - 37.656
- 37.656 - 252.46

Source: PNAD 96, 97, 98 e 99/IBGE Elaboration: FGV/IBRE/CPS

Map 2

Does not Contribute to Social Security
Conditional Odds Ratio
Occupied Population in the Restricted Private Sector



ODDS Ratio - Does not contribute to Social Security

- No Information
- 0 - 0.783
- 0.783 - 0.999
- 1
- 1.001 - 2.662
- 2.662 - 7.815
- 7.815 - 43.41

Source: PNAD 96, 97, 98 e 99/IBGE Elaboration: FGV/IBRE/CPS

ii. Labor Market Perspective

We move now from the more straight-forward social security perspective into a working class perspective.Before we do that, it is interesting to note how these perspectives overlap. The rate of evasion from social security found among employees with no card is 95% and among the self-employed 85%.

a. *How big is the informal sector?*

According to PNAD 99, there are 71 million occupied individuals which corresponds to 44.7% of the total population. When restricting the analysis to active age individuals (AAI - 15 to 65 years of age) this statistics reaches 64.4%. The working class structure of the AAI population reveals that 23% are employees with card , 11% are public servants and 4.1% are employers. The remainder 62% can be roughly refered in most classifications as the informal sector: 23.4% are self employed, 11.2% are unpaid employees, 11.1% private sector employees with no card, 7.6% domestic servants and 6.5% agricultural workers.

Table 4

WORKER PROFILE - 1999
TOTAL POPULATION
BRAZIL

					A CLASS
		Total Population	**AAI (15 to 65 years)**	**Occupied (10 years or more)**	**AAI (15 to 65 years)**
Total		158,662,823	102,878,434	70,951,418	14,900,793
Working Class	**Unemployed**	7,553,547	7,231,978	-	811,914
	Inactive	50,282,242	29,376,391	-	4,483,748
	Employees (w/card)	16,368,307	16,278,484	16,365,261	2,907,779
	Employees (no card)	7,711,263	7,357,919	7,711,002	860,920
	Self - Employed	16,472,857	15,393,123	16,472,014	1,935,804
	Employer	2,875,523	2,708,257	2,874,681	1,048,833
	Public Servant	7,790,303	7,697,738	7,788,645	1,741,881
	Unpaid	9,957,871	534	9,957,029	-
	Agricultural worker	4,513,077	4,304,947	4,512,543	98,471
	Domestic worker	5,267,071	5,061,841	5,265,666	414,891
	Unknow	1,109	1,109	1,109	-

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

Table 5

WORKER PROFILE - 1999
TOTAL POPULATION (% COMPOSITION)
BRAZIL

		Total Population	AAI (15 to 65 years)	Occupied (10 years or more)	A CLASS AAI (15 to 65 years)
Total		100.00	100.00	100.00	100.00
Working Class	**Unemployed**	4.76	7.03	-	5.45
	Inactive	31.69	28.55	-	30.09
	Employees (w/card)	10.32	15.82	23.07	19.51
	Employees (no card)	4.86	7.15	10.87	5.78
	Self - Employed	10.38	14.96	23.22	12.99
	Employer	1.81	2.63	4.05	7.04
	Public Servant	4.91	7.48	10.98	11.69
	Unpaid	6.28	0.00	14.03	-
	Agricultural worker	2.84	4.18	6.36	0.66
	Domestic worker	3.32	4.92	7.42	2.78
	Unknow	0.00	0.00	0.00	-

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

b. *What is the size of earnings and schooling differentials?*

Earnings differentials between formal and informal sectors are quite high 83% between employees with card compared with those without card and 284% of employers as compared to the self-employed. Average completed years schooling differences found are high but tipically do not explain all earnings differences. When compared to the whole AAI population relative earnings and schooling differentials of the so-called informal workers are: -2.3% and -19% for the self employed, minus infinity (naturally) and -39% for unpaid employees, -29.9% and 1.67% for private employees without card, - 62% and -30% for domestic servants and - 64% and -57% for agricultural workers.

Table 6

WORKER PROFILE - 1999
EARNINGS
BRAZIL

		Total Population	AAI (15 to 65 years)	Occupied (10 years or more)	A CLASS AAI (15 to 65 years)
Total		190.75	287.45	429.44	670.69
Working Class	**Unemployed**	-	-	-	-
	Inactive	-	-	-	-
	Employees (w/card)	567.26	566.48	567.28	992.32
	Employees (no card)	310.69	317.70	310.69	641.38
	Self - Employed	425.57	438.02	425.58	1,020.68
	Employer	1,633.46	1,620.92	1,632.98	2,268.44
	Public Servant	703.92	704.63	703.95	1,241.43
	Unpaid	-	-	-	-
	Agricultural worker	192.33	196.57	192.33	677.88
	Domestic worker	166.60	169.42	166.59	233.45
	Unknow	-	-	-	-

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

Table 7

WORKER PROFILE - 1999
RELATIVE EARNINGS
BRAZIL

		Total Population	AAI (15 to 65 years)	Occupied (10 years or more)	A CLASS AAI (15 to 65 years)
Total		100.00	100.00	100.00	100.00
Working Class	**Unemployed**	-	-	-	-
	Inactive	-	-	-	-
	Employees (w/card)	297.38	197.07	132.10	147.96
	Employees (no card)	162.88	110.52	72.35	95.63
	Self - Employed	223.10	152.38	99.10	152.18
	Employer	856.34	563.90	380.26	338.22
	Public Servant	369.03	245.13	163.92	185.10
	Unpaid	-	-	-	-
	Agricultural worker	100.83	68.38	44.79	101.07
	Domestic worker	87.34	58.94	38.79	34.81
	Unknow	-	-	-	-

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

Table 8

WORKER PROFILE - 1999
AVERAGE COMPLETED YEARS OF SCHOOLING
BRAZIL

		AAI (15 to 65 years)	Self - Employed	Employees (no card)	Agricultural Worker	Domestic Servant	Unpaid
Total		6.94	5.78	7.27	3.08	5.02	4.35
Gender	**Male**	6.597	5.29	6.51	3.04	4.29	4.86
	Female	7.27	6.98	9.17	3.44	5.08	4.08
Family Status	**Head**	6.42	5.20	6.22	2.62	4.34	3.86
	Spouse	6.70	6.84	8.15	2.98	4.68	3.71
	Son/Daugther	8.03	7.19	8.24	4.26	6.70	5.40
	Other relatives	6.39	5.82	6.76	3.34	5.44	3.53
	Aggregated members	6.95	6.47	7.21	2.27	6.86	4.63
	Pensioner	10.06	12.55	7.23	3.15	4.90	7.91
	Domestic servant	5.24	-	-	-	5.24	-
	Domestic servant relative	5.87	-	-	-	6.93	-
Age	**Less than 15 years**	5.61	4.71	5.70	3.94	4.94	4.36
	15 to 20 years	7.42	6.19	7.70	4.57	6.23	5.50
	20 to 25 years	8.19	6.46	8.27	3.75	6.63	5.70
	25 to 30 years	7.80	6.72	7.38	3.50	5.53	4.95
	30 to 35 years	7.56	6.80	6.85	3.18	4.93	4.37
	35 to 40 years	7.19	6.46	6.84	2.65	4.57	4.22
	40 to 45 years	6.88	5.83	6.86	2.55	4.33	3.73
	45 to 50 years	6.42	5.50	6.25	1.83	3.62	3.27
	50 to 55 years	5.33	4.65	6.25	1.65	3.00	2.62
	55 to 60 years	4.64	3.74	5.28	1.25	2.61	2.29
	60 to 65 years	3.76	3.08	5.10	1.15	2.29	2.31
Years of Schooling	**0 years**	-	-	-	-	-	-
	0 to 4 years	2.25	2.19	2.28	2.17	2.32	2.17
	4 to 8 years	5.02	4.82	5.23	4.71	4.95	4.81
	8 to 12 years	9.67	9.63	9.59	8.99	9.07	9.33
	More than 12 years	21.24	21.57	21.88	35.94	82.31	27.59
Race	**Indigenous**	5.52	3.84	7.24	2.64	3.90	1.89
	White	8.07	7.01	8.27	3.89	5.60	5.38
	Black	5.50	4.31	6.08	2.52	4.56	3.38
	Asian	10.72	9.74	13.46	4.39	4.70	8.11
Immigration Status	**Less than 4 years**	7.23	6.81	7.13	3.41	5.12	5.79
	5 to 9 years	7.12	6.44	7.58	3.83	4.79	5.70
	More than 10 years	6.57	5.69	6.55	2.85	4.56	4.25
	No immigrant	7.14	5.69	7.57	3.01	5.52	4.24
Sector of Activity	**Agriculture**	3.25	2.71	-	3.01	-	3.52
	Industry	7.37	4.55	6.54	2.89	-	5.68
	Constuction	4.94	4.62	4.81	-	-	5.69
	Public Sector	11.40	10.01	9.63	5.73	-	13.49
	Service	8.02	7.31	8.08	-	5.02	7.58
Employment Tenure	**Up to 1 year**	6.71	7.00	7.37	3.13	5.16	5.64
	1 to 3 years	7.58	6.68	7.46	3.59	5.46	5.39
	3 to 5 years	7.54	6.62	7.19	3.41	5.26	4.75
	More than 5 years	6.81	4.97	6.67	2.63	4.05	3.62
Populacion Density	**Rural**	3.98	2.96	5.65	2.74	4.27	3.47
	Urban	7.19	6.13	7.07	3.55	5.19	5.83
	Metropolitan	8.32	7.93	8.01	5.32	5.04	6.89
Region	**Center**	6.72	5.98	6.86	3.44	4.97	4.89
	Northeast	5.24	3.73	6.07	1.89	3.94	3.14
	North	6.86	5.40	6.68	3.07	5.14	4.76
	Southeast	7.85	7.33	7.92	3.54	5.39	5.27
	South	7.37	6.68	7.74	4.35	5.35	5.78

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

Table 9

WORKER PROFILE - 1999
RELATIVE AVERAGE COMPLETED YEARS OF SCHOOLING
BRAZIL

		AAI (15 to 65 years)	Self - Employed	Employees (no card)	Agricultural Worker	Domestic Servant	Unpaid
Total		100.00	100.00	100.00	100.00	100.00	100.00
Gender	**Male**	95.04	91.65	89.59	98.45	85.43	111.74
	Female	104.68	120.92	126.14	111.59	101.04	93.91
Family Status	**Head**	92.45	90.04	85.57	84.86	86.29	88.83
	Spouse	96.55	118.47	112.05	96.70	93.17	85.27
	Son/Daugther	115.69	124.55	113.32	138.13	133.39	124.05
	Other relatives	92.09	100.79	92.93	108.39	108.20	81.18
	Aggregated members	100.07	112.03	99.20	73.73	136.59	106.54
	Pensioner	144.98	217.32	99.47	102.04	97.54	181.97
	Domestic servant	75.53	0.00	0.00	0.00	104.36	0.00
	Domestic servant relative	84.52	0.00	0.00	0.00	137.98	0.00
Age	**Less than 15 years**	80.78	81.58	78.41	127.93	98.33	100.33
	15 to 20 years	106.91	107.16	105.84	148.39	124.06	126.48
	20 to 25 years	117.92	111.91	113.81	121.61	131.88	131.06
	25 to 30 years	112.41	116.38	101.57	113.68	110.07	113.88
	30 to 35 years	108.89	117.76	94.18	103.02	98.09	100.43
	35 to 40 years	103.53	111.86	94.12	86.09	91.03	97.00
	40 to 45 years	99.12	100.89	94.31	82.67	86.10	85.69
	45 to 50 years	92.51	95.17	85.89	59.42	72.13	75.22
	50 to 55 years	76.78	80.49	86.00	53.43	59.65	60.21
	55 to 60 years	66.90	64.71	72.58	40.59	52.01	52.57
	60 to 65 years	54.15	53.26	70.15	37.39	45.48	53.07
Years of Schooling	**0 years**	0.00	0.00	0.00	0.00	0.00	0.00
	0 to 4 years	32.38	37.96	31.37	70.25	46.08	49.92
	4 to 8 years	72.33	83.42	71.96	152.79	98.56	110.55
	8 to 12 years	139.34	166.73	131.95	291.75	180.54	214.56
	More than 12 years	305.98	373.43	300.97	1165.95	1638.20	634.32
Race	**Indigenous**	79.48	66.44	99.54	85.74	77.60	43.41
	White	116.27	121.41	113.73	126.07	111.36	123.72
	Black	79.17	74.57	83.65	81.58	90.73	77.72
	Asian	154.44	168.56	185.11	142.47	93.56	186.52
Immigration Status	**Less than 4 years**	104.22	117.94	98.07	110.60	101.84	133.05
	5 to 9 years	102.55	111.50	104.21	124.37	95.41	131.13
	More than 10 years	94.61	98.45	90.03	92.29	90.68	97.80
	No immigrant	102.85	98.50	104.08	97.76	109.89	97.41
Sector of Activity	**Agriculture**	46.76	46.94	0.00	97.78	0.00	80.90
	Industry	106.16	78.73	89.95	93.62	0.00	130.55
	Constuction	71.15	80.03	66.17	0.00	0.00	130.79
	Public Sector	164.21	173.34	132.44	185.72	0.00	310.13
	Service	115.60	126.54	111.07	0.00	100.00	174.19
Employment Tenure	**Up to 1 year**	96.60	121.26	101.37	101.46	102.69	129.75
	1 to 3 years	109.21	115.63	102.61	116.40	108.76	123.95
	3 to 5 years	108.65	114.59	98.86	110.63	104.74	109.12
	More than 5 years	98.17	86.12	91.77	85.24	80.64	83.27
Populacion Density	**Rural**	57.39	51.28	77.67	88.77	84.91	79.87
	Urban	103.52	106.10	97.18	115.30	103.35	134.14
	Metropolitan	119.90	137.24	110.13	172.60	100.40	158.38
Region	**Center**	96.82	103.56	94.38	111.66	98.85	112.53
	Northeast	75.44	64.56	83.55	61.35	78.42	72.28
	North	98.81	93.54	91.84	99.57	102.28	109.43
	Southeast	113.14	126.88	108.91	114.84	107.32	121.22
	South	106.24	115.58	106.50	141.04	106.48	132.85

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

c. Where are informal workers located?

We present below tables with the spatial distribution of the absolute number and the vertical composition of the population occupied in the informal sector. The geographical attributes used are states, city sizes and metropolitan areas. When we use city size we see that the share of informal sector jobs excedes occupied population shares in rural areas (31.6% and 24.55, respecively) and small cities (15.1%, 14.6%). The opposite occurs in larger cities: medium cities (14.2%, 15.2%), larger non metropolitan cities (15.7%, 17.8%), metropolitan suburbs (9.3%, 11%) and Metropolitan core (14%, 16.9%).

Table 10

WORKER PROFILE - 1999
POPULATION
BRAZIL

		Occupied (15 to 65 years)	Self-Employed	Employees (no card)	Agricultural Worker	Domestic Servant	Unpaid
Total		66,242,712	15,393,123	7,357,919	4,304,947	5,061,841	7,435,826
States	**Acre**	130,083	27,449	13,072	2,614	12,090	8,823
	Alagoas	922,185	224,037	86,343	131,505	48,537	133,189
	Amazonas	626,166	197,410	66,212	3,590	44,664	45,068
	Amapá	113,574	26,560	16,075	1,400	7,338	9,780
	Bahia	5,205,136	1,467,835	537,679	584,220	297,168	969,488
	Ceará	2,838,054	849,979	327,891	159,142	196,349	573,804
	Distrito Federal	784,129	113,388	84,769	12,439	84,987	18,455
	Espírito Santo	1,304,907	244,822	124,182	141,349	98,443	200,404
	Goiás	2,080,279	433,269	295,906	226,071	206,206	150,602
	Maranhão	2,272,764	993,468	151,564	97,209	114,506	530,498
	Minas Gerais	7,484,522	1,510,048	801,065	838,392	651,414	891,972
	Mato Grosso do Sul	889,163	176,480	97,409	119,261	81,972	110,249
	Mato Grosso	1,093,220	231,023	159,234	112,613	82,689	155,835
	Pará	1,196,127	352,349	193,285	45,473	100,416	115,399
	Paraíba	1,285,170	293,324	120,956	79,126	76,606	247,459
	Pernambuco	2,854,387	770,893	363,139	166,871	180,981	440,194
	Piauí	1,190,479	395,459	88,902	70,511	65,909	343,862
	Paraná	4,091,849	891,926	422,646	300,069	316,294	509,325
	Rio de Janeiro	5,457,978	1,248,683	640,421	89,189	545,508	80,165
	Rio Grande do Norte	993,579	232,514	123,656	62,554	68,967	108,863
	Rondônia	346,901	72,344	43,054	9,529	26,113	12,703
	Roraima	75,147	13,293	7,422	2,165	5,259	3,094
	Rio Grande do Sul	4,650,086	1,054,088	403,759	185,213	314,992	666,641
	Santa Catarina	2,421,899	498,463	184,377	106,437	131,447	385,036
	Sergipe	682,681	183,985	55,162	70,156	36,033	106,499
	São Paulo	14,772,568	2,780,618	1,890,126	630,472	1,226,533	546,844
	Tocantins	479,679	109,416	59,613	57,377	40,420	71,575
Location	**Metropolitan Core**	11,618,139	2,480,607	1,500,112	16,916	980,609	259,652
	Metropolitan Periphery	7,589,520	1,554,577	1,045,608	44,047	706,395	218,748
	Large Urban	12,235,211	2,647,877	1,620,919	115,938	1,028,083	478,783
	Medium Urban	10,258,949	2,332,866	1,372,796	509,560	950,126	587,473
	Small Urban	9,641,977	2,371,027	1,192,149	1,003,757	746,031	999,650
	Rural	14,898,916	4,006,169	626,335	2,614,729	650,597	4,891,520
Metropolitan area	**Salvador**	1,125,645	257,115	160,659	3,895	114,713	39,597
	Fortaleza	1,025,693	240,912	177,293	11,613	103,124	44,628
	Distrito Federal	784,129	113,388	84,769	12,439	84,987	18,455
	Belo Horizonte	1,698,146	305,719	218,655	10,627	185,256	55,679
	Belém	356,212	97,110	51,747	1,524	38,326	12,979
	Recife	1,142,839	298,876	163,634	16,368	102,479	56,689
	Curitiba	1,121,395	234,406	113,806	7,308	95,539	61,862
	Rio de Janeiro	4,145,395	969,039	472,711	6,744	389,517	39,351
	Porto Alegre	1,485,436	317,978	180,103	11,944	120,213	59,079
	São Paulo	6,961,320	1,332,489	1,003,382	21,046	530,298	157,417
	Not Specified	46,396,502	11,226,091	4,731,160	4,201,439	3,297,389	6,890,090

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

Table 11

WORKER PROFILE - 1999
POPULATION (% COMPOSITION)
BRAZIL

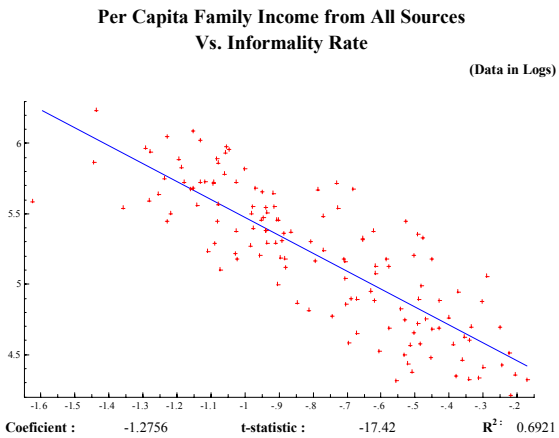
		Occupied (15 to 65 years)	Self-Employed	Employees (no card)	Agricultural Worker	Domestic Servant	Unpaid
Total		100.00	100.00	100.00	100.00	100.00	100.00
States	**Acre**	0.20	0.18	0.18	0.06	0.24	0.12
	Alagoas	1.39	1.46	1.17	3.05	0.96	1.79
	Amazonas	0.95	1.28	0.90	0.08	0.88	0.61
	Amapá	0.17	0.17	0.22	0.03	0.14	0.13
	Bahia	7.86	9.54	7.31	13.57	5.87	13.04
	Ceará	4.28	5.52	4.46	3.70	3.88	7.72
	Distrito Federal	1.18	0.74	1.15	0.29	1.68	0.25
	Espírito Santo	1.97	1.59	1.69	3.28	1.94	2.70
	Goiás	3.14	2.81	4.02	5.25	4.07	2.03
	Maranhão	3.43	6.45	2.06	2.26	2.26	7.13
	Minas Gerais	11.30	9.81	10.89	19.48	12.87	12.00
	Mato Grosso do Sul	1.34	1.15	1.32	2.77	1.62	1.48
	Mato Grosso	1.65	1.50	2.16	2.62	1.63	2.10
	Pará	1.81	2.29	2.63	1.06	1.98	1.55
	Paraíba	1.94	1.91	1.64	1.84	1.51	3.33
	Pernambuco	4.31	5.01	4.94	3.88	3.58	5.92
	Piauí	1.80	2.57	1.21	1.64	1.30	4.62
	Paraná	6.18	5.79	5.74	6.97	6.25	6.85
	Rio de Janeiro	8.24	8.11	8.70	2.07	10.78	1.08
	Rio Grande do	1.50	1.51	1.68	1.45	1.36	1.46
	Rondônia	0.52	0.47	0.59	0.22	0.52	0.17
	Roraima	0.11	0.09	0.10	0.05	0.10	0.04
	Rio Grande do Sul	7.02	6.85	5.49	4.30	6.22	8.97
	Santa Catarina	3.66	3.24	2.51	2.47	2.60	5.18
	Sergipe	1.03	1.20	0.75	1.63	0.71	1.43
	São Paulo	22.30	18.06	25.69	14.65	24.23	7.35
	Tocantins	0.72	0.71	0.81	1.33	0.80	0.96
Location	**Metropolitan Core**	17.54	16.12	20.39	0.39	19.37	3.49
	Metropolitan Periphe	11.46	10.10	14.21	1.02	13.96	2.94
	Large Urban	18.47	17.20	22.03	2.69	20.31	6.44
	Medium Urban	15.49	15.16	18.66	11.84	18.77	7.90
	Small Urban	14.56	15.40	16.20	23.32	14.74	13.44
	Rural	22.49	26.03	8.51	60.74	12.85	65.78
Metropolitan area	**Salvador**	1.70	1.67	2.18	0.09	2.27	0.53
	Fortaleza	1.55	1.57	2.41	0.27	2.04	0.60
	Distrito Federal	1.18	0.74	1.15	0.29	1.68	0.25
	Belo Horizonte	2.56	1.99	2.97	0.25	3.66	0.75
	Belém	0.54	0.63	0.70	0.04	0.76	0.17
	Recife	1.73	1.94	2.22	0.38	2.02	0.76
	Curitiba	1.69	1.52	1.55	0.17	1.89	0.83
	Rio de Janeiro	6.26	6.30	6.42	0.16	7.70	0.53
	Porto Alegre	2.24	2.07	2.45	0.28	2.37	0.79
	São Paulo	10.51	8.66	13.64	0.49	10.48	2.12
	Not Specified	70.04	72.93	64.30	97.60	65.14	92.66

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

d. **Are the poor more informal?**

Graphs below presents correlations between labor markets outcomes using mesoregions values calculated from PNAD as the basic unit of observtion. present clear evidence on the inverse relationship between per capita family income and informality rates (captured here by adding employees without card, self-employed and unpaid workers share). There is also a negative relationship between informality rates and unemployment rates. In general, the data is consistent with the idea that unemployment is a luxury bad while informality is a basic bad.

Graph 1



Graph 2

3. Dynamics of the informal sector

This section attempts to generate and organize stylized facts of self-employment and activities dynamics in Brazil. The final purpose is to help the design of policies to assist micro-entrepreneurial activities in Brazil. The main questions pursued are: i) what is relative importance among the self-employed of subsistence activities versus those activities with growth and capital accumulation potential? ii) what are the main determinants of micro-entrepreneurial success? iii) what are the main constraints on poor entrepreneurs activities? iv) what is the degree of risk associated with micro-entrepreneurial activities in Brazil and how to design policies to cope with this risk?

Our main tool of analysis are transitional data constructed from household surveys. The longitudinal information covers three transition horizons: 1 month, 12 months and 5-

year periods. This data will be used quantitatively and qualitatively. Another quantitative goal is to assess the degree of risk implicit in micro-entrepreneurial activities. This analysis is relevant to identify the welfare effects of entrepreneurs vulnerability as well as their ability to honor previously contracted credit arrangements. We use the exiting probability of different working classes as *ex-post* measures of occupational risk. We use three windows of measurement: 1 month, 1 year and five-year periods. We also assess other possible determinants of entrepreneurial risk: i) the relation between tenure and occupational risk (duration dependence); ii) the probability of exiting unemployment of individuals that exerted different working classes previously; iii) the relation between age and occupational risk and; iv) the income risk of individuals that did not exit entrepreneurial activities.

i. Quantitative transitional analysis

The dynamic objective of this section requires the use of longitudinal statistic at an individual level. Each month a large number of micro-enterprises go out of business while others start their activities. In this setting, the evolution of the number of micro-enterprises hides the existing mobility in this sector.

This section once again benefits extensively from the possibility offered by PME of following the same dwellings - and thus the same individuals - for short periods of time. These flows will provide intensity measures of micro-enterprises creation, expansion, decaying and destruction. The tool used to organize this data are probability transition matrices. A transition matrix presents the probability that each individual observed at different working class conditioned on being on a given working class in the previous period.

The sample of individuals successfully observed during four consecutive periods is our basic unit of analysis. At this point we will restrict the analysis to the transition between the second and the third observation of the group of four consecutive observations. Given the sensitivity of mobility measures to reporting errors in the classification variables we will impose further restrictions on the sample analyzed. In order to reduce the effects of reporting errors: we will limit our analysis to the sample of individuals that did not report working class changes in the first two and in the last two observations of the group of four.

That is, we will calculate the transition probabilities between the second and the third observation conditioned that there was no other transition in the group of four consecutive observations. Later, we relax this restriction to study how these transitions operate in different horizons, we will also study non-Markovian properties of the micro-entrepreneurs occupational switching processes (i.e., duration dependence).

Table 1

PROBABILITY TRANSITION MATRIX BETWEEN WORKING CLASSES
PROB WITH REFINEMENT (2 BY 2)
Metropolitan Brazil - PERIOD 82-97

		Formal Emp.	Informal Emp.	Self-Emp	Employer	Unpaid	Public Servant	Inactive	Unemployed	Total
	Formal Emp.	97.3%	0.7%	0.3%	0.1%	0.0%	0.3%	0.7%	0.5%	100.0%
Posição Inicial	Informal Emp.	8.7%	79.9%	4.1%	0.2%	0.2%	0.8%	4.9%	1.3%	100.0%
	Self-Emp	1.1%	2.6%	90.0%	1.5%	0.1%	0.1%	4.3%	0.3%	100.0%
	Employer	0.9%	0.5%	5.5%	92.1%	0.2%	0.1%	0.7%	0.0%	100.0%
	Unpaid	0.7%	5.4%	4.2%	1.6%	76.3%	0.4%	11.1%	0.2%	100.0%
	Public Servant	1.2%	0.2%	0.1%	0.0%	0.0%	97.7%	0.6%	0.1%	100.0%
	Inactive	0.4%	0.7%	0.9%	0.0%	0.1%	0.1%	97.3%	0.5%	100.0%
	Unemployed	13.6%	12.5%	5.6%	0.1%	0.2%	0.7%	18.9%	48.2%	100.0%

We will focus the analysis of the transition matrix in three dimensions:

a. *Row analysis (where will the self-employed go to?)*

Table 2 and Graph 1 assess the probability of change from self-employment to other working classes in Brazil metropolitan areas and in the metropolitan region of Rio. We divide these patterns in two types:

(i) Individuals that stay in the same working class. This group will be analyzed latter. (ii) Individuals that move to other working classes. This group amounts to 24.52 % and can be divided into three further groups:

(ii.1) Self-employed units that moved toward larger scale entrepreneurial activities, that is, to an employer status. The idea here is that the act of hiring at least one employer is indicative of business growth. The expanding number of self-employed in Rio was 2.63 %. The same statistic raises to 3.5% in the case of metropolitan Brazil. This result indicates that Rio's self-employed were less prosperous than their Brazilian counterparts.

(ii.2) Around 17.92 % of the initial self-employed Cariocas migrate to more precarious working classes, such as informal employees, unemployed, inactive and unpaid workers. This statistic rises to 22.02% in the case of the average of metropolitan regions indicating that Rio's self-employed move less often as well to more precarious states.

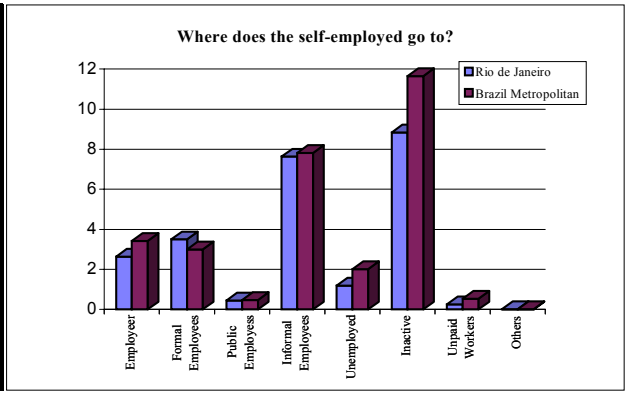
(ii.3) Finally, 3.97 % of Rio's self-employed move to other working classes such as formal employees, public employees, and non defined types. These transitions characterize changes in contractual working relations which may signal instability of these relations. On the other hand, it is not possible to make any reasonable comparison of precariousness between initial and final working status at this level of aggregation.

Table 2

Probability Transition Matrices (%) Between Working Classes (Probability of Change from a Self-Employed to) 1982/96		
	Rio de Janeiro	Brazil Metropolitan
Self-Employed	75,58	71,09
Employeer	2,63	3,42
Formal Employees	3,5	3
Public Employess	0,45	0,47
Informal Employees	7,63	7,81
Unemployed	1,19	2,02
Inactive	8,84	11,65
Unpaid Workers	0,26	0,54
Others	0,02	0,02

Source: PME

Graph 1



In sum, the self-employed from the metropolitan region of Rio presents at the same time smaller transition probabilities towards more prosperous states and smaller transition probabilities towards more precarious states than the ones from metropolitan Brazil. The sum of these three types of probabilities remain approximately constant, so does the residual of these probabilities. That is, the probability to remain self-employed.

b. *Column analysis (where did employers come from?)*

Table 3 and Graph 2 presents an employers column analysis of the transition matrix. That is, the analysis indicates the initial status of individuals identified as employers in the final period of analysis.

Graph 2 indicates that the main origin of employers are self-employed units. In this sense at least a group of self-employed does not constitute subsistence activities but activities with a growth potential where the precariousness adjective does not always apply.

We can identify three main origin groups for employers according to the magnitude of their transition probabilities:

(i) The positions belonging to the formal sector (formal employees and public services), inactive and the unemployed present smaller probabilities of becoming unemployed.

(ii) The self-employed present the highest probabilities of becoming employers, 2.63 %, what gives an idea of the realized expansion potential of the self-employed.

(iii) The third group is made of unpaid workers and informal employees which have the highest probabilities of becoming employers, after the self-employed. These working classes are fairly unstable.

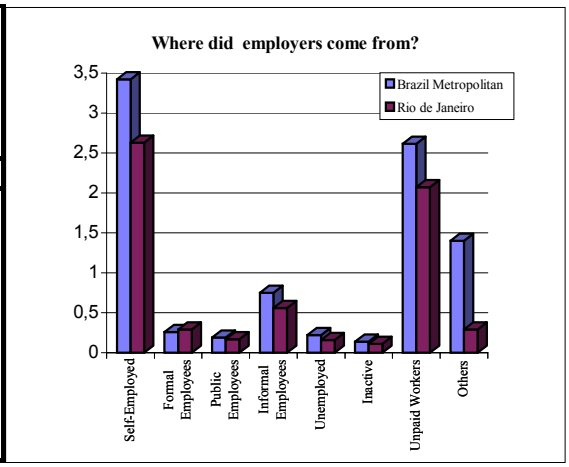
Table 3

Probability Transition Matrices (%)
Between Working Classes
(Probability of Change from the inicial status of individuals identified as employers in the final period of analysis)
1982/96

Initial Status	Rio de Janeiro	Brazil Metropolitan
Self-Employed	2,63	3,42
Employeer	77,28	71,38
Formal Employees	0,29	0,26
Public Employees	0,17	0,19
Informal Employees	0,56	0,75
Unemployed	0,16	0,22
Inative	0,11	0,14
Unpaid Workers	2,07	2,615
Others	0,29	1,4

Source: PME

Graph 2



c. *Diagonal analysis (occupational risk comparisons)*

Table 4 below presents the transition probabilities of individuals that keep their initial occupation during two consecutive months. This statistic is the complement of ex-post occupational risk measures.

Table 4

Probability Transition Matrices (%) Between Working Classes Transition Probabilities of Individuals that keep their initial occupation during two consecutive months 1982/96		
Working classes	Brazil Metropolitan	Rio de Janeiro
Self-Employed	71.05	75.58
Employeer	71,38	77,28
Formal Employees	89.51	89.12
Public Employees	89.54	90.6
Informal Employees	59.75	63.14
Unemployed	38.42	42.06
Inactive	89.01	91.26
Unpaid Workers	49.52	57.91
Others	1.65	3.94

Fonte: PME

Graph 3

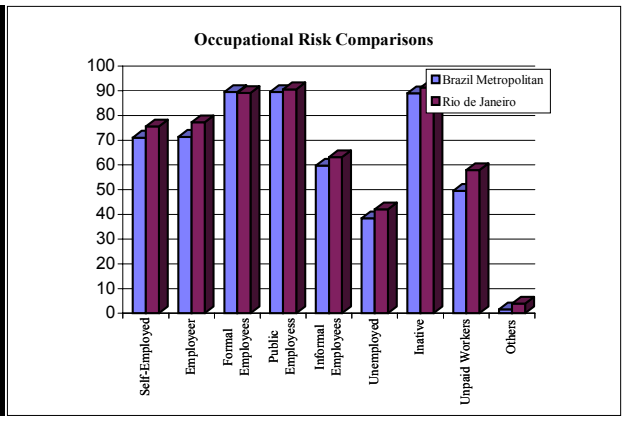


Table 4 allow us to identify ex-post the risk of changing working class. For instance, the occupational risk of self-employed. Graph 3 allow us to visualize differences of staying probabilities between different occupational groups. Once again, these probabilities can be divided into three groups according to their magnitude.

(i) Informal employees (63.14%), unemployed (42.06%) and unpaid workers (57.91%) are the more unstable states, that is those with smaller probability of keeping their initial state. It is interesting to notice that the fact that these high exiting probabilities of precarious states should enhance social welfare. That is, when one can not be get worst, risk should be viewed as a quality.

(ii) Formal employees, public employees, and inactive present higher staying probabilities around 90%. Inactive are difficult to be analyzed since they cover both discouraged unemployment as well as workers that are out of the labor force by choice or age (student and retirees).

(iii) Self-employed and employers are in an intermediary position with respect to the two groups mentioned above with staying probabilities equal to 75.58% and 77.28%, respectively. This result indicates that the income risk of both of these activities tend to be higher than the one observed for formal employees but smaller those observed for informal employees and the unemployed..

ii. Origins, Destinies and Risks of Informal Activities across Different Time Horizons

PME rotating panel scheme allows to capture labor market dynamics operating at different frequencies. We will work here with 1 month and 12 months intervals without any refinement in order to allow more direct comparisons. The retrospective question on working class on the special PME supplement that went to the field during 1996 allow us to study a five year transition period (i.e., between 1991 and 1996). This sub-section evaluates how changes in the period of measuring labor market flows affect the different origins, destinies and risks of micro-entrepreneurial activities analyzed before.

We start with occupational risk measures captured here by the probability that an individual change his/her working class between two time instants. The data in Table does not include any type of refinement in order to allow more direct comparisons. In general, we observe an increase in ex-post risk measures when we move from monthly to five year windows of measurement in all working classes analyzed. The self-employed is the only working class that present a risk reduction when we move from annual (43%) to the five year windows (37%) of measurement. This counter-intuitive result may be explained by differences between working class dynamics taken from retrospective questions and from direct questions asked on a panel.

Table 5
Occupational Risk Comparisons
Brazil 1982-98

	Monthly	Annual	Between 5 years
	Without Ref.	Without Ref.	91 and 96
Self	28.15	42.92	37.31
Employer	26.22	40.23	44.26
Legal Employee	10.29	22.52	33.04
Illegal Employee	40.29	61.49	65.64
Unpaid	47.95	67.94	75.62
Public sector	10.48	17.28	23.69
Inactive	9.98	19.66	30.37
Unemployed	60.56	85.75	91.23

Source: PME

Given the rise in the probability of exiting different working classes as we increase the period between transitions, we will analyze the composition of the flow for those that moved between working classes.

In terms of employer origins, table 6 shows that as we increase the period between transitions, we observe an increase in the proportion of previous legal employees among the new employers. This change is mostly explained by a reduction in the proportion of previous self-employed among the new employers. In other words, the self-employed are more important as a previous step towards the employer status than if we increase the period of measurement between transitions.

Table 6

Where did employers come from?
Brazil 1982-98

	Monthly	Annual	Between 5 years
	Without Ref.	Without Ref.	91 and 96
Self	63.5%	52.5%	43.9%
Legal Employee	11.4%	18.5%	32.4%
Illegal Employee	10.3%	10.8%	6.3%
Unpaid	2.9%	2.7%	0.3%
Public sector	2.1%	2.5%	4.4%
Inactive	8.6%	11.3%	3.6%
Unemployed	1.2%	1.6%	2.5%
Other	0.0%	0.0%	6.7%
	100.00	100.00	100.00

Source: PME

iii. Analysis of Occupational Risk

This section assess various aspects of entrepreneurial risk. This analysis can be useful in the design of a series of policies designed to feed entrepreneurial activities (e.g. micro-credit arrangements, compensatory schemes for the unemployed).

a. *Duration Dependence*

We attempt now to verify if the duration of the stay in the different working classes analyzed above affect their respective exiting probabilities. The exiting probabilities

calculated were given that the individual is only one month, only two months, more than three months in a given working class, as presented in Table 7.

For the self-employed we found the following exiting probabilities: 51% after one month, 34% after two months and 14% after three or more months. Employers presented similar exiting probabilities (54%, 35% and 12%, respectively).

There are two main lessons to be extracted from this exercise self-employed and employers occupational risk measures are still in the intermediary range from those observed for the unstable group of unemployed, informal employees and unpaid and the more stable group of inactive, formal employees and public servants. Second, and most important, all groups presented duration dependence in the sense that longer spells tend to present smaller exiting probabilities. In particular, in the case of self-employed units the exiting probability for those that are for more than three months in the occupation is roughly one third the probability found for those that entered self-employment in the previous month. In the case of employees this ratio falls to less than one fourth. In policy terms this result main point towards the inadequacy of providing seed money for new micro-entrepreneurs.

Table 7

BRAZIL

	UNCENSORED DATA		CENSORED DATA	
	1 month	2 months	(+) than 3 months	overall
Self	51.3%	33.7%	14.3%	27.7%
Employer	54.0%	35.0%	12.2%	26.1%
Unemployed	65.4%	55.4%	47.2%	59.9%
Illegal E.	56.3%	40.3%	23.8%	39.7%
Unpaid	61.0%	42.8%	25.5%	47.0%
Legal E.	41.0%	21.7%	5.5%	10.0%
Public S.	41.6%	19.8%	5.5%	10.5%
Inactive	42.8%	26.7%	4.8%	10.3%

Source:PME

b. *Probability of Exiting Unemployment*

Table 8 attempts to answer the following question: What is the relative difficulty of individuals that were previously micro-entrepreneurs to exit unemployment. We found that the after one month unemployment exiting probability of individuals that were previously in self-employment (73%) and employer (70%) states is greater than the one observed for

all other states. The same type of result holds for individuals that were in one month in either unemployed or inactive states. This result may be interpreted as an indication that previously micro-entrepreneurs do not require any type of special assistance with respect to other working classes when they get unemployed.

Table 8

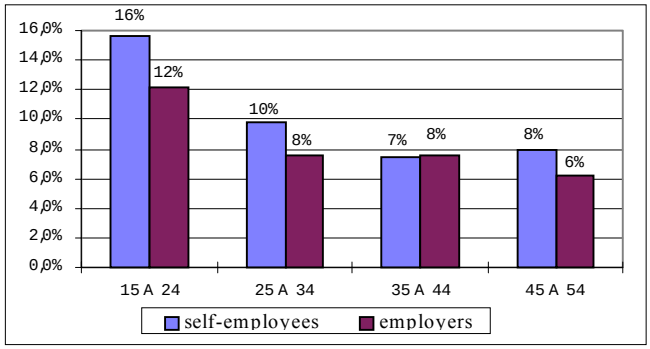
	Present Working Class	
Previous Working Class	Unemployed	Unemployed or Inactive
Self	73,3%	57,9%
Employer	70,4%	54,0%
Informal E.	68,0%	48,4%
Unpaid	64,9%	37,2%
Formal E.	56,3%	40,7%
Public S.	58,2%	39,8%
Inactive	66,6%	21,2%

Source:PME

c. *Occupational Risk and Age*

We now describe the relationship between micro-entrepreneurs occupational risk and age. Graph 4 presents the probability of exiting self-employment and employers states according to different age groups. We observe in general an inverse relationship between these ex-post measures of micro-entrepreneurs occupational risk and age. In the 15-24 years age bracket, the exiting probability of self-employment is 15.6%, this statistic falls to 7.9% in the 45-54 years group. In the case of employers, the exiting probability falls from 12.1% in the 15-24 years group to 6.2% in the 45-54 years group. Most of the fall of the occupational risk observed happens when we move from the 15-24 years group to the 25-34 group. It is important to note that we did not cover the period of retirement. In general, our analysis shows that the occupational risk of self-employees and employers tend to fall as people move from the begin to the middle of their life cycle.

Graph 4



Source: PME

d. *Self-Employed Income Risk*

The short-run panel characteristic of PME also allow us to evaluate the income risk of self-employed units that do not loose their jobs. In other words, we analyze the income risk of those with a null ex-post occupational risk). Taking as a reference the transition matrix (Table 1) we analyze those that are in the diagonal of the matrix.

Graph 5 presents a 12 month-moving average of the temporal variance of log earnings of continuously self-employed heads during four consecutive months. Graph 6 presents the ratio between this measure and the one calculated with continuously occupied heads in all working classes (including self-employed). This latter graph reveals the existence of extra income risk in continuously self-employed units activities. The differential between income risk between self-employed and the whole sample of continuously occupied heads ranged from 54% to 26%.

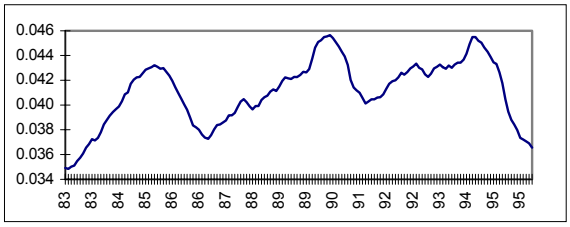
Another characteristic reveal by this graph is the existence of an inverse relationship between self-employed heads risk and the risk of all occupied heads. The total elasticity between this two variables is -0.286 with a t-ratio of -15.7 . This result reveals that although self-employed present an additional risk with respect to other occupations they are relatively more able to avoid additional risk increases in times of higher aggregate instability.

As a consequence of the self-employed ability to reduce their extra risk when their income risk is at a local maximum, the risk differential tends to be at a local minimum.

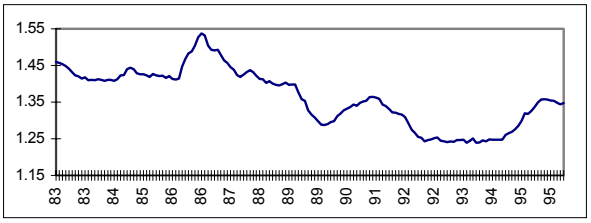
These points tend to coincide with inflation peaks that were usually followed by stabilization plans, like those observed in 1986, 1990 and 1994. One interpretation for this empirical regularity is the relative ability of self-employed units to change their prices/incomes in a high inflationary environment. For example, employees have to go through a costly bargaining process with their firms to change nominal wages. In contrast, the self-employed are vertically integrated units (i.e.; are firms and workers at the same time) with a null bargaining cost. This greater degree of vertical integration makes the self-employed more able to deal with higher and more unstable inflation rates.

Temporal Variance of Log Earnings of Continuously Self-Employed Units (12-m MA)

Graph 5 - Self Employed Units



Graph 6 - Ratio between the Self-Employed and the Whole Sample



Source : PME

4. Segmentation and heterogeneity (mapping)

5. Macro-economic issues: how they affect or influence the informal sector

i. Dynamics of the informal sector during booms and recessions

The topic of this section is the link between macroeconomic fluctuations and changes in Labor Market status. Once again, the main advantage of PME (*Pesquisa Mensal de Emprego*) is its panel structure. Households are visited monthly four times, and then again, monthly, four times after a hiatus of eight months (that is, if the survey first visits a household in month 1, it generates observations of that household in months 1 to 4 and 13 to 16). We use this structure to generate variables describing the household a year apart.

We divide labor-market status for simplicity into four categories: formal employment, informal employment, unemployment, and inactivity.

To conclude this section, we should own up to the artificial nature of the distinction we shall be making between *shocks* (assumed to be exogenous)—those slings and arrows that we assume households are subject to—and households' *responses*. Of course the reality is that many variables are determined simultaneously by events and actions that we do not observe: household income is a function of decisions taken over job offers and work hours. The inter-relatedness of things notwithstanding, however, some variables in the system are plausibly assumed to be outside the control of the household. Employment status is our main example here, if we believe, particularly during a recession, that relatively few workers voluntarily leave formal-sector jobs for unemployment or informal-sector jobs.

a. ***Income***

There are differences in how growth and recessions affect workers' incomes according to whether they are working in formal- or informal-sector jobs (table 1). The obvious expectation, that informal workers suffer greater variability in income, is only true of self-employed workers, not of informal (*no card*) employees. Self-employed workers' incomes have been particularly vulnerable to recessions, whereas informal employees' incomes show no more sensitivity during recessions than formal-sector employees. Informal workers in the 1980s seemed to show a greater propensity to benefit from upturns, although this feature did not generalize to the recent *real* boom.

Table 1

Informal and Formal Sectors, Median Income Changes

Labor Category	*Growth*			*Recession*			
	1984-85	1986-87	1994-95	1982-83	1990-91	1996-97	1998-99
formal employee	1.95	9.67	15.69	-26.31	-20.87	-0.69	-4.73
Informal employee	8.18	20.11	15.85	-24.60	-14.53	-1.38	-4.18
self-employed	6.17	23.59	15.34	-28.56	-19.35	-4.74	-7.36

b. *Poverty*

The PME are also characterized by high mobility between states of unemployment, informal employment, and formal employment. This is an important characteristic, and helps explain why during rapid expansions in Brazil (such as the *cruzado* and *real* booms analyzed here), social indicators have at times moved quite rapidly in response to growth. But rates of mobility again depend on worker characteristics.[5]

The link between unemployment and poverty in Brazil has not been a close or constant one. Unemployment, in its narrowest definition in the PME data—a worker without a job who has actively searched for one in the past week—is a transient empirical phenomenon. Inactivity, as we have mentioned, encompasses a confusingly broad array of other possibilities, and is about three times as common in the data. Neither unemployment or inactivity in the PME is strongly linked to poverty. In the case of unemployment, this is because workers tend not to stay unemployed (in its narrow sense) for very long. In the case of inactivity, this may imply voluntary unemployment, not a phenomenon commonly associated with poverty.

The relationship between poverty and unemployment also depends on the rate of growth, and this relationship has evolved over time.

Table 2

Poverty Transition Probabilities by Labor Category

	Growth			*Recession*			
Transition into Poverty	1984-85	1986-87	1994-95	1982-83	1990-91	1996-97	1998-99
formal employee	9.67	7.10	11.27	18.6	19.57	11.39	12.16
Informal employee	12.52	9.73	10.48	25.27	26.34	14.58	15.90
self-employed	15.88	8.07	13.13	26.26	23.61	15.61	17.00
Unemployed	14.29	3.45	5.17	29.23	26.19	17.14	21.52
Transition from Poverty	1984-85	1986-87	1994-95	1982-83	1990-91	1996-97	1998-99
formal employee	20.19	34.03	26.64	8.65	16.71	19.78	17.14
Informal employee	17.03	41.89	26.54	11.59	18.52	19.93	15.71

[5] For related work see Maloney (1999) and González and Maloney (1999).

self-employed	19.8	36.79	24.36	9.33	15.28	16.79	17.77
Unemployed	24.87	47.06	32.29	16.62	26.37	25.00	24.51

Table 2 shows that, during growth periods, unemployment is the state of the four *least* likely to lead to poverty and *most* likely to lead out of it. Yet, during recessions, unemployment is the state *most* likely to lead to poverty but also *most* likely to lead out of it. Two observations may explain these results. First, poor workers simply do not remain unemployed. A poor worker out of a job will more likely enter some form of low-paid informal activity rather than remain unproductive. Second, during growth periods, when higher-paid employment is more abundant, workers use unemployment (and particularly unemployment insurance) to search for better jobs.

Although the 1998–99 recession has not been as severe as either 1982–83 or 1990–91, unemployment during 1998–99 has been more closely associated with poverty than in the past. This is consistent with evidence, cited elsewhere (see, for example, World Bank, 1998), that unemployment duration has recently increased. Moreover, as unemployment and its duration has increased, the role of the informal sector as an outlet for unemployed workers to find employment has increased. Whereas, during the 1990–91 recession, unemployed workers were more likely to enter formal than informal jobs, by 1998 this relationship had reversed, with the informal sector providing a greater number of new jobs to the unemployed.

b. *Jobs*

The final, and perhaps most interesting, category of transitions that we investigate here is that between informal- and formal-sector jobs. Table 3 presents these, and shows that the main difference between growth periods and recessions occurs through workers' exiting the informal sectors at a higher rate. The last two rows split this effect into its components: movements by both *no card* employees and *self-employed* workers into the formal sector. Both move into formal-sector jobs at higher rates during growth periods than recessions.

Table 3

Labor Category Transition Probabilities (percent)

	Growth			*Recession*			
Formal sector:	1984-85	1986-87	1994-95	1982-83	1990-91	1996-97	1998-99
Stay Formal	20.2	9.2	11.9	9.8	10.3	10.8	12.3
Move to informal	75.6	87.1	83.0	84.8	83.5	83.3	80.6
Informal sector:	1984-85	1986-87	1994-95	1982-83	1990-91	1996-97	1998-99
Stay informal	56.1	68.0	70.6	n/a	74.1	71.6	71.0
Move to formal	33.7	22.1	19.7	n/a	16.9	18.4	16.5
Informal to formal:	1984-85	1986-87	1994-95	1982-83	1990-91	1996-97	1998-99
Informal employee	42.3	36.3	29.9	28.0	27.2	31.2	25.4
Self-employed	16.8	15.8	15.3	n/a	11.5	11.2	11.3

To conclude this section, the data illustrate two important points for what follows.

First, informal earnings, in particular those among the informal self-employed, are less stable than formal-sector earnings. This may not strike the reader as very surprising, but it is important for what follows in that it suggests that movements from the formal to the informal sector imply increased earnings risk.

Finally, the most palpable difference in the data on employment transitions between growth periods and recessions appears in workers' propensity to exit the informal sector for the formal sector, which rises for both informal employees and self-employed during periods of economic growth.

ii. Analysis of correlation between macro variables and informal sector earnings

The possibility of constructing for the last two decades monthly series of specially tailored variables according to individual and family records of PME allow us to apply standard time series techniques using OLS regressions capturing the effects of macro variables on earnings based social indicators. We analyze in this sub-section the partial

correlation elasticity of average earnings of different working classes and the following macro variables:

a) unemployment
b) inflation
c) interest rates
d) minimum wages
e) exchange rates

Table 4

Partial Correlation Signs Between Macro Variables and Mean Earnings
By Working Class

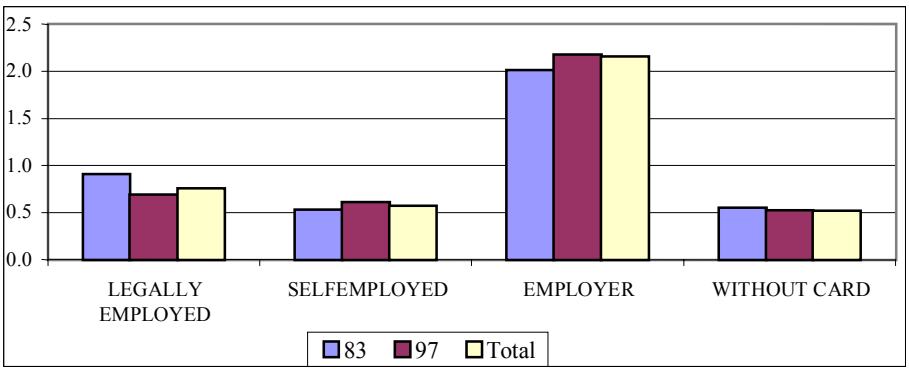
Universe : Occupied - Labor Earnings **(Period : 1983 to 96 - Data in Logs**

	Unemployment Rate		Inflation Rate		Real Exchange Rate		Real Interest Rate		Minimum Wages		R^2
Formal Employees	**-0.24**	-7.56	**-0.05**	-7.64	**0.06**	1.58	**-0.73**	-2.87	**0.30**	7.03	**69%**
Informal Employees	**-0.42**	-11.71	**-0.05**	-7.84	**-0.04**	-0.95	**-0.99**	-3.44	**0.16**	3.40	**64%**
Self-Employed	**-0.62**	-16.56	**-0.05**	-7.05	**-0.24**	-5.51	**-0.98**	-3.27	**0.23**	4.68	**77%**
Employer	**-0.59**	-13.63	**-0.05**	-6.04	**-0.31**	-6.21	**-0.72**	-2.07	**0.35**	6.13	**72%**

OBS.: a)Small numbers correspond to t-statistics b) Constant and seasonal dummies ommited

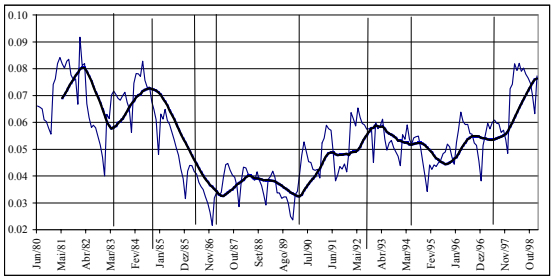
Graph 1

Relative Earnings By Working Class

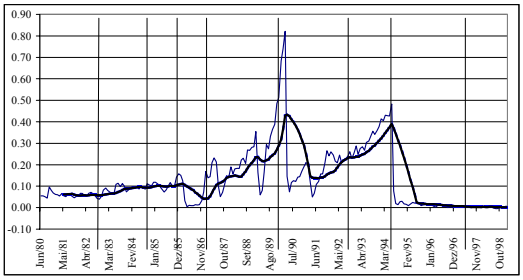


Graph 2 Graph 3

Unemployment Rates



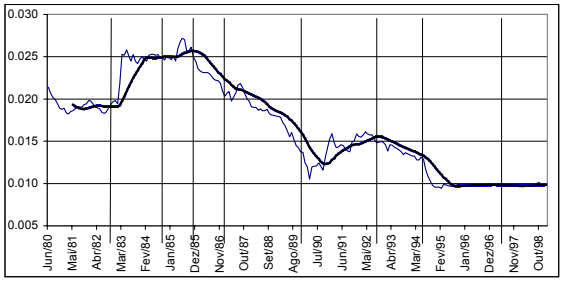
Inflation Rates



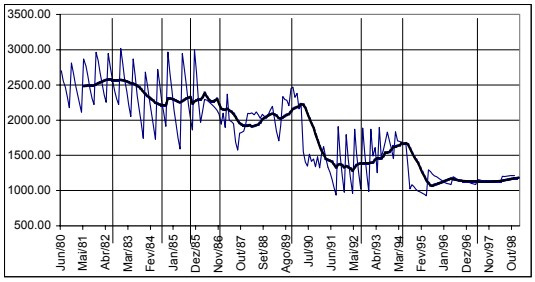
Graph 4

Graph 5

Real Exchange Rate



Minimum Wages



a. *Unemployment*

The unemployment rate variable attempts to capture the effects of the level of activity on the informal sector earnings. Formal employees unemployment elasticity (-0.24) is smaller than the ones found for informal workers (illegal employees (-0.42) and the self-employed (-0.62)).

b. *Inflation*

Higher inflation implies in general a worsening of the income distribution either in terms of levels or inequality. However, inflation rate elasticities found are in general much smaller than the ones found for unemployment. One interpretation for the positive inflation partial elasticity of the Gini coefficients found is that earnings at the bottom of the distribution are less perfectly indexed. This interpretation is not confirmed by the analysis of the elasticities of the different groups portioned by working class. informal employees elasticities are not statistically significant from the ones estimated for the whole population.

c. *Real interest rates*

Higher interest rates do imply lower mean aggregate incomes with an elasticity equals to –0.82, even when one control for unemployment. The point estimates of interest rate elasticity of earnings in informal sector is higher in module (illegal employees (-0.99) and the self-employed (-0.98)) than the one found for formal employees (-0.73).

d. *Minimum Wages*

The effect of the minimum wage on mean earnings is positive. The partial elasticity corresponds to 0.32. The effect is higher among formal employees than in the informal sector (illegal employees (0.16) and the self-employed (0.23)). Altought this result is intuitive, it is not consistent with the evidence found in section X.

e. *Exchange Rates*

The impact of exchange rates on per capita income is not statistically different from zero in either total average, formal emplyees and informal employees earnings. Self employees average earnings fall when real exchange rates are devaluated (elasticity equals to -0.24).

6. Specific sub-groups: gender and child labour

Gender

SPOUSES SHARE IN FAMILY EARNINGS AND POVERTY

The life-cycle behavior of any variable can be studied using a static age profile or more interesting using pseudo-panels. In the static profile, we plot from a cross-section the value assumed by any chosen variable in various age groups. The main limitation of the static age profile is not taking into account cohort or year effects. Instead in the pseudo-panel, we track the value of a certain statistic for the same generation across time. We will use this approach here to describe the life-cycle pattern of the participation of spouses in earnings generation using PME data.

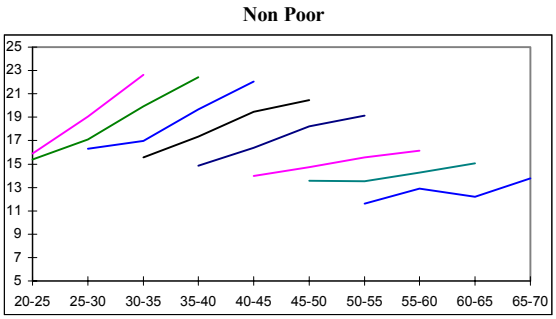
The family can be perceived as the basic cell of the social capital tissue. For instance, the participation of spouses in the labor market can offset some of the effects of the fall of heads earnings at latter stages of the life cycle. In particular, we want to investigate here whether the life-cycle pattern of spouse earnings share in total family earnings differs in poor and non-poor households. We use at this point the median school attainment of households heads as the border line between poor and non poor households. The high explanatory power of household heads schooling on poverty measures presented in parts 1 and 2 gives support to this procedure.

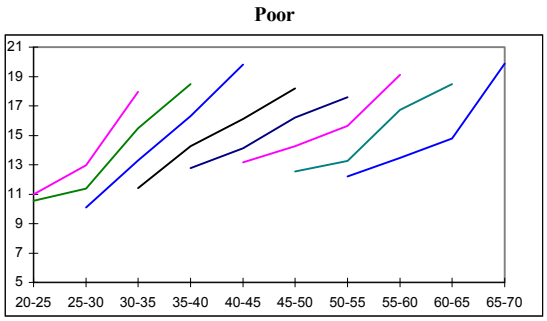
Graphs 1 and 2 presents the age profile of the share of spouse earnings in total household earnings for poor and non poor families of different generations The upper limits of these curves can be read as the latter year (1997) static age profile of this variable. This static profile reveals that the share of spouse earnings in total household earnings for poor families presents an increase from 15% in the 25-30 age bracket to 20% in the 65-70 bracket. This same statistic for non-poor families does roughly the opposite movement falling from 21% in the 25-30 age bracket to 14% in the 65-70 age bracket.

If we unravel the path of this statistic for each generation across time we find that the sharp increase of spouse earnings in family earnings observed in the last 15 years was not uniform across different cohorts of the Brazilian society.

Ratio of Spouse Earnings to Household Earnings

Graph 1 **Graph 2**





Source: PME 82, 87, 92 and 97 (yearly averages)

Graph 1 shows that the increased participation of spouses in the household budget in non poor families was basically driven by young cohorts sharply (i.e., less than 40-45 years in 1982) that increased while the same statistic for older cohorts stayed roughly constant across time. For example, the spouse share within the generation that was in the 20-25 bracket in 1982 increased from 15% to 23% in 1997 while the same statistic for the generation that was in the 50-55 bracket in 1982 rose only from 12% to 14% during the same period.

In contrast, within the poor segment the sharp increase on the share of spouse earnings on household earnings affected on a roughly uniform way all cohorts. For example, the spouse share of the generation that was in the 20-25 bracket in 1982 increased from 11% to 19% in 1997 while the same statistic for the generation that was in the 50-55 bracket in 1982 rose from 11% to 20% during this period.

i. Child Labor

Brazil has over the years received a great deal of attention relating to child labor –the examples often being the shoe industry and orange harvesting. The problem of child labor in Brazil is however much more diverse and complicated and its determinants highly inter-linked with both poverty and education.

PNAD differentiates between urban and rural areas and allows us to look at different age cohorts since the incidence differs substantially between different groups in the population. In 1998, 15% of all 10-14 year olds in Brazil were working -a decline of 2% since 1995. In the same year, in rural areas, 36% of children in this age group and almost

8% in urban areas were working. As mentioned, the low levels of educational attainment in Brazil, are a cause for concern and are most likely linked intimately to child labor.

On a positive note, the PME does demonstrate a declining trend in the metropolitan areas over the last two decades in drop-out rates, the numbers of children who both work and attend school, and the number of kids who work in the market or perform domestic labor as ther main occupation, as demonstrated in Graphs. For example, the rate of child labor in the main metropolitan areas of Brazil has declined over the last two decades (from approximately 12% to below 4% from 1982-1999), see Graph 3 on average over the last two decades there have been about twice as many boys measured to be working than girls.

Table 4

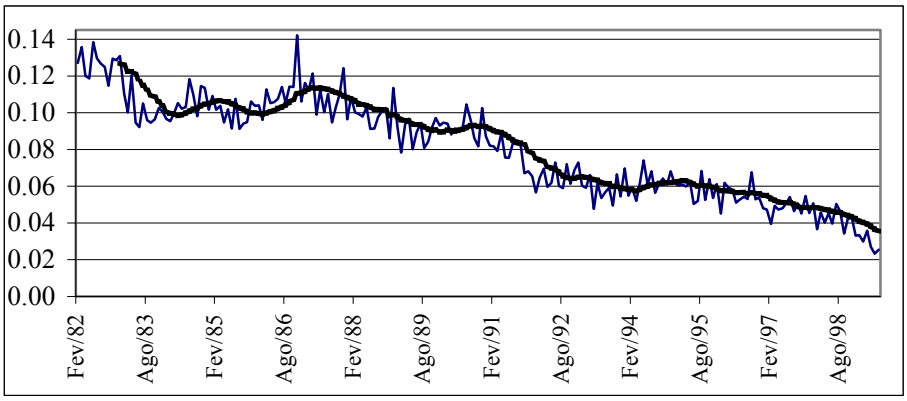
Static indicators of school performance and child labor
Children between 10 and 15 years of age

	Total		Boys		Girls	
	Prob. %	Standard error	Prob. %	Standard error	Prob. %	Standard error
Drop-out rates	6.685	0.0195	6.982	0.0278	6.380	0.0267
Behind age-years of schooling schedule	60.108	0.0382	64.687	0.0529	55.371	0.0550
Occupation rates	8.072	0.0126	11.028	0.0345	5.009	0.0240
Occupied and attend school rates	5.381	0.0176	7.596	0.0292	3.083	0.0191
Perform domestic labor	2.076	0.0111	0.559	0.0083	3.645	0.0208
Number of observations	*2,466,675*		*1,240,354*		*1,226,321*	

Source: Pesquisa Mensal de Emprego (PME) 1982/1999 Elaboration: CPS/FGV

Graph 3

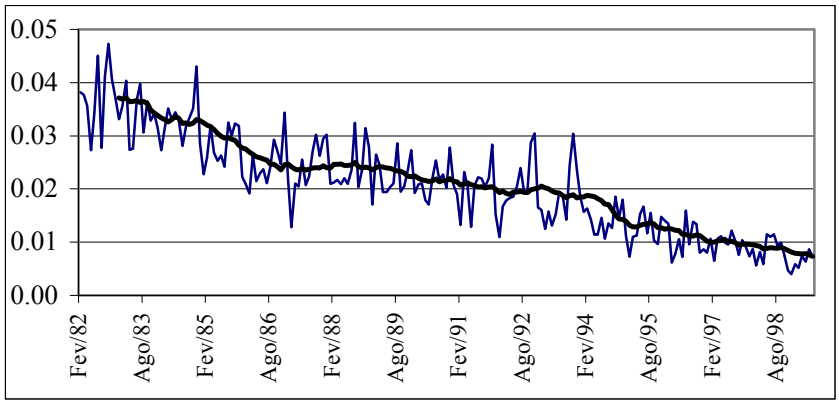
Child labor



Source: Pesquisa Mensal de Emprego (PME) - 1982 a 1999

Graph 4

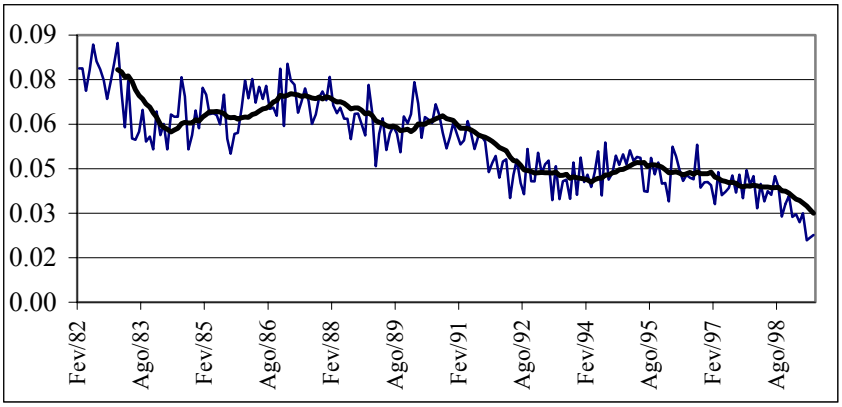
Child performing domestic labor



Source: Pesquisa Mensal de Emprego (PME) - 1982 a 1999

Graph 5

Child occupied and attending school



Source: Pesquisa Mensal de Emprego (PME) - 1982 a 1999

7. Nature of linkages between the formal and informal sectors

i. Overview

We provide in this section evidence that illegal jobs in Brazil are not necessarily unregulated. In other words, we shall argue that institutions and the legal apparatus affect both legal and illegal contracts. The distinction between legal and illegal employment appears not be associated with the quality of the jobs (working conditions and wages), but with the incentives and costs for both the employer and the employee of maintaining a legal

contract. In this respect, the high proportion of informality of labor contracts may be seen as emanating from poor design of the programs – the social security system, the severance fund, the fund for providing unemployment compensation and more active labor programs, and various other schemes – that are funded by high levels of mandatory contributions in Brazil.

This section studies the effects of various labor regulation schemes on formal and informal labor markets outcomes. We propose here to divide the different types of regulation schemes analyzed in two types: i) those that affect firms and employees relationship directly (e.g., minimum wages, extra-hours legislation, restrictions on payments dates and the payment of the mandatory bonus or 13th salary). ii) those that are related to the private-public sector relationship.(e.g., social security contributions, payroll taxes and firing fines). Our basic approach is to contrast how binding are a series of regulation schemes in the legal and illegal segments of the labor market.

The final point merits elaboration. Institutional effervescence in Brazil is due in part to the adopting of the new Brazilian Constitution in 1988, and in part by the transition from hyperinflation before 1994 to almost zero inflation in 1998. The former offers the possibility of estimating the impact of various labor code items (e.g. changes in maximum hours allowed, payroll taxes and firing fines) exploring the variation of labor market outcomes before and after the new constitution. The high inflation aspect makes payments practices a relevant item in the negotiation process between firms and workers, at the same time it provides as a by-product many episodes to study the effects of minimum wage changes.

Our empirical strategy is to quantify the relative importance of corner solutions induced by various regulation schemes on both segments of the labor market. We plot the distribution of labor markets outcomes and assess the size of the clustering exactly at the limits set by the law. For example:

- **Wages.** In the case of wages we assess how many individuals earn exactly one minimum wage. The idea here is that that in the absence of regulation the wage distribution would be continuous, that is each point of the distribution would have a zero mass. The effect of the minimum wage regulation is to concentrate mass around

the point of one minimum wage, making discrete what would otherwise be a continuous distribution.

- **Hours worked.** Similarly, in the case of hours worked we assess what is the proportion of individuals that are at the maximum number of hours allowed (without the payment of extra-hours) as an indication of how binding is the hours restriction.
- **Payment practices.** We also apply this methodology above to other elements of the firms-employees relationships of labor markets outcomes subject to Brazilian labor regulation such as those affecting payments practices (e.g., frequency of payments, payment dates and the disbursement pattern of the so-called 13th wage).
- **Payroll taxes.** In the case of regulations that are related to the private sector-government relationship such as social security contributions, payroll taxes and firing fines, we simply assess what is the proportion of legal and illegal employees that pay such taxes.

ii. Results

Our main finding is that many of the characteristics found in the legal labor market in Brazil are also found in the illegal segment. Furthermore, this similarity appears to be largely influenced by labor market regulations set by the government. In other words, we show that labor laws affect not only the regulated sector, but the "unregulated" sector as well. In most cases, we find that the typical kinks and corners produced by legislation on formal labor markets outcomes distribution are also present to a large extent in the informal labor market segment.

The paper also looks at other regulations that are related not with the firm-employee relationship per se but with the relation of both these agents with the government. Specifically, we contrast the public-private outcomes observed in the legal with the illegal segments of the Brazilian labor market, such as the payment of social security contributions and firing fines to the government. In contrast with the regulated nature of the firm-employee relationship in both legal and illegal sectors, we find substantial legal-illegal differences between contribution patterns.

Table 1

Brazil: Some Measures of Conformity with Labor and Social Security Laws

Indicator	Sector of Employment Formal: With Signed Card	Informal: Without Signed Card
Payroll Taxes (% of Workers whose firms...)		
Paid INSS Contributions	100.0	4.5
Paid FGTS Contributions	95.0	5.0
Wage Regulations (% of Workers with…)		
Payment Period of Exactly One Month	83.0	79.0
Paid Exactly One Minimum Wage	7.0	14.0
Wage Change = Minimum Wage Increase		
- March 1990 to January 1994	6.9	10.3
- September 1994 to May 1995	12.0	21.5
Hours Restrictions (% of Workers)		
Workweek Equal to Jornada		
1987 (before Constitution)	32	25
1990 (after Constitution)	20	8

Note: Formal employment implies - following convention - having a *carteira de trabalho assinada* (working card or booklet signed by the employer) which signifies ratification of the contract by the Ministry of Labor.

The main findings in Table can be summarized as follows:

- First, the main difference between informal and formal employees is in their relationship – and hence of their employers – with the government in terms of payroll taxes (the main one being social security contributions). While the employers of about 95% of workers classified as formal (having a ratified work contract) had paid INSS dues, this ratio was less than 5% for informal sector workers.
- Second, in sharp contrast, labor legislation seems to uniformly affect the work relationships (wages, hours, and payment practices) in both the regulated and informal sectors.

Labor legislation seems to substantially affect the work relationships (wages, hours, and payment practices) not just in Brazil's regulated sector – which would be expected – but also those of illegal employees. A plausible explanation for this effect of labor legislation in illegal labor markets is the possibility that employees can take their respective employers to court – which have sweeping powers under current Brazilian law – in order to

force them to pay for their legal working rights, whether or not their contract had been ratified by the Ministry of Labor. Give the high probability of the cases being resolved in favor of the worker, employers accord these workers all the rights under the labor law even when they do not have legal contracts. The nature of enforcement of labor laws therefore endows informal sector workers "*ex post* legality" even though these workers are "*ex ante* illegal".

In contrast, the relationship of illegal employees – and hence of their employers – with the government in terms of payroll taxes (e.g., social security contributions) is significantly different from the one found for the legal sector. These findings can be read as an evidence that informality in Brazil may be largely explained by the level of payroll taxes and the design of the programs they fund, and not by the effect of restrictions of labor laws within the private regulated sector. The latter could be because of the ambiguity in the design of labor legislation and slanted nature of its enforcement by labor courts. Social security reforms will reduce the incentive to become and stay informal but, given some myopia of individuals regarding savings for their own old age, a considerable fraction of the labor force is likely to stay informal even with comprehensive pension reform. Informality in Brazil will also remain a problem as long as labor laws remain ambiguous and enforced with a clear pro-labor bias: ceteris paribus, the incentives to stay informal are higher for workers who are assured of protection under labor legislation regardless of the nature of their contract, which only alters their financial relationship with the government.

These findings imply that in terms of the *design* of legislation, informality in Brazil is mainly a fiscal, not a legal or legislation-related phenomenon. But the manner in which these laws have been *enforced* is a critical though underemphasized determinant of informality in Brazil. Poor record-keeping by social security agencies (currently the INSS) has strengthened the incentives to stay informal for long periods of work which are already built into the design of the main RGPS programs. Ambiguities in the design of labor legislation combined with slanted enforcement by labor courts have led to workers effectively being accorded the same labor rights regardless of whether they work in the formal or informal sectors. Informality in Brazil will remain a problem as long as labor laws remain ambiguous and enforced with a clear pro-labor bias. *Ceteris paribus*, the incentives to stay informal are higher for workers who are assured of protection under labor

legislation regardless of the nature of their contract, which only alters their financial relationship with the government.

Annex on Gender:

i.

Table 1

WORKER PROFILE - 1999
POPULATION - FEMALE
Brazil

		Total Population	AAI (15 to 65 years)	- Occupied (10 years or more)
Total		81,001,229	52,955,211	28,560,733
Working Class	**Unemployed**	3,918,033	3,791,448	-
	Inactive	33,910,171	22,129,128	-
	Employees (w/card)	5,588,943	5,573,429	5,587,694
	Employees (no card)	2,154,975	2,096,060	2,154,714
	Self - Employed	4,610,238	4,392,082	4,610,238
	Employer	616,215	597,595	616,215
	Public Servant	4,251,303	4,230,447	4,250,770
	Unpaid	5,914,018	4,896,937	5,913,176
	Agricultural worker	531,254	507,101	531,254
	Domestic worker	4,895,371	4,723,965	4,893,966
	Unknow	205	205	205

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

Table 2

WORKER PROFILE - 1999
AVERAGE COMPLETED YEARS OF SCHOOLING - FEMALE
Brazil

		Total Population	PIA (15 to 65 years)	Occupied (10 years or more)
Total		5.41	7.27	7.71
Working Class	**Unemployed**	8.24	8.36	-
	Inactive	5.34	6.21	-
	Employees (w/card)	10.69	10.70	106,913.00
	Employees (no card)	9.07	9.17	90,563.00
	Self - Employed	6.85	6.98	68,458.00
	Employer	11.66	11.87	116,632.00
	Public Servant	12.48	12.51	124,773.00
	Unpaid	3.85	4.08	38,460.00
	Agricultural worker	3.38	3.44	33,800.00
	Domestic worker	5.02	5.08	50,192.00
	Unknow	4.00	4.00	40,000.00

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

Table 3

WORKER PROFILE - 1999
EARNINGS - FEMALE
Brazil

		Total Population	AAI (15 to 65 years)	Occupied (10 years or more)
Total		108.00	163.75	308.12
Working Class	**Unemployed**	-	-	-
	Inactive	-	-	-
	Employees (w/card)	472.78	473.24	472.85
	Employees (no card)	267.07	271.36	267.07
	Self - Employed	311.26	319.15	311.26
	Employer	1,450.85	1,452.59	1450.85
	Public Servant	569.82	570.58	569.87
	Unpaid	-	-	0.00
	Agricultural worker	160.28	164.49	160.28
	Domestic worker	161.64	164.29	161.63
	Unknow	.	.	.

Source: PNAD - IBGE **Elaboration : CPS\IBRE\FGV**

Part 2 - Outline:

I. Fundamental Principles and Rights at work

i. The Consolidated Labor Code
ii. The Reforms of 1988
iii. **Payroll taxes and mandatory benefits after 1988**
iv. **Recently Implemented and Proposed Reforms**

II Social protection: unemployment compensation, social security and safety nets

i. Unemployment compensation in the formal sector
ii. **Social security contributions**
iii. **Safety nets for the Informal Sector**

III. Occupational safety and health issues

i. Health status
ii. Access to Health Services

IV. Organization and representation in the informal sector (Voices of Informality)

i. Professional Associations and Trade Union Membership
ii. Non professional associations
iii. Political Activities

V. Access to resources in the informal sector

i. Dealing with new technologies

VI. Entrepreneurship and micro-enterprise dynamics

i. Self-employment entrepreneurial success
Other Variables

VII Expansion of micro-credit and savings facilities (programmes, institutions)
i. Rocinha's *Favela* Entrepreneurs - Lessons for the Design of Productive Credit Instruments for the Poor

ii. Perceptions about the importance of Credit in Rocinha

I. Fundamental Principles and Rights at work

This section describes the evolution of labor legislation in the country, the main labor laws, and discusses the objectives and nature of the main labor market reforms being discussed in the country and its implications for informality.

i. The Consolidated Labor Code

The main body of the Brazilian labor legislation was introduced in the 1940s, and consolidated into the *Consolidação das Leis do Trabalho* (CLT) in 1943. The CLT is a large, often overlapping, set of rules which determines individual and collective rights and duties of the workers, unions and firms. The law determines that all workers must have a booklet where all individual labor contracts and its changes over time are registered by the employer. By definition, a formal worker has a booklet signed by his employer ("*carteira assinada*")

Besides the obligation to sign the booklet, the law stipulates a set of minimum conditions any employment relationship must follow. The most important rules are: maximum hours of work per week; maximum extra-time working hours; minimum payment for extra-time work; minimum wage; pre-paid annual vacations; special protection clauses for women and children; the dismissal of pregnant women is forbidden; the right of paid vacation before and after childbirth, for the mother; special work conditions for night shifts; one month pre-notification of firing; and protection against unjustified dismissals.

There have been changes in the legislation since the creation of the CLT. In particular:

- In 1962, introduction of a one monthly wage annual bonus ("thirteenth salary").
- In 1963, introduction of a family allowance.
- In 1965, introduction of a wage adjustment law which determined the minimum rate of wage adjustments of all workers in the economy.
- In 1966, creation of a severance fund (*Fundo de Garantia por Tempo de Serviço* - FGTS) in place of a clause forbidding dismissal of workers with more than 10 years of tenure.

- In 1986, creation of an unemployment insurance program which today covers about 25% of the country's labor force.
- In 1988, approval of a new Constitution with the introduction of new labor clauses.

ii. The Reforms of 1988

The main changes of labor legislation introduced in the Constitution of 1988 can be summarized as follows:

- The maximum number of hours of work per week was reduced from 48 to 44 hours and the minimum payment for extra-time hours increased from 20% to 50% of the workers wages.
- For continuous work shifts the maximum daily journey was reduced from eight to six hours.
- A vacation bonus of one-third of the workers wages was created.
- The childbirth leave for mothers was increased to 120 days and a five days childbirth leave for the father was introduced.
- Firing costs for unjustified dismissals increased from 10% of the FGTS balance to 40%.

This is the list of the minimum individual rights for private sector and state enterprise workers. Working conditions can be improved through negotiations between the individual worker and the firm, or through collective bargaining. The Constitution of 1988 clearly mandated higher non-wage benefits and made dismissals costlier for employers.

iii. Payroll taxes and mandatory benefits after 1988

The CLT and the 1988 Constitution stipulate a very comprehensive set of minimum standards any individual contract must follow. The rules do not provide much space for negotiations between employers and workers. The result is a rigid set of minimum rules, which reduces the flexibility of the labor contract in face of changes in the economic environment. In addition to the costs imposed by this inflexibility, there are more direct and obvious non-wage costs due to payroll taxes and mandatory benefits required by the law.

Table 1: Wage and Non-wage Labor Costs
(Monthly, with normal number of hours = 44 weekly)

Component	Percent	Total
Basic Wage		100.0
Annual bonus	8.3	108.3
Vacations	11.3	119.6
Severance Fund Contribution (FGTS)	8.0	127.6
Other mandatory benefits*	10.0	137.6
Total pay *(basic wage + mandatory benefits)*		137.6
SESI, SENAI, SEBRAE *(employer associations)*	3.1	140.7
INSS** + Accident Insurance + Education + INCRA	24.7	165.4

(*) There are benefits which can not be calculated for all workers, since they depend on gender, kind of work done, economic sector etc. These include family allowances, pregnancy leaves, transport subsidies, etc.
(**) Workers contribute with 8%, 9% or 10% of the wage to social security depending on the wage.

Table 1 shows the composition of the labor cost in Brazil. The cost of labor can be decomposed into four parts:

- The basic contractual wage (60% of total cost = 100/165.4).
- Mandatory benefits which include the annual one month bonus (*terceiro salário*), the contribution to the FGTS, vacations and other benefits (23% of total cost = 37.6/165.4)
- Contributions to the official training system (SENAI and SENAC), to finance an institution which assist small enterprises (SEBRAE) and a contribution paid by firms to finance an workers' assistance service (SESI or SESC) (2% of total cost = 3.1/165.4);
- Contribution to the federal social security system (INSS) and to fund educational services (*salário educação*) and an on-the-job accident insurance fee mandatory for all firms and proportional to the payroll (14.8% of total cost = 24.5/165.4).

In addition to these contributions based on payroll costs, employers are also charged levies on revenues to pay for additional INSS-related obligations (*Cofins*), to be raised in 1999 from 1 to 2 percent and PIS/PASEP, the contributions towards the *Fundo de Amparo dos Trabalhadores* (FAT) which fund unemployment compensation, job search assistance and active labor programs such as training and microenterprise support schemes. These labor related levies can add up to between 2 and 3 percent of employer revenues.6

6 PIS/PASEP rates are 0.65 percent of personnel costs of private sector firms and 1 percent of the wage bill of non-profit establishments, but are 1 percent of the revenues of state enterprises.

iv. Recently Implemented and Proposed Reforms

The challenges faced by Brazil in the area of labor legislation are formidable. The set of laws that constitute the labor code have their basis in rules formulated in the 1940s, with additional – sometimes overlapping or inconsistent – legislation added over the years in response to both genuine labor market concerns and shortsighted political reasons. Today, the regulation of the labor market is a daunting task for Ministry of Labor for the following reasons:

- The plethora of laws has led to uncertainty about which regulations apply and under what circumstances, which results in frequent disputes between employers and employees.7
- These disputes are resolved by labor courts, which have over time earned the reputation of having a strong pro-labor bias. Under Brazilian law, labor courts have policy-setting powers, in that labor courts – in judging a particular case – are entitled to formulate policies in areas where the law is ambiguous in the opinion of the court.
- No employment contract is strictly legal unless approved by the Ministry of Labor, which leads to the Ministry having to devise and validate special contracts for specific working conditions, without which employers are left vulnerable to expensive lawsuits.8
- Such interventions, although well-intentioned, can lead to further ambiguities, exacerbating the problem of uncertainty about the full costs of labor by tying employers in costly, time-consuming delays in court cases that are usually resolved in favor of the worker.
- Collective bargaining between workers and employers can be an instrument for formulating more definite contracts, but collective bargaining rules in Brazil and the practices they have engendered are often insensitive to work-specific conditions.

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7 For example, a worker who worked for less than the full hours per week for a year is entitled to *proportional* amount of paid vacations and mandatory Christmas bonus of a worker who worked full time all year under one part of the law, but *full* benefits under another.

8 For example, the Ministry of Labor has recently been asked to devise a special contract for workers employed by farmers during short harvest periods.

- The rates of payroll contributions and the design of programs that they fund encourage evasion and informality.

With these concerns in mind, the Ministry of Labor has prepared a reform program, which is being presented for consideration by the legislature. While it falls well short of a comprehensive labor reform, the draft bill has much to recommend it, since it attempts to implement reforms identified as the subset of changes that are both important for improving labor market outcomes and are likely to be approved by both the executive, legislative, and judicial branches of government, and by the influential employer and employee federations.

The five fundamental aims of the Government's reform agenda are:

- Reduce the uncertainty of labor costs for employers.
- Create the conditions for more durable employee-employer relationships, so that both employers and employees voluntarily choose to stay together because the contract can be frictionlessly changed in response to changing work and market conditions.
- Create the environment for more representative collective bargaining.
- Reform implementing institutions to ensure better enforcement of contracts.
- Reduce the incentives to become informal.

In 1997, the government implemented some labor reforms, principally the introduction of temporary contracts of employment during which the employer pays lower payroll taxes and is allowed to dismiss the worker with considerably lower severance costs. In 1998, the government's response to the rise in open unemployment – as measured by monthly surveys – has been to introduce a package of labor market measures that aim to change some clauses of the labor code, and reform and expand active and passive labor market programs. The main proposed changes are reduction of weekly hours that qualify workers for full-time worker status, greater decentralization of collective bargaining and measures to encourage labor disputes to be settled by worker-employer committees, allowing temporary layoffs to be funded by credits from FAT resources, to be repaid if the employer decides not to re-hire the worker at the end of the layoff, elimination of policy-setting or "normative" powers of labor courts, and lowering payroll tax rates.

Some of these measures require *constitutional reforms* (e.g., changing rules of union finance and membership), others require *changes in labor legislation* (e.g., allowing temporary layoffs), and yet others can be *implemented immediately by the executive* branch of government (e.g., extending the duration of unemployment benefits). This section lists these actions and briefly discusses their objectives.

The feasible reforms (those that have been debated over the past few years) and which are believed to be able to improve labor market outcomes are:

- **Eliminating contradictions between the Labor Legislation and the Constitution.** The consensus for a comprehensive review of the current labor legislation and the mechanisms by which it is enforced is being built but is likely to take some time. In the meantime, the Ministry has submitted a bill for consideration by Congress that seeks to eliminate contradictions between the labor legislation and worker rights guaranteed under the Constitution of 1988.
- **Severance Laws.** While reform of the severance fund (FGTS) has not been formally attempted, there have been proposals suggesting de-linking the access to the fund from dismissals in order to reduce the perverse incentives for workers to induce dismissal. A Ministry of Labor proposal to reduce the rate of employers' contribution to fund the FGTS from 8% to 2% of payroll met with opposition within and outside the government in 1998, and was dropped. But the national association of private pension funds is preparing a proposal to convert 4% of the FGTS to a mandatory individualized defined contribution pillar. If seriously considered, this could be accompanied by a reform of the unemployment compensation system to function more like an unemployment *insurance* plan (i.e., actuarially based).
- **Maximum Hours Worked.** The government is considering the reduction in weekly work hours (*Jornada de Trabalho*) from 44 to 40 hours.9 One of the proposals of the current administration is to reduce the hours of work that qualify a person for a full-time contract (which entitles the person for greater benefits than part-time work). The objective of this measure is to flexibilize the work-week, by permitting daily work to range from 5 to 8 hours, and weekly hours from 26 to 40 hours.

9 That is, the maximum number of hours of work per week without the payment of overtime wages.

- **Temporary contracts**. In 1997, the government introduced legislation that would allow employers to hire new workers on temporary contracts, during which non-INSS related payroll taxes would be waived and dismissals would be less costly. These measures were expected to lead to increased employment, as the non-wage costs of labor would be reduced.
- **Union representation**. For a single sector or occupation, Brazilian labor laws do not allow for more than one union per municipality – the "*unicidade sindical*" provision. For all practical purposes, this legislation outlaws plant-level collective bargaining. The Ministry of Labor has proposed that this law be altered to facilitate collective bargaining to reflect firm-level conditions. The Ministry has also proposed changes in the mechanisms by which unions are financed, making union fees voluntary rather than mandatory contributions. This change is designed to ensure that unions better represent worker interests.
- **Policy-making powers of labor courts**. Brazilian labor laws gives labor courts policy-setting powers "*poder normativo*" in that these courts can form policy on issues which are left unclear by the CLT and the constitution As a result, labor court rulings have influence far beyond the case being arbitrated, in effect serving a policy-making role that should be the responsibility of the Ministry of Labor. Reforms being contemplated to curb this policy-setting role of labor courts while also reducing ambiguities in the labor law are thus likely to reduce the uncertainty regarding the full cost of labor, and hence result in increased labor demand.
- **Minimum wage.** Brazil has a nationwide minimum wage which is at the same time the minimum legal wage in the private sector and the minimum payment for pensions of the social security system. The recent introduction of wage floors attempted to: (a) regionalize the minimum wage, (b) de-link social security pensions from the minimum wage, (c) de-link public employees salaries from the minimum wage.

II. Social protection: unemployment compensation , social security and safety nets

The main objective of this section is to discuss social protection to informal workers in Brazil and Suriname. The lack of social protection that characterises the conditions of the vast

majority of those working in this segment is captured lack of job security associated with high turn-over rates and a lack of unemployment benefits, pensions and health insurance. A detailed diagnosis institutional and empirical aspects of these issues should allow us to trace out some implications for possible future reforms of social security, safety nets programs and labor legislation schemes. This section discuss the main issues related to unemployment compensation and social security.

i. Unemployment compensation in the formal sector

Until 1965, to fire a worker without a proper justification the employer had to pay one month's wage for each year of work in the firm. The compensation was calculated on the basis of the higher wage received during the work contract. It was a duty of the employer to prove the dismissal was justified, and the conditions for justified dismissals were clearly defined in the law. After 10 years in the same enterprise, dismissals were forbidden by law, except if properly justified. In 1966, this entire system of protection against non-justified dismissals was changed. A severance fund was created, called the *Fundo de Garantia por Tempo de Serviço* (FGTS). When hiring a worker, the firm had to open a banking account for the worker and deposit 8% of the value of the wage in the account. Today, Caixa Economica Federal, a government saving and loans institution, collects the FGTS levy and invests it primarily in urban housing projects giving workers a legally guaranteed minimum deposit rate.

When dismissed without a just cause ("*sem justa causa*") the worker could draw this money and received a monetary compensation corresponding to a fine of 10% over the total amount of the fund. Like many other Latin American countries (see Loayza, 1998), dismissal for economic reasons is not considered a just cause. In 1988 the fine for unjust dismissal was increased to 40% of the worker's FGTS account balance. Besides this fine, the employer has to notify the worker one month before he will be fired. This is the "*aviso prévio"* law, or previous notification of firing. During the month the worker has received the previous notification of firing, he/she is allowed, according to the law, to take two hours a day to look for a new job. This implies a minimum cost of 25% of the worker's monthly wage. In fact the cost is usually higher since firms end up paying the notification fee to the worker and dismissing him immediately.

Thus, the total cost of dismissal is 25% to 100% of the monthly wage plus 40% of the FGTS. The cost depends on the number of months the worker has worked for the firm. Table 1 shows the costs for the firm, in numbers of monthly wages, according to the

number of years of the worker's contract, under the assumption that the full cost of firing is borne by the firm. This table shows is that if, for example, the worker stayed one year with the firm, the cost of dismissal is, at most, 1.41 monthly wages. The cost to dismiss a worker who has been with the firm for 5 years is, at most, 3.19 monthly wages, and so on.

Table 1: Total Cost of Firing a Worker

As a multiple of monthly wages

Tenure	1 yr	2 yrs	3 yrs	4 yrs	5 yrs	10 yrs	15 yrs	20 yrs
FGTS fine	0.41	0.84	1.27	1.72	2.19	4.72	7.66	11.07
Aviso previo	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total	1.41	1.84	2.27	2.72	3.19	5.72	8.66	12.07

Since 1986, when fired, besides the advance notice, access to the FGTS (and the 40% fine for unfair dismissal), the worker also has the right to an unemployment compensation benefits. The unemployment compensation program offers partial coverage for up to four months of unemployment (extended to five months after 1996). To become eligible to receive the benefit, the worker must meet the following criteria: (a) to have been dismissed without a just cause; (b) to have had a formal labor contract during the last six months or to have been legally self-employed for at least 15 months; (c) to be unemployed for at least seven days; (d) must not receive any other pension; (e) must not have any other type of income sufficient to guarantee his own subsistence and that of his family. The value of the benefit cannot be lower than the value of the minimum wage, is adjusted monthly for inflation, and is related to the average wage received by the worker in the last three months in the previous job.

ii. Social security contributions

The main benefit offered by the social security system in Brazil is a retirement proportional to the salary of the worker. The system is weak with respect to the incentives for firms and workers to contribute. The main disincentives:

- The pension is proportional to the worker's salary in the last 36 months before he retires. Hence, the incentives to report salaries accurately for much of the working life is small. The reference period will be extended to 10 years under a new law, improving

the situation somewhat. It is possible to show that the law hurts the poor because they have flatter earnings-age profile.

- The factor of proportionality (replacement rate) for INSS pensions is high, ranging between 70% (reduced) to 100% of reference wage, prompting early retirement since under the main INSS program one does not have to wait until a retirement age if a person has minimum years of service (generally 30 years for women and 35 years for men, five years less for reduced pensions, and for special occupations such as teachers). Reforms currently in Congress will end reduced pensions, count years of contributions rather than years of service, and revoke some special pension regimes.
- Under the Old Age program of the INSS, anyone is eligible for a pension after 65 years old (for male workers) or 60 years old (for female workers) independently of how many years he/she contributed to the system. This also reduces the incentives to contribute.
- Until the Constitution of 1988, public health was restricted to workers' contributing to social security. Since then, it has become an universal right of all Brazilian citizens, again reducing the incentives to contribute but offering protection to informal workers.
- Social security reforms should reduce the incentive to become and stay informal. Standart models of mechanism design under assymetric information conditions can be developed to capture the types of incentives that should be given to informal workers to join the social security system, as follows. The government attempts to maximize its revenues subject to two constraints. The worker should want to join social security (participation constraint) and to reveal its type correctly (incentive compatibility restriction). According to this perspective, the ideal social security system would be the one that maximizes the number of workers covered without causing fiscal déficits.
- The existence of institutional changes promoted by the 1988 Constitution in Brazil wallow us to test the implications of the model. These changes include; a. the universalization of rural retirement schemes with a 100% increase in benefits. b. universalization of aceess to public health. Itens a. and b. include those that did not contribute to social security. c. institution of a 4-month to maternity leave right.

iii. Safety nets for the Informal Sector

Attempts to extend social protection to the informal sector may crowd out some informal activities. For example, means testing to award benefits immediately creates the problem of creating "incentives to be poor." Targeted interventions to some extent get around the issues of incentives by focusing on household characteristics that cannot be changed easily, but are then by definition limited in scope.

One program that has the right theoretical underpinnings to bring social protection to the informal sector comes under the general heading of "workfare10." Unless wages are set very low in such programs, they face similar issues of crowding out of private productive activities as means testing and unemployment benefit.1112.

The answer to protecting workers in the informal sector must come from a combination of policies. Targeted interventions can protect children and the elderly. Pro-poor growth can generate income opportunities for rural and urban informal workers. Direct service provision can supply basic needs to poor communities. And careful means testing can provide a way of targeting modest transfers to those most in need. Finally, particularly in severe economic downturns, there may be a role for public "workfare" programs if the institutional capacity exists to prevent wage-creep in such programs and the resulting crowding out of productive private activities.

The key question is how to extend affordable social protection to workers in the informal sector. We highlight the following questions:

- how feasible is for private insurance schemes to provide affordable coverage to the better-off segments of the informal sector vis a vis community-based schemes.
- how to enhance occupational health and safety through simple low-cost measures. There is less experience with this than with social security, but the message will be that preventive measures concerning workplace health and safety are essential to reducing the social and economic costs emanating from poor working conditions. While social

10 Such a program was implemented as an emergency measure in the Northeast after the drought of 1998 and 2001. Argentina, Mexico, and Chile have all instituted forms of workfare at different times.

11 The wage in the emergency workfare program in Northeast Brazil in 1998 was set at roughly half the minimum wage for a three-day working week. If such a program were instituted on a more permanent basis, it would probably crowd out a good deal of private activity

12 Programs such as the old-age and disability pension (Benefício de Prestação Continuada) or the minimum income program for poor families with school-age children (*Bolsa Escola*).

security targets the informal sector worker, occupational safety and health measures, which should be seen as complementary, target the informal enterprise. We use in section 3 microdata to evaluate the health status and the access to health services among different working classes found within the informal sector.

- We should also look at the household structure of those in the informal sector. Informal workers have dependents. Insofar as informal workers are made vulnerable by the nature of their employment relations, then so are their dependents. It is therefore necessary to understand the extent of such dependency relationships. Thomas (1999) shows that informal workers and formal workers have similar numbers of children in the household on average but informal household heads are much more likely to have elderly 65+ household members.

- One factor that may alleviate the risks faced by informal workers is the presence of other workers in the household who work in the formal sector. Where formal and informal workers are found sharing resources by living in the same household, then some degree of mutual insurance is taking place. To the extent that the informal activities are riskier (generate more variable income), formal workers living with informal workers are therefore sharing this risk. To the extent, furthermore, that these formal workers receive state benefits, informal workers may also benefit. Thomas (1998) showed that: "First, more than two-thirds of informal workers are not residing with anyone working in the formal sector. This proportion is 60 percent in urban areas and rises to 85 percent in rural areas. It is therefore unlikely to be the case, that informal workers are in general supported by formal workers."

BOX 1 - Access to Social security and Banking Services in *Favelas*

The census of business establishments of the poor communities of Rio de Janeiro (CBR) shows that 50% of the entrepreneurs are self-employed, and 77% of the employees have no social security (Table 2). Together, the self-employed; non-registered workers, and employers, correspond to 88% of the work force of those enterprises.

Table 1 Social sercurity according to labor status:

Social sercurity according to labor status:

Labor status	Social Security			Total
	Yes	No	Doesn't apply	
Employee	313	1076	1	1390
	(22,52)	(77,41)	(0,07)	(100,00)
Employer	-	2	1611	1613
	0,00	(0,12)	(99,88)	(100,00)
Self-employed	-	4	3280	3284
	0,00	(0,12)	(99,88)	(100,00)
Non-paid	-	-	592	592
	0,00	0,00	(100,00)	(100,00)
	313	1082	5484	6879
	(4,55)	(15,73)	(79,72)	(100,00)

Source: Census of Business Establishments of the Slums of Rio de Janeiro

What percentage of work force residents of the low income communities covered by CBR have a bank account. Table 4 shows that in general the workforces from these communities do not have a very strong relationship with the financial system, as only ¼ of them have a bank account. It is also worth mentioning that those workers that have a stronger connection with the financial system are the employers, and employees both registered and non-registered, who work outside the low income communities.

Table 2 Bancarized population according to labor status and job location:

Bancarized population according to labor status and job location:

Labor Status	Bank account		Total
	Yes	No	
Employee within the community with social security	(21,9)	(78,1)	(100,0)
Employee outside the community with social security	(30,7)	(69,3)	(100,0)
Employee within the community without social security	(15,7)	(84,3)	(100,0)
Employee outside the community without social security	(24,1)	(75,9)	(100,0)
Employer	(49,2)	(50,8)	(100,0)
Self-employed	(23,2)	(76,8)	(100,0)
Total	(27,5)	(72,5)	(100,0)

Source: CBR

III. Occupational safety and health issues

We use here the microdata from PNAD98/IBGE Special Suplement at a national level. The objectives are to evaluate the health status and the access to health services among different working classes found within the informal sector.

i. Health status

The subjective self-evaluation of health conditions show that employees with card (86.1%) are more likely to find their health status good or very good than self-employed (71.2%), employees with no card (83.4%), agricultural workers (78.5%), domestic servants (75.7%) and unpaid workers (72.1%).

The incidence of health problems in the last two week are less common in employees with card (2.27%) than informal workers group: self-employed (4.26%), employees with no card (2.93%), agricultural workers (3.13%), domestic servants (3.56%) and unpaid workers (3.88%).

Table 1 presents an idea of different diseases incidence. The high incidence among the self-employed of hypertension (14.5%) and heart disease (4.62) is an aspect that caught our attention. The high income volatily observed among the self employed combined with their higher average age are natural candidates to explain these differences.

Table 1

Health Profile by Working Class - %
Brazil

	Total	Empl. with card	Empl. no card	Self-Emp.	Employer	Public Servant	Agricult. Worker	Domestic Servant	Unem-ployed	Unpaid	Inactive	Missing
Consider your health good or very good	79.11	86.14	83.44	71.16	82.32	81.34	78.49	75.74	81.26	72.11	71.89	91.78
Was abed in the last two weeks	3.94	2.27	2.93	4.26	3.26	3.18	3.13	3.56	3.77	3.88	5.10	3.51
Has back pain	17.41	16.57	16.87	30.79	24.19	23.36	24.95	23.37	16.72	22.87	20.33	0.38
Has arthritis or rheumatism	8.16	3.45	4.77	13.53	7.98	7.74	9.46	9.60	5.30	13.97	12.43	0.26
Has cancer	0.22	0.09	0.15	0.22	0.41	0.21	0.15	0.22	0.13	0.23	0.39	0.05
Has diabetes	1.97	1.11	0.95	2.22	3.27	1.97	0.85	1.91	1.13	1.64	3.69	0.06
Has bronchitis or asthma	4.85	3.12	3.54	3.51	2.74	3.13	2.79	4.17	4.87	3.55	5.20	7.70
Has hypertension	10.57	8.30	6.94	14.47	14.50	11.80	9.07	13.69	7.81	13.36	16.20	0.09
Has heart disease	3.89	2.19	2.30	4.62	4.38	3.26	2.34	4.02	2.88	4.01	6.83	0.48
Has chronic renal disease	2.51	2.06	2.53	4.68	3.55	2.64	3.91	3.17	2.15	3.61	2.94	0.19
Has depression	4.96	3.56	4.12	6.54	5.21	6.33	3.11	7.65	6.71	5.57	7.23	0.21
Has tuberculosis	0.09	0.07	0.07	0.12	0.09	0.06	0.07	0.10	0.15	0.12	0.11	0.04
Has cirrhosis	0.15	0.12	0.22	0.24	0.20	0.13	0.20	0.10	0.15	0.10	0.19	0.03

Source: CPS/FGV processing microdata from PNAD98/IBGE Special Suplement .

ii. Access to Health Services

The access to private health services are much higher employees with card (42.9%) than among the self-employed (15.3%), employees with no card (16.3%), agricultural workers (18.4%), domestic servants (15.9%) and unpaid workers (24.3%). The quality of the plan among those who have a private health plan is not very different among different working classes. This point is observed for the value of the plan, its sophistication measured by the coverage of hospital expenses, complementary exams etc.

ILO (2001) emphasizes the need to enhance occupational health and safety through simple low-cost measures: "There is less experience with this than with social security, but the message will be that preventive measures concerning workplace health and safety are essential to reducing the social and economic costs emanating from poor working conditions Having earlier noted the concentration of informal activity in informal settlements and other disadvantaged quarters, there will be a discussion of the way in which urban upgrading schemes which have been the focus of considerable effort on the part of some governments and development agencies, can and should also focus on work place conditions". We turn to the access to urban infrastructure in section 8.

Table 2

Health Insurance by Working Class - %
Brazil

	Total	Employees with card	Employees no card	Self-Employed	Employer	Public Servant	Agricultural Worker	Domestic Servant	Unemployed	Unpaid	Inactive	Missing
Has access to Health Insurance	24.45	42.91	16.33	15.33	47.66	55.52	3.98	9.11	17.62	7.52	26.00	20.45
Value of Health Insurance above 50 reais per month	48.04	63.29	34.25	30.72	13.10	57.12	71.39	63.36	41.77	36.87	32.14	63.86
Health Insurance allows complementary examinations	96.35	96.37	95.12	95.30	97.42	96.70	94.94	92.11	96.24	94.84	96.39	97.71
Health Insurance allows hospital expenses	93.64	91.68	91.87	91.50	97.24	96.09	91.83	82.27	90.53	92.61	95.30	95.31
Looked for health service during the last two weeks	12.99	12.27	9.63	10.54	13.49	15.27	6.90	13.32	11.98	11.00	14.97	13.21
Health Insurance only for tooth treatment	3.52	5.23	3.29	2.02	2.44	3.49	5.36	2.25	1.76	1.75	1.66	1.49
Visited the dentist during the last two years	51.76	69.79	58.73	46.33	73.37	71.83	34.04	52.76	62.89	43.38	54.28	33.89

Source: CPS/FGV processing microdata from PNAD98/IBGE Special Suplement .

IV. Organization and representation in the informal sector (Voices of Informality)

Social capital can be understood in a broad sense by a variety of types of coordination mechanisms (or institutions) that affect the social and private returns of public and private assets. The complementarily between this type of capital and the other types of capital is essential to the understanding of the concept of social capital. For example, the

organization of production factors will be a key determinant of the returns obtained from a given amount of physical and human capital accumulated.

i. Professional Associations and Trade Union Membership

A first set of social capital indicators is related to enrollment rates in trade unions and non-community associations activities. There is an inverse relation between membership rates in such organizations and informality (43.3% for formal employees and 14.5% for both informal employees and the self employed).Consistent with this result is the fact that individuals with higher level of formal education have higher probabilities of being a members of those organizations. The analysis of the universe of those that are not members of trade unions or non community associations today but were members in the last five years is much closer (19.7% for formal employees, 19.5% for informal employees and 16.6% for the self employed) The rates of effective current participation on these activities is much smaller in all these groups only 8.8% of formal employees attend at least one meeting per year. The same statistic corresponds 14.5% for informal employees and 3.25 in the case of the self employed.

Table 1

BRASIL METROPOLITAN
TRADE UNIONS AND NON COMMUNITARIAN ASSOCIATIONS MEMBERSHIP

		% Trade Unions and Associations Membership									
		Total		Occupied		% Attends at Least one Meeting per Year		% Attends at Least four Meetings per Year		% Is Not a Member today, but was in the last 5 years	
		Total	Poor	Total	Poor	Total	Poor	Total	Poor	Total	Poor
Total		25.93	18.17	31.48	23.63	4.82	2.85	3.35	1.94	15.77	14.92
Working Class	**Unemployed**	11.84	11.56	---	---	2.16	2.06	1.39	1.28	10.68	11.11
	Inactive	11.12	12.09	---	---	1.62	1.75	1.20	1.22	29.27	29.77
	Employees (w/card)	43.33	37.84	43.33	37.84	8.75	5.90	6.18	3.89	19.65	19.06
	Employees (no card)	14.60	12.22	14.60	12.22	2.03	1.38	1.49	1.30	19.48	18.86
	Self - Employed	14.54	10.19	14.54	10.19	3.15	1.93	2.25	1.37	16.62	16.05
	Employer	31.31	22.29	31.31	22.29	7.56	3.05	5.40	3.05	13.57	11.32
	Public Servant	48.99	41.35	48.99	41.35	11.87	9.36	7.90	6.39	13.25	12.82

Source: PME_Suplemento 96 - IBGE

ii. Non professional associations

The membership rate in community associations are much lower for formal employees (12.6%) and closer to informal sector occupations (12.3% for informal employees, and 12.7% for the self employed). Nevertheless, the proportion of individuals that attend to at least one meeting per year is higher for community associations than the other types of relationships with associations analyzed. Note that the discrepancy formal

and informal memberships rates (specially controlled for intensity) is also smaller in the case of community associations. Informal workers are slightly more likely to attend meetings.

Analysis of community associations composition revealed a greater importance of neighborhood associations (31.4% for formal employees, 34.7% informal employees and 37.6% for the self employed) and religious associations (34.9% for formal employees, 38.1% informal employees but 33.1% for the self employed) among informal workers associates.

Table 2

COMMUNITARIAN ASSOCIATIONS

		% Membership		% Attends at Least one Meeting per Year		% of Those that are Members are: Neighborhood Associations		% of Those that are Members are: Religious Associations		% Atheist	
		Total	Poor	Total	Poor	Total	Poor	Total	Poor	Total	Poor
Total		13.24	11.61	10.37	9.32	32.17	39.49	35.27	36.62	6.21	5.83
Working Class	**Unemployed**	12.87	12.60	10.34	10.23	30.29	32.90	43.48	43.16	4.51	4.69
	Inactive	11.79	11.40	9.98	9.55	41.86	42.77	31.16	28.92	7.07	7.62
	Employees (w/card)	12.57	9.92	9.80	7.61	31.37	43.45	34.87	33.19	6.23	5.53
	Employees (no card)	12.29	9.67	9.88	8.25	34.67	49.11	38.14	36.30	7.51	7.34
	Self - Employed	12.71	10.42	10.08	8.31	37.59	48.39	33.08	30.16	7.06	7.62
	Employer	18.85	18.98	13.52	12.76	23.41	36.22	28.67	29.13	7.09	5.72
	Public Servant	16.14	15.35	11.95	12.70	30.94	41.18	22.35	23.53	7.46	5.73

Source: PME_Suplemento 96 - IBGE

iii. Political Activities

We move now to political activities. The rates of *formal affiliation to political parties* are quite small among all working classes considered especially if we take into account the fact that our analysis is restricted to the six main Brazilian metropolitan regions. The rate of participation of those that are members of political parties are also similar among this groups in the 35 to 40% range. The low affiliation rates can be a result of high requirements to political affiliation in terms of active participation.

Given the low rate of formal affiliation to political parties we will use the less stringent concept of having *sympathy for political parties* (24.8% for formal employees, 22.3% informal employees and 21.4% for the self employed). The qualitative result yields by the two concepts are similar, including its relative constancy along the income distribution. One final set of questions on political literacy shows that 88% for formal employees, 80.2% informal employees and 82.3% for the self employed knew *the correct name of the Brazilian President* (Fernando Henrique Cardoso). When one imposes the more stringent condition that the head knew the name of the president, and respective governor and mayors these statistics fell to 74.7%, 66.4% and 68.8%, respectively.

Table 3

POLITICAL ACTIVITIES

		% Members of Political Parties		% Participants in Political Parties Activities		% Has Linking With Political Parties		Does not Use any Source of Information to Decide Voting		Of Those that Use Source of Information - % That Use TV to Decide Voting	
		Total	Poor	Total	Poor	Total	Poor	Total	Poor	Total	Poor
Total		4.52	3.33	40.14	43.54	22.14	19.10	37.12	41.46	64.33	61.72
Working Class	**Unemployed**	2.90	2.73	36.38	37.20	18.36	17.99	44.69	45.64	62.53	62.02
	Inactive	4.77	4.19	40.28	46.00	22.31	20.67	37.35	39.35	70.19	68.52
	Employees (w/card)	4.30	3.89	39.86	47.81	24.88	19.87	32.42	34.93	65.35	62.29
	Employees (no card)	3.67	2.73	36.23	44.29	22.29	19.46	36.22	40.73	64.11	56.97
	Self - Employed	5.18	3.43	38.95	47.57	21.41	19.22	38.46	41.39	63.96	60.80
	Employer	5.97	4.55	57.96	66.67	22.17	23.56	30.49	33.72	69.58	71.46
	Public Servant	8.78	5.37	41.50	33.33	26.13	21.67	31.61	38.78	61.37	57.99

Source: PME_Suplemento 96 - IBGE

Table 4

POLITICAL CULTURE

		Believe that is Important Voting in				Knows the Correct Name of			
		Party		Candidate		President		Mayor, Governor and President	
		Total	Poor	Total	Poor	Total	Poor	Total	Poor
Total		26.19	26.01	88.77	87.91	83.58	76.59	70.93	62.15
Working Class	**Unemployed**	23.82	24.50	89.14	88.62	76.10	74.85	62.21	60.24
	Inactive	27.70	28.28	87.21	86.31	83.24	79.60	67.73	64.60
	Employees (w/card)	27.83	27.51	88.41	87.35	88.05	81.23	74.74	65.58
	Employees (no card)	24.93	26.23	87.99	86.14	80.28	72.48	66.42	58.22
	Self - Employed	25.58	25.55	88.70	88.01	82.25	74.33	68.80	58.98
	Employer	24.62	30.23	91.39	87.09	95.11	90.03	88.11	84.93
	Public Servant	30.19	29.11	88.89	89.06	90.92	80.67	84.81	72.36

Source: PME_Suplemento 96 - IBGE

V. Access to resources in the informal sector

The assessment of resources possession will be structured under three headings:

- Physical capital (financial assets, durable goods, housing, land, public services and transportation)
- Human capital (schooling, technical education, age, experience and *learn by doing*)
- Social capital (employment, trade unions and associations membership, political participation and family structure).

The availability of new sources of data opens previously unmatched conditions in the Brazilian case to trace an asset profile of the poor. The conjunction of different household surveys opens the possibility of taking a broad picture of assets possession during 1996. Appendix presents a broad picture of the access to different assets possession. We will use working class categories. Our strategy is to compare the access to selected

resources mentioned in ILO proposal in the various segments of the informal sector and compare it with formal sector.

i. Dealing with new technologies

The new requirements on labor skills imposed by the information age puts specific capital importance into new heights. Formal technical education and access to new equipment where one can *learn by doing* are today considered household units strategic resources. PME special supplement contains questions on these issues. This data reveals that 15.1% of formal employees against 9.9% for both informal employees and 10% the self employed) did a technical course equivalent to a high school degree. In 1996, 33.2% of formal employees, 18.7% for both informal employees and 15.7% of the self employed perceived a regular incorporation of new equipment on their work. It is interesting to note that except for formal employees, these statistics are smaller than the ones reported by recall referring to 1991, 31.3%, 23.55 and 19.7%, respectively. This result is consistent with the idea that to some extend informal workers are victims of technological jobs displacement. These numbers indicate a reduction in the rhythm of labor augmenting technological progress in the 1996 compared to 1991. When asked about what is the perspective of the occupation exerted in 1996 five years in the future: 66% of formal employees and 57-58% for both informal employees and the self employed) said that they will need greater knowledge. While respectively 84.6%, 78.2% and 80.2% of these categories said that they believe that without new knowledge there is a big risk of losing the current occupation. It is interesting to notice that the difficulty of adapting to new equipment either in 1996 and 1991 was greater for informal workers. In sum, the access to new knowledge, the facility found in dealing with it and the perceived occupational risk of not acquiring this new knowledge were smaller for informal sector workers.

Table 1

OCCUPATIONAL MOBILITY - 91/96

		Perceive Regular Incorporation of New Equipament				Ranked Among the Well Paid in the Occupation				Occupational Satisfaction		Occupation
		91		96		91		96		in 96 Superior to 91		in 96 Su
		Total	Poor	Total	Poor	Total	Poor	Total	Poor	Total	Poor	Total
Total		26.79	20.42	25.82	17.60	39.02	32.52	31.24	24.25	67.90	61.93	27.40
Working Class	**Unemployed**	24.10	27.78	14.04	17.58	36.15	38.89	25.44	26.37	62.28	68.13	18.29
	Inactive	14.29	9.09	0.00	0.00	28.57	18.18	23.53	14.29	64.71	64.29	35.71
	Employees (w/card)	31.34	24.44	33.20	24.02	39.54	32.40	33.04	26.29	72.54	67.92	28.04
	Employees (no card)	23.51	20.28	18.71	14.16	37.10	31.34	30.20	23.74	63.50	56.82	28.45
	Self - Employed	19.70	16.95	15.74	11.26	38.13	33.41	29.25	23.15	62.47	56.95	27.88
	Employer	32.69	25.48	30.67	24.27	53.26	42.99	43.37	32.60	70.64	70.29	27.08
	Public Servant	26.39	15.03	29.14	21.34	32.16	27.39	23.35	17.87	67.80	63.43	23.33

Source: PME_Suplemento 96 - IBGE

Table 2

SPECIFIC HUMAN CAPITAL

		Did Technical Course Equivalent to High School		Believe that to Work in the Same Occupation in the Next 5 Years: Need Greater Knowledge		Without new Knowledge there is a Big Risk of Losing The Job		Find Difficult to Adapt to New Equipament: 91		96	
		Total	Poor	Total	Poor	Total	Poor	Total	Poor	Total	Poor
Total		13.08	8.26	62.80	57.61	81.13	78.45	16.84	17.12	16.90	17.13
Working Class	**Unemployed**	8.26	7.79	37.72	37.36	64.04	62.64	14.71	15.63	21.21	21.21
	Inactive	12.75	10.32	52.94	64.29	76.47	71.43	0.00	0.00	0.00	---
	Employees (w/card)	15.12	8.37	65.99	61.17	84.57	82.01	16.37	16.47	15.63	16.27
	Employees (no card)	9.89	6.12	57.87	51.99	78.21	75.41	16.15	17.29	17.49	18.73
	Self - Employed	9.97	6.35	57.41	54.94	80.25	77.90	17.54	18.33	18.75	17.77
	Employer	25.14	19.41	68.72	65.29	85.35	82.06	19.79	19.38	21.16	22.27
	Public Servant	24.90	17.20	66.87	61.57	71.23	70.56	15.82	15.31	15.48	14.83

Source: PME_Suplemento 96 - IBGE

BOX 2 - MICRO-ENTERPRISES INCUBATORS IN RIO DE JANEIRO

The Enterprise incubator is an environment specially designed for the development embryonic enterprises over a 3 to 5 year period. The activities developed are of a technological nature benefiting from the interaction with universities and research institutes. The perception of the potential role to be played by enterprises incubators date back to the successful experience in Silicon Valley in the fifties. But it was not until the second half of the eighties that the creation of incubators around the world became widespread.

Besides Rio municipality five other institutions are directly involved in supporting incubators located in the city. These are: SEBRAE/RJ, FIRJAM, CNPq, FAPERJ and Rio de Janeiro Commercial Association. There is today five incubators operating in Rio municipality:

BIO-RIO – aims at consolidating micro-enterprises and technological projects in the area of biotechnology and related sectors. BIO-RIO also seeks to enhance the link between science and manufacturing activities besides providing administrative services such as imports management and financial management

CEFET/RJ – hosts micro-enterprises in the area of telecommunications, computers, electronics and high precision mechanics. By providing support in technical, administrative and commercial areas, CEFET/RJ enhances the access to markets and reduces financial risks of the newborn enterprises.

IEBTec (RIO DE JANEIRO STATE UNIVERSITY POLITÉCHNIC INSTITUTE)-P rovides physical facilities and technical services for the rise and consolidation of innovative micro-enterprises in the center-north region of Rio de Janeiro, transforming technological knowledge into benefits to society.

PUC-RJ (Rio de Janeiro Catholic University) has two incubators:

Gênesis – aims at stimulating new, technolgoy intensive enterprises derived from research and development activities conducted by the university students and professors.

InfoGene – is an incubator in the info area which promotes the creation of new enterprises with an university background that will be able to improve Rio's competitiveness in domestic and international markets for software, services and information.

COPPE-UFRJ – Pioneering the creation of institutional mechanisms of interaction with the rest of society. COPPE allows the transformation of results from new research into new business, creating employment opportunities and incubating modern entrepreneurial attitudes in the municipal economy. Under the auspices CNPq, FINEP, and Rio de Janeiro Municipality, the small enterprises can stay in the incubator up to five years periods.

VI. Entrepreneurship and micro-enterprise dynamics

The operation of public employment policies in Brazil can be divided in two broad groups. The first group consists of policies designed to assist the unemployed through unemployment insurance, intermediation schemes, training programs and direct employment programs (e.g.; frentes de trabalho da seca) . The second and more embrionary group of policies is aimed at fostering micro and small enterprises employment generation potential through a series of initiatives: productive credit, technical assistance, marketing support and cooperatives building.

According to the May 98 national Ibope-CNI survey, the biggest concern of Brazilians is unemployment indeed. When individuals were asked what are the main

policies to fight unemployment the main answers were: 'support micro and small enterprises' (44%), 'training programs' (16%) and 'interest rate reduction' (14%). Despite of the importance attributed by the population to interventions designed to assist micro-entrepreneurs, little is known about how micro-entrepreneurial activities operate in Brazil and consequently how to design efficient policies to enhance this segment.

Complementarily, standard poverty profiles shows that no other head of household working class (including inactive states) has a bigger contribution to poverty in Brazil than self-employment. However, once again little is known about how poor self-employed behave and what are their main productive needs.

The next step is to run logistic regressions of micro-entrepreneurial transitions on a broad range of explanatory variables. We attempt to assess the role played on entrepreneurial success by various personal characteristics (sex, household status, race, religion) and by various types of assets such as: Human Capital (experience, formal education, educational background, professional training), Physical capital (access to new technologies) and Social Capital (membership in cooperatives and community associations). The main purpose of this exercise is to guide the implementation of capital enhancing policies aimed at increasing micro-entrepreneurs success rates.

The final step construct boxes of case studies of entrepreneurial activities in Rio de Janeiro. First, we extract from a sample of micro-entrepreneurs from Rocinha some lessons for the implementation of productive micro-credit turned towards the poor. In particular, the analysis of informal arrangements and other characteristics of poor entrepreneurs is implemented trying to extract lessons for the design of micro-credit contracts. Finally, we briefly describe the operation of technologically advanced micro-enterprises incubators.

i. Self-employment entrepreneurial success

Our strategy is to study movements into and out of self-employment and employer status as qualitative evidence on the nature of these activities. The idea can be putted as *tell me where will you go (and where did you come from) and I tell you* ***who*** *you are*. In particular, we will use the transitions from self-employment to employer occupations as a proxy for the degree of entrepreneurial success. The main point here is to distinguish self-employment activities turned to subsistence from those with a growth potential. The

transition between self-employment to employer can also be seen as a measure of employment creation intensity in the self-employed sector.

We will implement a casual interpretation of the role played by resources and individual characteristics on micro-entrepreneurial success. This analysis is in many aspects similar to the one presented in section. We take advantage of PME supplement to PME that went to the field in 1996 and we examine transitions over the five year period. This five year window seems more relevant to the analysis of individuals life-cycle occupational behavior. Another advantage of the supplement is to provide a much richer set of endogenous variables than the usual PME survey to study working classes transitions.

Table 1 presents the summary of different logistic regressions considered the effects each explanatory variable considered in isolation on the probability that a self-employed becomes an employer. This table presents a column labeled as marginal probability that refers to the differences in probability between two states of each variable taken in isolation. The states are indicated in the OBS column. For example, males self-employed probability to ascend employer status is 90% greater than the one observed for females (i.e., its complement).

TABLE 1

LOGISTIC MODEL - ANALYSIS OF PARAMETER SIMPLE ESTIMATES
VARIABLES CONSIDERED IN ISOLATION
Switch from Self-Employed to Employer Between 1991 and 1996 - Brazil

		Obs *	Marginal Probabil.	Estimate	Std Error
Gender	**Male**	**1**	**90.4%**	0.644	0.118
Race	**White and Yellow**	**1**	**113.3%**	0.758	0.114
Household Status	**Head**	**1**	**104.0%**	0.713	0.117
Household Status	**Spouse**	**1**	**-37.3%**	-0.466	0.137
Household Status	**Son**	**1**	**-44.7%**	-0.593	0.196
Religion	**Evangelical**	**1**	**-30.4%**	-0.363	0.167
Experience	**Age**	**40/30**	**129.0%**	0.019	0.004
Education	**Completed Years of Schooling**	**8/4**	**18.2%**	0.119	0.011
Mother Education	**Completed Years of Schooling**	**10/4**	**78.5%**	0.104	0.015
Father Education	**Completed Years of Schooling**	**10/4**	**51.7%**	0.092	0.013
Technical Course	**Equivalent to High School**	**1**	**77.9%**	0.576	0.124
Knows the Correct Name	**President, Governor and Mayor**	**1**	**171.9%**	1.000	0.133
Trade Unions and Associations	**Member in 1996**	**1**	**108.6%**	0.735	0.113
Trade Unions and Associations	**Attends at Least one Meeting per Year**	**1**	**126.2%**	0.816	0.205
Communitarian Associations	**Member in 1996**	**1**	**43.6%**	0.362	0.129
Communitarian Associations	**Attends at Least one Meeting per Year**	**1**	**50.7%**	0.410	0.140
Incorporation of New Equipament	**Perceived at Least as Regular in 1991**	**1**	**92.6%**	0.656	0.115
Importance of new Knowledge	**Big Risk of Losing the Job without them**	**1**	**47.5%**	0.388	0.140
Importance of new Knowledge	**Essential to Keep Working in the Same Occupation**	**1**	**49.3%**	0.401	0.106
Situation in the Occupation	**Ranked Among the Well Paid in 1991**	**1**	**71.8%**	0.541	0.100
Construction Sector	**Occupied in 1991**	**1**	**-56.3%**	-0.827	0.208
Public Sector	**Occupied in 1991**	**1**	**64.8%**	0.500	0.234
Regional Dummies	**Minas Gerais**	**1**	**46.1%**	0.379	0.112
Regional Dummies	**Pernambuco**	**1**	**-42.1%**	-0.547	0.199
Regional Dummies	**São Paulo**	**1**	**28.6%**	0.251	0.114
Regional Dummies	**Rio de Janeiro**	**1**	**-24.2%**	-0.278	0.143

* Comparisons for the marginal probability difference calculations:
1 corresponds to a comparison taken from dummy variable, other comparisons are specified below.

The following variables did not present a statistically different from zero effect on the probability of moving from self-employment to employer occupations when they were considered in isolation: religion (atheist, catholic, kardecist, afro religion), sectors of activity (services, commerce, sector not specified) and Regional Dummies (Porto Alegre and Bahia).

We proceed now in two alternative routes: First, we developed a general to specific variable selection procedure to end up with an a posteriori set of exogenous variables which appears to exert statistically significant impacts on the status variables analyzed. In this sense the information of the variables dropped out during this selection process is a relevant part of the analysis. The main results of this procedure are reported in Appendix C. Second, we postulate and test an a priori model of the main determinants of self-employment entrepreneurial success. Table 2 presents the main results of the analysis:

TABLE 2

LOGISTIC MODEL - ANALYSIS OF PARAMETER ESTIMATES

Switch from Self-Employed to Employer Between 1991 and 1996 - Brazil

		Estimate	t-Statistic		Std Error	Deviance
Gender	**Male**	0.4477	2.6181	**	0.1710	2363.47
Race	**White and Yellow**	0.4008	2.7026	**	0.1483	2324.73
Household Status	**Head**	0.4147	2.4495	**	0.1693	2311.55
Religion	**Evangelical**	-0.1650	-0.8342		0.1978	2307.10
Education	**Completed Years of Schooling**	0.0841	5.0359	**	0.0167	2209.93
Experience	**Age**	0.1359	3.6730	**	0.0370	2200.58
Experience	**Age Square**	-0.0013	-3.2500	**	0.0004	2189.70
Knows the Correct Name	**President, Governor and Mayor**	0.4241	2.7013	**	0.1570	2179.18
Father Education	**Completed Years of Schooling**	0.0210	0.8642		0.0243	2187.68
Mother Education	**Completed Years of Schooling**	0.0065	0.2453		0.0265	2187.48
Technical Course	**Equivalent to High School**	0.1701	1.1439		0.1487	2177.75
Incorporation of New Equipament	**Perceived at Least as Regular in 1991**	0.2976	2.1227	**	0.1402	2172.58
Situation in the Occupation	**Ranked Among the Well Paid in 1991**	0.2854	2.4310	**	0.1174	2167.49
Manufacturing Sector	**Occupied in 1991**	0.5831	2.2054	**	0.2644	2156.13
Construction Sector	**Occupied in 1991**	-0.3223	-1.0751		0.2998	2154.15
Services Sector	**Occupied in 1991**	-0.0653	-0.2923		0.2234	2155.97
Commerce Sector	**Occupied in 1991**	0.0180	0.0792		0.2272	2154.11
Regional Dummies	**Rio de Janeiro**	-0.0403	-0.1961		0.2055	2149.12
Regional Dummies	**São Paulo**	0.3048	1.7318	*	0.1760	2153.81
Regional Dummies	**Minas Gerais**	0.6941	3.8285	**	0.1813	2134.88
Regional Dummies	**Pernambuco**	0.1815	0.7146		0.2540	2134.80
Regional Dummies	**Bahia**	0.3324	1.3190		0.2520	2133.11
		DF	Value		Value/DF	
Number of Observations : 3498 ; Log Likelihood : -1066.5526 ; Pearson Chi-Square :		3475	3359.584		0.967	

*statistically significant at 90% confidence level **statistically significant at 95% confidence level

The transition probabilities from self-employment to employer status between 1991 and 1996 constitute both a measure of self-employment entrepreneurial success and simultaneously a measure of employment generation in this segment of the labor market. We proceed now with a variable by variable analysis of the proposed model of entrepreneurial success presented in Table 2, we complement the analysis with references to the simple logistic regression exercise presented in Table 1.

Individual Characteristics: heads, males and whites or yellow individuals are more frequently succ essful in their respective self-employment activities even after controlling for other items such as education attainment. The coefficients of these three variables ranges between 0.40 and 0.45. The lack of entrepreneurial success among blacks and mulattos has been subject to various studies in the US. For example, this result taken at face value could in principle imply that there may be room for affirmative actions in programs that support self-employment units. Although, one would need to precise what is driving the racial bias in self-employment success rates (e.g., tighter credit constraints for blacks due to lack of collateral or consumer discrimination)FN.

The dummy for evangelical religions is not significant different from zero. This result points against the existence of Weberian Protestant ethics effect among the Brazilian self-employed in the Brazilian environment.

Human Capital: - Experience with diminishing returns captured by the negative coefficient on the age square variable indicates an inverted U shaped life-cycle profile of individuals moving from self-employment to employer position. As expected, the coefficient on the variable completed years of schooling is highly significative indicating the importance of formal educational policies as feeding entrepreneurial success. On the other hand, fathers and mother education attainment variables and professional education variable (equivalent to a high school degree) coefficient did not turned out to be statistically significant13.

A variable that captures the simultaneous knowledge of the name of mayor, governor and president also plays an important role explaining the likelihood of the specific transition under scrutiny. One should perhaps view this variable more as an education quality indicator than evidence of the importance assumed by other types knowledge apart from traditional education variables.

Social Capital – There are not variables for the initial period of transition, 1991, related to associativism in the survey used. There is a broad range of such type of variables for the final period of analysis, 1996, however this would introduce simultaneity bias in our estimates14. This is unfortunate since productive and community networks may potencialize self-employed units performance through economies of scale.

ii. Other Variables

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13 These set of educational background variables were statistically significant from zero in the simple logistic regression analysis: self-employed individuals who mother had ten completed years of schooling presented 79% more chances to migrate to employer occupation than those who mother had four years of completed schooling. This same statistic drops to 52% when fathers education were considered in the analysis. professional education variable The self-employed individuals that possessed such diploma presented 78% more chances to migrate to employer status than those that did not possess such diploma.

14 When we use social capital related variables for the final period of analysis in isolation we observe a positive relationship between these variables and self-employment success rates. This evidence that variables captured by *productive* associations membership (trade unions and cooperatives) have higher simple correlation coeefficients than community associations membership. A similar type of analysis indicates that both of these types of associativism presents higher coefficients when one control for participation intensity (i.e., imposing a condition that the individual attends more than one meeting per year). This result would support the use of networks, specially productive type, in micro-entrepreneurial enhancing policies (e.g. as social collateral in credit arrangements). Nevertheless, it should be viewed with cautious since it is related with the final state 1996 and thus it is subject to simultaneity bias.

Self-employed individuals that perceived the regular incorporation of new equipment in 1991 presented higher transitions probabilities toward employer occupations. This effect demonstrate the importance of the updating knowledge for entrepreneurial success in the nineties. Finally, self-employed individuals that perceived to be well off in 1991 were closer to the margin of change towards employer and consequently presented higher transition probabilities between 1991 and 1996.

Sectoral and Regional Dummies: Manufacturing sector, Minas Gerais and São Paulo dummy variables presents a positive effect on the probability of migrating from self-employment to employer activity15. The first two variables present the higher coefficients among all the dummy variables considered in the present exercise16.

VII. Expansion of micro-credit and savings facilities (programmes, institutions)

15 The analysis of the regional dummies taken in isolation reveals Minas Gerais and São Paulo regions with probabilities of migrating from self-employment to employer occupations, respectively, equal to 46% and 29% above their complement while Rio de Janeiro and Pernanbuco presented respectively probabilities 24% and 42% below their respective complement. Rio Grande do Sul and Bahia dummies did not present statistically different from zero estimates.

16 Appendix C presents a similar logistic regression analysis, considered in isolation and after performing the variable selection process described above, for the following samples: i) self-employed in 1996; ii) continuously self-employed between 1991 and 1996. iii) employer in 1996; iv) continuously employer between 1991 and 1996. v) migrant from employer to self-employment between 1991 and 1996. v) migrant from employee to employer between 1991 and 1996. vi) migrant from employee to self-employed between 1991 and 1996.

BOX 3 - Lessons from Rocinha for the Design of Productive Credit Instruments for the Poor

Popular productive credit programs should be sufficiently flexible to incorporate in its credit scoring system informal institutions and social habits of poor environments such as those found in Rocinha:

(i) 83% of Rocinha entrepreneurs declared to live in own housing. However, their property titles are not well established impeding the use of housing as collateral. In this respect previous public action to legalize property titles can be useful as a pre-condition of micro-credit policies.

(ii) The use of family ties as part of the workings of micro-credit policies can be extremely useful: 65% of Rocinha poor entrepreneurs are married or have a not legalized matrimony (união livre), 80% have sons, 38% receive family support in terms of family members work (mainly spouses (20%), sons (16%)). 77% of Rocinha entrepreneurs do not count with the help of employees in their enterprises, besides family members.

(iii) Systems to check income levels and physical assets used as collateral or as indication of loans repaying potential should consider the family and not the individual as the basic unit. The use of the family, the basic cell of the social tissue, is an advantage not only in terms of measuring repayment potential but also because it constitutes the basic unit used to measure poverty.

(iv) most of the credit used by Rocinha entrepreneurs was provided by friends (53%). Most of entrepreneurs that would like to contract loans have the following purposes in mind: increase their business (44%), open another business (26%), the acquisition of equipment/machines (15%) or merchandise stocks (9.3%),. The main barriers to credit perceived are: providing an income proof (10%), documents/legalization (10%), what may explain the predominance of credit between friends. This type of informal relationship should be taken into account in the design of credit contracts. In particular, the use of social collateral.

(v) Legalization is not perceived as an essential condition, since it represents only 1.6% of the support perceived as necessary to expand small businesses. In this respect, the specific question on the legalization of business reveal that 49% of Rocinha's micro-entrepreneurs would like to become legal and that only 17% have a CGC. Among the main motives presented for not legalizing high taxes (22.4%) and lack of time (22%). In sum, the imposition of legalization requirements would probably reduce a lot the sample of able credit takers in Rocinha.

(vi) Information on discontinuity and seasonalities of business can be useful in the formulation of payment schedules implicit in credit contracts: 95% of Rocinha business are done during the whole year. In terms of seasonal factors 46% consider sub-periods of the Rio summer as the best time of the year of their business.

(vii) 53% of Rocinha micro-entrepreneurs consider that in general there are no product offer lacking in the community what may reflect a low growth potential of local markets. The main deficiencies perceived in Rocinha are: supermarkets (7.2%) , drug stores (3.3%) and banks (3.1%).

Perceptions about the importance of Credit in Rocinha

1. Most of the sources of funding used by micro-entrepreneurs to start their business are own savings (47%), firing fines (13% - FGTS etc.), family loans (7.1%), banks only represent 0.2% of the main sources used as seed money.
2. In this sense the birth of micro-enterprises is more related to previous savings than external sources of funds. However, the lack of use of credit does not allow us to test if the lack of use of external loans results from a unsatisfied demand for credit or a lack of demand for credit. Nevertheless, financial difficulties are presented in another question by one third of the 49% of entrepreneurs that reported that faced some sort of difficulty to start their business.
3. On the necessary support found to expand their business: 35% declared that needed no support and 17% said that credit was essential to them.

BOX 4 - Access to credit in Rio´s Favelas

540 out of the 4452 business establishments from the low-income communities of Rio de Janeiro have taken a loan during their existence, and 2/3 of those did that within 12 months prior to the survey (Table 4). 4,9% of the business establishments had taken a loan (and the question on this survey only included the three months prior to the interview), the census still shows that some business establishments do use credit.

Table 1 Number of business establishments that have used credit:

Characteristics	Number of Business Establishments	%
Yes, in the last 12 months	353	7,93
Yes, more than one year	189	4,25
No	3910	87,83
Total	4452	100,00

Source: Census of Business Establishments of the Slums of Rio de Janeiro (CBR)

Another interesting fact is that 70% of the loans were made by commercial banks, and only 30% came from friends, relatives, money sharks or microfinance institutions. This data shows that even with the widely recognized distance between the traditional financial system and the entrepreneurs from low-income communities of Rio de Janeiro, they are still the main source of credit for these business establishments. Table 5 also suggests the existence of a large potential for other sources of credit, such as microfinance institutions, which would be able to offer better tailored financial instruments for those entrepreneurs.

Table 2 Sources of credit:

Characteristic	Number Business Establishment	%
Friend or	101	18,81
Bank	371	69,09
Other financial	7	1,30
Peopl	36	6,70
Other	9	1,68
RIOCRED Institution	5	0,93
NR	8	1,49
Total	537	100,0

Source: Census of Business Establishments of the Slums of Rio de

VIII. Integrating provision of space and basic services for the informal sector into urban planning exercises and urban management systems

The city of Rio de Janeiro has major problems to solve in the housing and urban infrastructure sectors. As in the case of many large cities around the world, a significant portion of the inhabitants face housing conditions much below minimum standards. Slums appear and grow along with the suburbs where they are located; the poor population occupies vacant areas on hillsides and along waterfronts. Economic, political, and social relationships are generally established between the slum dweller and the citizenry in the surrounding areas, even though the former constitutes illegal occupancy. The absence of public policies for slums and the ineffective regulation for urban areas has opened the way to a symbiotic coexistence.

In recent years, Rio de Janeiro City Council has launched a housing policy geared to benefit the slum areas, going beyond the traditional focus. These projects are not limited to infrastructure issues called Favela bairro. These programs also include job and income generation and professional training programs. In order to design effective policies, detailed statistical information about specific slum areas is essential.

BOX 5 - Policies to Improve Rio´s Favelas Housing Conditions and Income Generation Potential

No one who lives in Rio or visits the city, however fleetingly, can remain unaware of the numerous squatter settlements - favelas – which dot all parts of the city even the select neighborhoods such as Ipanema and Leblon. These shantytowns are homes for between one and two and a half million people (Leeds 1996). They are at the core of many of Rio's social problems, in particular crime and the distribution of cocaine. The very first favela dates back to 1898. It was build by veterans of the campaign against the mystic rebel Antonio Conselheiro (Pino 1997). The big surge in the numbers of favelas came in the 1940s when industrialization drive pulled thousands of migrants to Rio and precipitated an acute and persistent housing shortage. Instead of living in tenements, poor Cariocas occupied vacant land and built irregular dwellings. The continuing flow of new migrants through the 1970s led to a multiplication of favelas and periodic, bitter confrontations with the authorities who resisted such encroachments.

According to a 1991 survey there were 661 favelas in Rio housing close to a million people in about a quarter million shacks. Needless to say, the population estimates are subject to a wide margin of error. Over the past fifty years favelas have become stable communities with a permanent population which now spans several generations. Many favela residents are employed by industry and services in the adjoining suburbs. Others are engaged in a variety of informal activities. However, a significant minority are engaged in drug dealings, robbery and kidnapping by way of organized criminal networks which the police have difficulty controlling because to a significant degree the favelas are a world unto themselves, a world not readily entered by the police.

Crime is not the only problem posed by the presence of favelas. Some of them occupy prime land in the richest localities while paying no taxes, others are perched precariously on hillsides and are responsible for deforestation and erosion. All are poorly provided with basic services. The inadequate access to education and health facilities is especially problematic and may explain the persistence of poverty traps.

Periodically federal, state and municipal authorities have attempted to root out some of the favelas and resettle the inhabitants (in the 70s in 1988 and in 1994-95) but with little success. Now there is a move to integrate these settlements with the rest of the municipalities and provide more of the essential services. The Favela Bairro program is a part of this effort to improve the living conditions of the poor. Whether it will reduce crime, provide ladders out of poverty for favela residents and eventually broaden the tax base of the municipality, remains to be seen. The approach risks encouraging an upsurge in squatter settlements; the fiscal implications for the city are by no means positive; and it is difficult to determine whether crime and drug peddling will be curbed through such attempts at integration.

The city of Rio de Janeiro has major problems to solve in the housing and urban infrastructure sectors. As in the case of many large cities around the world, a significant portion of the inhabitants face housing conditions much below minimum standards. Slums appear and grow along with the suburbs where they are located; the poor population occupies vacant areas on hillsides and along waterfronts. Economic, political, and social relationships are generally established between the slum dweller and the citizenry in the surrounding areas, even though the former constitutes illegal occupancy. The absence of public policies for slums and the ineffective regulation for urban areas has opened the way to a symbiotic coexistence.

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- **Bibliography**

ABOWD, John M. and ZELLNER, Arnold. . *"Estimating Gross Labor-Force Flows",* in Journal of Business & Economic Statistics, Vol. 3 no. 3, 1995.

AMADEO, Edward, et al. . *"Ajuste Estrutural e Flexibilidade do Mercado de Trabalho no Brasil"*, in Perspectiva da Economia Brasileira, IPEA, Rio de Janeiro, 1993, (a).

_____ . *"Human Resources in the Adjustment Process"*, in Discussion Paper no. 317, IPEA, Rio de Janeiro, 1993, (b).

_____ . *"Institutions, the Labor Market and the Informal Sector in Brazil"*, Inter-American Development Bank, Washington, 1992.

AMADEO, Edward, GILL, Indermit and **NERI, Marcelo,** *"Assessing the Impact of Labor Regulations on Informal Workers in Brazil"*, in Oxford University Press, chapter III in Crafting Labor Policy: Techniques and Lessons from Latin America, edited by Indermit Gill, Claudio Montenegro and Dorte Domeland, forthcoming, 2002.

AMADEO, Edward and NERI, Marcelo,.*"Política Macroeconómica y Pobreza en Brasil" (Macroeconomic Policy and Poverty in Brazil)*, in Política Macroeconómica y Pobreza en América Latina Y El Caribe, Org.: Enrique Ganuza, Lance Taylor and Samuel Morley, Mundi Prensa, Madrid, 1999.

AZEVEDO, João Pedro. *"Os Empreendedores de Baixa Renda e o Crédito: Uma Análise a partir dos Dados do VivaCred e RioCred"*, Master Dissertation, UFF, 2001.

BARROS, Ricardo Paes de and MENDONÇA, Rosane. *"A Research Note on Family and Income Distribution: The Equalizing Impact of Married Women's Earnings in Metropolitan Brazil"*, iIn Sociological Inquiry, Vol. 62, N.º 2, Spring, São Paulo, 1992.

_____. *"Uma Avaliação da Qualidade do Emprego no Brasil"*, in Seminars Series N.º 1/95, IPEA, Rio de Janeiro, 1995.

BELTRÃO, Kaisô and OLIVEIRA, Francisco, *"O Idoso e a Previdência Social"*, Muito Além dos 60 – Os Novos Idosos Brasileiros, Chapter 10, IPEA, 1999.

CAMARANO, Ana Amélia et all, *"Como Vive o Idoso Brasileiro"*, Muito Além dos 60 – Os Novos Idosos Brasileiros, Chapter 2, IPEA, 1999.

CAMARGO, José Márcio, NERI, Marcelo, and REIS, Maurício. *"Employment and Productivity in Brazil in the Nineties"*, in Brazil in the 1990s: A Decade in Transition, organized by Renato Baumann, forthcoming, Palgrave - Macmillan's Global Academic Publishing, UK, 2001.

CARVALHO, Alexandre Pinto and NERI, Marcelo. *"Mobilidade Ocupacional e Raça: Origens, Destinos e Riscos dos Afro-Brasileiros", (Occupational Mobility and Race: Origins, Destinies and Risks of Afro-Brazilians), in* Ensaios Econômicos Nº 392, EPGE / FGV, Rio de Janeiro, July 2000.

ENCE/IBGE. *"Pesquisa Sócio-Econômica das Comunidades de Baixa Renda – Resultados da Pesquisa de Estabelecimentos*", March, 1999.

FERREIRA, F., LANJOUW, P. and NERI, Marcelo. *"The Urban Poor In Brazil in 1996: A New Poverty Profile Using PPV, PNAD and Census Data"*, in Discussion Paper N.º 418, PUC-Rio, March, 2000.

FOGUEL, Miguel, GILL, Indermit, MENDONÇA, Rosane and BARROS, Ricardo Paes de. *"Brazil: Sustaining the Real Plan through Public Employment Reform"*, Stabilization, Fiscal Adjustment and Beyond: Quantifying Labor Policy Challenges in Argentina, Brazil and Chile, edited by Indermit Gill and Claudio Montenegro, World Bank Draft, 1998.

GULLI, H. . *"Microfinance and Poverty – Questioning the Conventional Wisdom"*, BIRD, 1998.

HOLLIS, A. and SWEETMAN, A. . *"Microcredit: What Can We Learn From the Past?"*, in World Development, Vol.26, N.º 10, pp-1875-1891, UK, 1998.

IBGE. *"Monthly Employment Survey, National Institute of Geography and Statistic*", São Paulo, 1985-95.

____. *"Monthly Industrial Survey, National Institute of Geography and Statistic"*, São Paulo, 1989-95.

IPEA and MINISTÉRIO DO TRABALHO. "*Mercado de Trabalho: Conjuntura e Análise"*, various issues.

JEAN, Anne C. and MCARTHUR, K. . *"Tracking Persons Over Time"*, in SIPP mimeo, 1987.

MEZZERA, J. . *"Obstaculos al Desarrollo de las Micro y Pequeñas Empresas"*, Convênio IPEA/USP/OIT, mimeo, 1997.

MINISTÉRIO DO TRABALHO. "*Relatório da Força-Tarefa sobre Políticas de Emprego: Diagnóstico e Recomendações",* Governo Federal, Brasília, August,1998.

MORDUCH, J. . *"Risk, Production and Savings:Theory and Evidence from Indian Households"*, mimeo, 1990.

NERI, Marcelo. ***Evasão Previdenciária***, Ministério da Previdência e Assistência Social, Brasília, forthcoming book, 2001, (a)

_____.. *"A Informalidade Elétrica Diagnóstico e Política para Lidar com Gatos"*, IBRE / CPS, Fundação Getulio Vargas, Rio de Janeiro, June 2001, (b).

_____. *"Aspectos Fiscais e Sociais de Modalidades Alternativas de Reajuste de Aposentadorias e Pensões Públicas"*, in Coleção Previdência Social: Previdência, Assistência Social e Combate à Pobreza / Série Debates, Vol. 03, pp. 113 à 121, Brasília, May 2001, (c).

_____. *"Avaliação de Impacto Social de Programas"*, in Controle: As Diferentes Perspectivas, Tribunal de Contas da União, Brasília, 2001, (d).

_____. *"Determinantes do Êxito Empresarial dos Conta-Próprias: Uma Análise Dinâmica"*, in Boletim Conjuntural do IPEA, N.º 46, pp. 39-41, July 1999, (a).

_____. *"Direitos Informais"*, in Coleção Previdência Social: Previdência, Assistência Social e Combate à Pobreza / Série Debates, Vol. 03, pp. 123, Brasília, May 2001, (e).

_____. *"Dynamics of Self-Employment Activities"*, in Annals of Latin American and Caribbean Economic Association, LACEA' 99, Santiago, Chile, October 1999, (b).

_____. *"Empregos e Negócios Informais: Subsídios para Políticas", (Informal Employment and Informal Bussiness: Subsides for Policies)* in Téchnical Note, Mercado de Trabalho Conjuntura e Análise, Ministério do Trabalho e Emprego, Ano 5, pp. 05-08, October 2000, (a).

_____. *"Hubo Precarizacíon del Sector de Servicios? Calidades de los Trabajadores y de los Empleos en el Brasil entre 1989 y 1997"*, in Revista de La Cepal, Santiago, Chile, no prelo, 2000, (b).

_____. *"Limitações dos Conta-Próprias Cariocas e Implicações de Política"*, in O Mercado de Trabalho do Rio de Janeiro: Conjuntura e Análise, Secretaria Municipal do Trabalho, N.º 5 pp. 17-19, June 1999, (c).

_____. *"O Mapa do Fim da Fome"*, IBRE / CPS, Fundação Getulio Vargas, Rio de Janeiro, July 2001, (f).

_____. *"O Reajuste do Salário Mínimo de Maio de 1995", (The May 1995 Minimum Wage Hike)*, in Annals of XIX Meeting of the Brazilian Econometric Society**,** SBE, Recife, Vol. 2, pp. 645-666, December 1997, (b).

_____. *"Origens, Destinos e Riscos dos Conta-próprias" (Origins, Destinations and Risks of the Self-Employed)*, in Annals of XXVI Meeting of Brazilian National Economic Association, ANPEC, Vitória, Vol. 2, pp. 1243-1262, December de 1998.

_____. *"Políticas Estruturais de Combate à Pobreza no Brasil" (Structural Policies Against, Poverty)*, in Desigualdade e Pobreza no Brasil, pp. 503-526, organized by Ricardo Henriques, Rio de Janeiro, RJ, December 2000, (c).

_____. *"Salário Mínimo: O Reajuste de 99, a Desvinculação e a Regionalização"*, in Boletim Conjuntural do IPEA, N.º 45, pp. 43-45, April 1999, (d).

_____. *"The Effects of Idiosyncratic Shocks to Father's Income on Child Labor, School Drop-Outs and Repetition Rates in Brazil"*, in Annals of XXII Encontro Brasileiro de Econometria, SBE, São Paulo, December 2000, (d).

_____. *"Aspectos Dinâmicos do Desemprego e da Posição na Ocupação", (Dynamic Aspects of Unemployment and Working Classes)*, in Revista Estudos Econômicos, Vol. 27, 1997, (a).

NERI, Marcelo, AMADEO, Edward and CARVALHO, Alexandre Pinto de. *"Assets, Markets and Poverty in Brazil"*, in Portrait of the Poor - An Assets-Based Approach, organized by Orazio Attanasio e Miguel Székely, IDB, Washington, 2001.

NERI, Marcelo, AMADEO, Edward, CARVALHO, Alexandre Pinto de, NASCIMENTO, Mabel Cristina, SIMPLICIO, Manoel Flávio Datrino and RANGEL, Flávia Dias. *"Los Activos, los Mercados y la Pobreza en Brasil"*, in El Trimestre Económico, Vol. LXVI (3), Nº 263, pp. 419-458, México, July-September, 1999.

NERI, Marcelo and ÂNCORA, Milene. *"Atributos Dinâmicos do Desemprego: Uma Perspectiva Pós-Crise Asiática", (Unemployment Dynamics: a Post-Asian Crisis Perspective)*, in Desemprego e Mercado de Trabalho Ensaios Teóricos e Empíricos, organized by Rosa Fontes and Marcelo A. Arbex, pp. 253-282, 2000.

NERI, Marcelo, CAMARGO, José Márcio. *"Distributive Effects of Brazilian Structural Reforms"*, in Brazil in the 1990s: A Decade in Transition, organized by Renato Baumann, forthcoming, Palgrave - Macmillan's Global Academic Publishing, UK, 2001.

NERI, Marcelo, GONZAGA, Gustavo and CAMARGO, José Márcio. *"Distribuição Regional da Efetividade do Salário Mínimo do Brasil", (Minimum Wage Informal-Effects and Poverty)*, in Ensaios Econômicos Nº 375, EPGE / FGV, Rio de Janeiro, March 2000, (a).

_____. *"Salário Mínimo, Efeito Farol e Pobreza" (Minimum Wage, Informal-Effects and Poverty)*, in Revista de Economia Política, Vol. 21, Nº 2, 82, April-June 2000, (b).

NERI, Marcelo, TAAM, Dart and MENEZES, Flávio. *"Em Busca de Incentivos para Atrair o Trabalhador Autônomo à Previdência Social" (In Search of the Incentives to*

Attract the Self-Employed to Social Security)", in Annals of XXIII Encontro Brasileiro de Econometria, SBE, forthcoming, December 12th to 14th, 2001.

NERI, Marcelo and THOMAS, Mark R.. *"Household Responses to Labor-Market Shocks in Brazil, 1982-99"*, in Annals of XXVIII Encontro Nacional de Economia, ANPEC, São Paulo, December 2000.

OLIVEIRA, J., et al. . *"Notas Sobre a Inserção Sócio-Econômica de Moradores da Favela"*. Annals of ABEP, Caxambu, MG, October, 2000.

PAGE, Frank, *"Competitive Selling Mechanisms: The Delegation Principle and Farsighted Stability"*, 1998.

PERO, Valéria. *"Terceirização e Qualidade do Emprego no Brasil no Início dos Anos 90"*, Master Dissertation, IEI/UFRJ, Rio de Janeiro, 1995.

ROSA, A. L. and CASTELAR, L. M. . *"Demanda por microcrédito em Fortaleza: Uma análise do Método de Avaliação Contingente"*, Revista Econômica do Nordeste, Vol. 30, Número Especial, Banco do Nordeste, 1999.

SILVA, D. et al. . *"Pesquisa Sócio-Econômica das Comunidades de Baixa Renda do Município do Rio de Janeiro"*, in Boletim Mercado de Trabalho do Rio de Janeiro – Conjuntura e Análise, N.º 3, August, 1998.

SKINNER, Jonathan. *"Risky income, life-cycle consumption, and precautionary saving", in* Journal of Monetary Economics, N.º22, pp. 237-255, 1988.

SUIJS, Jeroen, WAEGENAERE, Anja and BORM, Peter, *"Optimal Design of Pension Funds: A Mission Impossible?"*, Center of Economic Research, Tilburg University, 1998.

WILLIANS, David, *"Fora da Seguridade Social? Os Trabalhadores Autônomos: Previdência Social para Aqueles que Provêm sua Própria Ocupação*", Conjuntura Social, v. 10, nº. 4, pp. 137-165, oct/dec 1999.

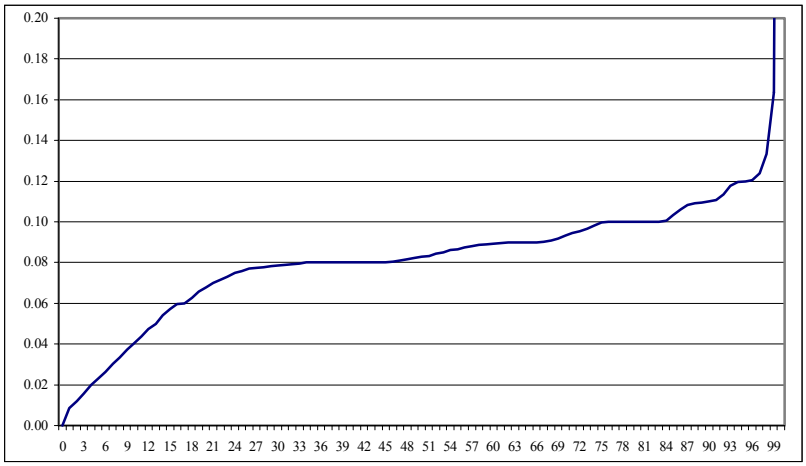
Thomas, Mark "The informal sector in Brazil", mimeo, World Bank.**,** 1999.

Apendix A: The Level of Informality: Social security Contributions

This appendix analyzes the distribution of the value of social security contributions and their close determinants using simple biavariate and multivariate analysys. The basic data source used is a Household expenditures survey (POF-95-96).

Table 1

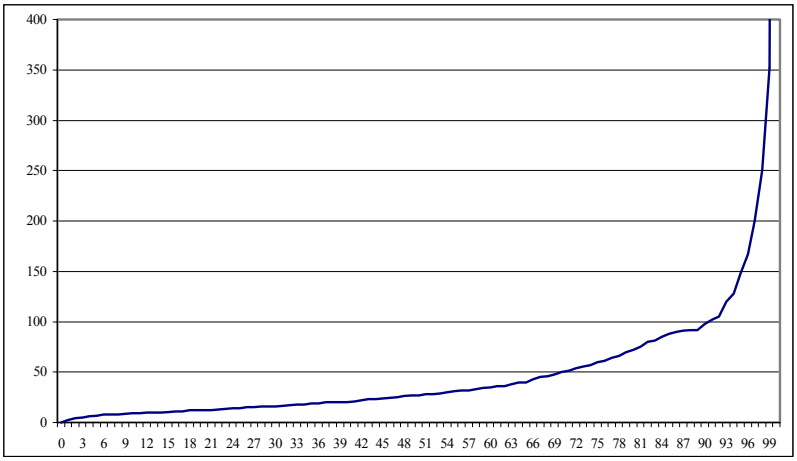
Distribution of Social Security Contribution Rate among those that do contribute



Source: POF - 95/96 Elaboration: CPS/IBRE/FGV

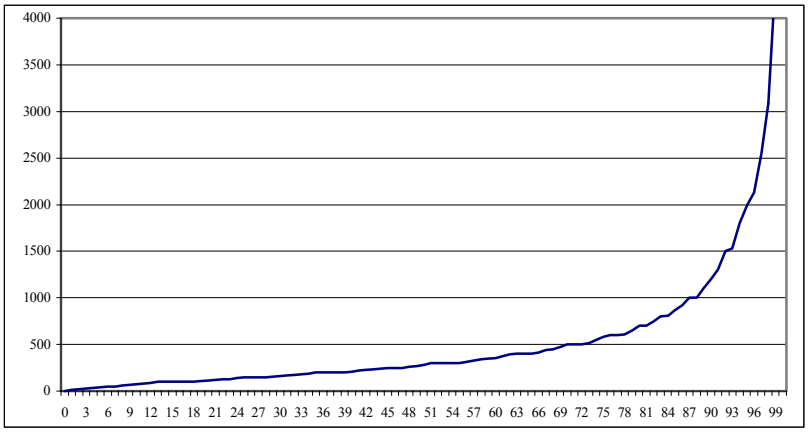
Table 2

Distribution of Social Security Contribution among those that do contribute



Source: POF - 95/96 Elaboration: CPS/IBRE/FGV

Income Distribution by Main Job among those that do contribute



Source: POF - 95/96 Elaboration: CPS/IBRE/FGV

Table 3

SOCIAL SECURITY CONTRIBUTION PROFILE
Occupied population in the private sector

	Sample	Average Income	Average Contribution	Contribution Rate (%)	No Contribution Rate (%)	Contribution for the No Contribution Rate	Population (%)	Total population	Population that do not contribute
Total	22,761	555.14	24.32	4.06	51.3	100.0	100.0	17,713,473	908034016
Gender									
Male	13,543	680.10	29.31	4.4	47.2	54.2	58.8	10,409,254	491722750
Female	9,218	371.55	16.99	3.6	57.0	45.8	41.2	7,304,219	416311266
Family Status									
Head	11,151	748.76	32.12	4.3	47.8	46.3	49.6	8,783,966	420260069
Non head	11,610	360.17	16.44	3.8	54.6	53.7	50.4	8,929,507	487774320
Age									
Less than 15 years	524	107.61	3.20	1.4	83.6	2.7	1.7	292,820	24481802
15 to 20 years	2,364	192.75	8.73	3.8	56.5	11.3	10.3	1,824,733	103053621
20 to 25 years	3,386	357.54	18.11	4.7	44.5	12.7	14.6	2,590,658	115279100
25 to 30 years	3,440	500.68	24.37	4.5	45.4	13.2	14.9	2,643,422	119881831
30 to 35 years	3,320	621.38	28.94	4.3	47.5	13.2	14.3	2,530,934	120257329
35 to 40 years	2,878	665.62	29.62	4.2	48.5	12.2	12.9	2,286,667	110818743
40 to 45 years	2,414	738.07	34.84	4.2	48.7	10.5	11.1	1,965,079	95685592
45 to 50 years	1,656	926.42	33.21	3.5	55.3	8.3	7.7	1,365,011	75498758
50 to 55 years	1,134	612.21	24.80	3.6	56.3	5.4	4.9	873,802	49208160
55 to 60 years	789	550.62	24.14	3.5	59.1	3.9	3.4	604,565	35747928
60 to 65 years	435	725.94	16.54	2.3	72.3	2.7	1.9	342,600	24763471
65 to 70 years	252	607.84	12.75	1.0	87.6	2.2	1.3	230,934	20221505
More than 70 years	169	576.98	5.54	1.5	81.0	1.4	0.9	162,248	13135274
Years of Schooling									
Less than 1 year	1,310	224.39	5.68	2.5	68.7	6.4	4.8	846,833	58184202
1 to 4 years	2,938	266.09	9.99	3.3	61.2	13.7	11.5	2,029,345	124141122
4 to 8 years	6,596	346.39	14.71	3.7	57.1	33.3	29.9	5,295,070	302417333
8 to 12 years	7,060	562.03	25.30	4.7	43.7	26.7	31.3	5,552,180	242763518
More than 12 years	1,944	1796.21	80.31	4.7	37.5	7.4	10.1	1,795,913	67278493
Working Class									
Private employee	11,282	522.01	35.87	6.5	24.4	26.1	54.8	9,706,979	237316223
Domestic employee	1,279	146.58	2.46	1.2	86.4	8.4	5.0	884,464	76389387
Employer	679	1992.55	40.75	1.8	67.7	3.9	3.0	525,928	35610059
Self - Employed	9,521	537.97	8.91	1.0	84.7	61.5	37.2	6,596,102	558716224
Metropolitan area									
Rio de Janeiro	2,080	516.76	23.46	4.6	42.5	17.8	21.5	3,800,311	161600625
Porto Alegre	1,762	543.96	26.66	4.7	44.1	6.3	7.4	1,305,650	57601361
Belo Horizonte	2,360	470.59	18.49	4.0	51.4	8.0	8.0	1,418,306	72847033
Recife	2,579	299.98	9.84	2.6	69.4	7.4	5.5	965,385	66989031
São Paulo	1,999	688.46	32.27	4.3	49.6	35.0	36.1	6,399,161	317398386
Distrito Federal	1,077	606.33	23.40	3.6	57.8	3.3	2.9	511,595	29562517
Belém	2,042	396.30	14.69	2.8	65.9	2.2	1.7	298,500	19666673
Fortaleza	3,042	319.42	8.39	2.6	65.9	6.3	4.9	868,275	57232347
Salvador	2,066	355.51	13.52	3.0	64.4	6.3	5.0	882,103	56827722
Santa Catarina	1,610	607.47	26.42	4.7	45.1	4.4	5.0	882,466	39829220
Goiânia	2,144	526.66	11.39	2.0	74.6	3.1	2.2	381,721	28472188

Source: POF - 95/96 Elaboration: CPS/IBRE/FGV

Table 4

SOCIAL SECURITY CONTRIBUTION PROFILE
Occupied population in the private sector

Sample : Positive Contribution

	Sample	Average Income	Average Contribution	Contribution Rate (%)	No Contribution Rate (%)	Contribution for the No Contribution Rate	Population (%)	Total population	Population that do not contribute
Total	9,522	667.52	49.23	8.2	0.0	0.0	100.0	8,633,146	0
Gender									
Male	6,138	764.07	54.77	8.2	0.0	0.0	63.6	5,492,039	0
Female	3,384	492.41	39.19	8.3	0.0	0.0	36.4	3,141,107	0
Family Status									
Head	5,046	845.55	60.84	8.1	0.0	0.0	53.1	4,581,364	0
Non head	4,476	461.33	35.83	8.3	0.0	0.0	46.9	4,051,782	0
Age									
Less than 15 years	56	236.10	19.51	8.6	0.0	0.0	0.6	48,002	0
15 to 20 years	835	232.11	19.70	8.5	0.0	0.0	9.2	794,199	0
20 to 25 years	1,651	386.90	32.16	8.4	0.0	0.0	16.7	1,437,870	0
25 to 30 years	1,681	558.93	44.14	8.2	0.0	0.0	16.7	1,444,603	0
30 to 35 years	1,522	738.73	54.51	8.2	0.0	0.0	15.4	1,328,359	0
35 to 40 years	1,297	808.92	56.74	8.1	0.0	0.0	13.7	1,178,485	0
40 to 45 years	1,035	911.52	67.13	8.2	0.0	0.0	11.7	1,008,218	0
45 to 50 years	635	1169.29	73.83	7.8	0.0	0.0	7.1	610,027	0
50 to 55 years	402	766.50	56.05	8.2	0.0	0.0	4.4	381,720	0
55 to 60 years	250	746.36	58.39	8.4	0.0	0.0	2.9	247,084	0
60 to 65 years	98	954.10	59.60	8.4	0.0	0.0	1.1	94,966	0
65 to 70 years	34	1241.81	102.31	8.4	0.0	0.0	0.3	28,718	0
More than 70 years	26	433.35	29.11	8.0	0.0	0.0	0.4	30,895	0
Years of Schooling									
Less than 1 year	325	230.62	18.09	7.8	0.0	0.0	3.1	264,990	0
1 to 4 years	872	309.33	25.47	8.4	0.0	0.0	9.1	787,940	0
4 to 8 years	2,513	394.43	33.97	8.5	0.0	0.0	26.3	2,270,921	0
8 to 12 years	3,572	582.45	44.30	8.3	0.0	0.0	36.2	3,124,568	0
More than 12 years	1,078	1933.51	126.45	7.4	0.0	0.0	13.0	1,123,130	0
Working Class									
Private employee	8,127	582.12	46.72	8.5	0.0	0.0	84.9	7,333,790	0
Domestic employee	138	217.25	17.90	8.5	0.0	0.0	1.4	120,570	0
Employer	170	2610.64	120.85	5.4	0.0	0.0	2.0	169,827	0
Self - Employed	1,087	995.37	58.08	6.6	0.0	0.0	11.7	1,008,959	0
Metropolitan area									
Rio de Janeiro	1,209	560.63	40.70	8.0	0.0	0.0	25.3	2,184,292	0
Porto Alegre	998	653.10	47.34	8.3	0.0	0.0	8.5	729,640	0
Belo Horizonte	1,151	520.88	37.52	8.0	0.0	0.0	8.0	689,829	0
Recife	794	413.44	31.49	8.3	0.0	0.0	3.4	295,493	0
São Paulo	1,013	852.47	62.79	8.4	0.0	0.0	37.4	3,225,146	0
Distrito Federal	458	697.80	54.05	8.4	0.0	0.0	2.5	215,969	0
Belém	690	543.30	43.06	8.3	0.0	0.0	1.2	101,832	0
Fortaleza	1,028	350.96	24.54	7.5	0.0	0.0	3.4	295,949	0
Salvador	741	467.07	37.93	8.3	0.0	0.0	3.6	313,822	0
Santa Catarina	882	617.39	47.95	8.5	0.0	0.0	5.6	484,174	0
Goiânia	558	573.82	44.56	8.0	0.0	0.0	1.1	97,000	0

Source: POF - 95/96 Elaboration: CPS/IBRE/FGV

Table 5

EARNINGS EQUATION - DEPENDENT VARIABLE : LOGARITHM OF THE CONTRIBUTION VALUE
SAMPLE: OCCUPIED POPULATION IN THE PRIVATE SECTOR - BRAZIL

	Estimator	t Statistic		Standard error
Gender - Male	0.1812	9.5309	**	0.0190
Head	0.3431	17.1454	**	0.0200
Completed Years of Schooling				
Less than 1 year	-1.3460	-27.1924	**	0.0495
1 to 4 years	-1.1168	-34.1655	**	0.0327
4 to 8 years	-0.8909	-38.3322	**	0.0232
8 to 12 years	-0.4538	-22.8406	**	0.0199
Years				
Less than 24 years	-0.6104	-7.3084	**	0.0835
25 to 44 years	-0.0262	-0.3224		0.0812
45 to 64 years	0.1471	1.7910	*	0.0821
Working Class				
Domestic employee	-0.7008	-0.8177		0.8570
Employer	-0.0604	-0.0705		0.8565
Self - Employed	-0.4983	-0.5833		0.8543
Metropolitan area				
Rio de Janeiro	-0.4821	-14.2250	**	0.0339
Distrito Federal	-0.0613	-1.5136		0.0405
Goiana	-0.4375	-11.1282	**	0.0393
Belém	-0.5602	-14.9548	**	0.0375
Recife	-0.6325	-17.2452	**	0.0367
Curitiba	-0.1894	-5.1718	**	0.0366
Porto Alegre	-0.2597	-7.2600	**	0.0358

R2 : 0.3443 Statistically different from zero: * 90% ** 95%
Omitted variables: female, non head, more than 12 years of schooling, more than 65 years, and São Paulo.
Source: POF - 95/96 Elaboration: CPS/IBRE/FGV

Apendix B: Access to Resources in the Informal Sector

Beside the access to social capital elements, health insurance and new technologies addressed in the main art of the paper. We analyze here other resources possession under two headings:

- Physical capital (financial assets, durable goods, housing, land, public services and transportation)
- Human capital (schooling, technical education, age, experience and *learn by doing*)

Table 1 - ASSETS PROFILE- BRASIL
ACCESS TO DURABLES GOODS

		STOVE		FILTER		REFRIGERATOR		TELEPHONE		RADIO	
		Poor	Total	Poor	Total	Poor	Total	Poor	Total	Poor	Total
Total		1.00	1.00	0.57	0.68	0.85	0.95	0.13	0.34	0.93	0.97
Working Class	Inactive	1.00	1.00	0.61	0.73	0.85	0.94	0.16	0.39	0.93	0.96
	Unemployed	1.00	1.00	0.55	0.61	0.87	0.90	0.11	0.20	0.92	0.93
	Employees (w/card)	1.00	1.00	0.57	0.67	0.88	0.96	0.11	0.26	0.94	0.97
	Employees (no card)	1.00	1.00	0.50	0.60	0.78	0.90	0.06	0.19	0.91	0.96
	Self - Employed	0.99	1.00	0.55	0.66	0.82	0.94	0.12	0.36	0.91	0.97
	Employer	1.00	1.00	0.76	0.79	0.95	0.99	0.55	0.71	0.99	0.99
	Public Servant	1.00	1.00	0.66	0.78	0.88	0.98	0.16	0.46	0.96	0.99
	Unpaid	0.99	1.00	0.52	0.63	0.87	0.94	0.17	0.28	0.93	0.95

Source: PNAD - IBGE Elaboration:CPS/IBRE/FGV

Table 2 - ASSETS PROFILE- BRASIL
ACCESS TO DURABLES GOODS

		COLOR TV		TV		FREEZER		WASHING MACHINE	
		Poor	Total	Poor	Total	Poor	Total	Poor	Total
Total		0.73	0.89	0.92	0.97	0.09	0.23	0.23	0.49
Working Class	Inactive	0.73	0.88	0.92	0.96	0.09	0.22	0.26	0.49
	Unemployed	0.77	0.82	0.94	0.95	0.10	0.14	0.27	0.39
	Employees (w/card)	0.74	0.91	0.93	0.97	0.08	0.19	0.19	0.46
	Employees (no card)	0.62	0.82	0.90	0.95	0.04	0.15	0.16	0.36
	Self - Employed	0.69	0.89	0.89	0.97	0.10	0.25	0.18	0.50
	Employer	0.94	0.98	1.00	0.99	0.43	0.52	0.56	0.80
	Public Servant	0.84	0.96	0.95	0.98	0.13	0.37	0.28	0.65
	Unpaid	0.71	0.81	0.93	0.95	0.17	0.30	0.30	0.44

Source: PNAD - IBGE

Table 3 - ASSETS PROFILE- BRASIL
ACCESS TO HOUSING

		ACCESS TO RENTED OR CEDED HOUSING		ACCESS TO RENTED HOUSING		ACCESS TO OWN HOUSE ALREADY PAID		ACCESS TO OWN HOUSE STILL PAID	
		Poor	Total	Poor	Total	Poor	Total	Poor	Total
Total		0.22	0.23	0.10	0.16	0.71	0.68	0.05	0.07
Working Class	**Inactive**	0.17	0.14	0.08	0.09	0.76	0.80	0.05	0.05
	Unemployed	0.29	0.27	0.11	0.13	0.64	0.65	0.05	0.06
	Employees (w/card)	0.23	0.28	0.12	0.19	0.69	0.63	0.07	0.08
	Employees (no card)	0.29	0.32	0.10	0.20	0.64	0.60	0.04	0.06
	Self - Employed	0.18	0.22	0.09	0.15	0.75	0.71	0.04	0.06
	Employer	0.07	0.20	0.06	0.18	0.79	0.71	0.14	0.09
	Public Servant	0.22	0.22	0.11	0.15	0.69	0.64	0.07	0.14
	Unpaid	0.17	0.13	0.04	0.06	0.79	0.83	0.02	0.03

Source: PNAD - IBGE **Elaboration:CPS/IBRE/FGV**

Table 4 - ASSETS PROFILE- BRASIL
HOUSING QUALITY

		ACCESS TO CONSTRUCTION		ACCESS TO BATHROOM		NUMEROS DE PESSOAS NO DOMICÍLIO		DENSITY DORMITORY		DENSITY DWELLING	
		Poor	Total	Poor	Total	Pobres	Total	Poor	Total	Poor	Total
Total		0.96	0.98	0.92	0.97	4.05	3.25	0.58	0.41	1.43	1.12
Working Class	**Inactive**	0.96	0.99	0.94	0.98	3.68	3.16	0.50	0.37	1.23	1.04
	Unemployed	0.96	0.97	0.91	0.94	3.29	3.29	0.50	0.48	1.26	1.24
	Employees (w/card)	0.96	0.99	0.92	0.97	4.80	3.27	0.83	0.45	2.07	1.23
	Employees (no card)	0.94	0.98	0.88	0.94	4.59	3.33	0.85	0.47	2.01	1.22
	Self - Employed	0.94	0.98	0.91	0.97	4.74	3.36	0.74	0.43	1.84	1.17
	Employer	0.99	0.99	0.98	0.99	3.66	3.16	0.37	0.30	1.06	0.95
	Public Servant	0.97	0.99	0.95	0.98	4.76	3.27	0.66	0.38	1.70	1.07
	Unpaid	1.00	1.00	0.96	0.99	3.54	3.45	0.41	0.38	1.04	1.07

Source: PNAD - IBGE **Elaboration:CPS/IBRE/FGV**

Table 5 - ASSETS PROFILE- BRASIL
HUMAN CAPITAL

		COMPLETED YEARS OF SCHOOLING AVERAGE				COMPLETED YERAS OF SCHOOLING COEFFICIENT OF VARIATION			
		HEAD		SPOUSE		HEAD		SPOUSE	
		Poor	Total	Poor	Total	Poor	Total	Poor	Total
Total		4.70	6.64	4.59	6.53	24.57	9.75	25.40	20.70
Working Class	**Inactive**	3.82	5.01	3.77	4.97	27.47	7.45	28.33	25.20
	Unemployed	5.70	6.21	5.37	5.73	17.87	8.97	19.92	21.23
	Employees (w/card)	4.95	6.81	4.59	6.52	25.37	8.75	27.11	19.89
	Employees (no card)	4.03	5.45	3.89	5.63	26.26	9.59	26.62	21.91
	Self - Employed	4.50	6.39	4.44	6.43	24.76	8.80	24.63	20.69
	Employer	8.81	9.84	8.56	9.39	16.31	8.13	16.30	14.49
	Public Servant	6.85	10.18	5.66	8.89	20.28	7.65	23.80	15.23
	Unpaid	4.80	5.55	4.20	4.66	22.44	8.37	22.96	21.50

Source: PNAD - IBGE **Elaboration:CPS/IBRE/FGV**

Table 6 - ASSETS PROFILE- BRASIL
HUMAN CAPITAL

		YEARS OF AGE AVERAGE				YEARS OF AGE COEFFICIENT OF VARIATION			
		HEAD		SPOUSE		HEAD		SPOUSE	
		Poor	Total	Poor	Total	Poor	Total	Poor	Total
Total		41.47	44.18	37.87	39.95	10.49	9.50	10.43	9.75
Working Class	**Inactive**	49.55	58.06	47.70	53.73	10.22	7.40	9.35	7.45
	Unemployed	36.34	38.86	34.60	37.10	8.29	8.75	8.43	8.97
	Employees (w/card)	37.51	38.76	34.31	36.01	9.16	8.30	9.49	8.75
	Employees (no card)	36.62	40.64	34.69	37.19	10.23	9.37	10.14	9.59
	Self - Employed	41.02	43.38	36.99	39.58	8.46	8.02	9.24	8.80
	Employer	41.19	43.59	36.99	39.81	6.81	7.63	8.04	8.13
	Public Servant	39.98	41.62	36.07	38.26	7.35	6.88	8.44	7.65
	Unpaid	44.72	53.31	40.44	47.84	9.49	7.93	9.43	8.37

Source: PNAD - IBGE **Elaboration:CPS/IBRE/FGV**

Table 7 - ASSETS PROFILE- BRASIL METROPOLITAN 1996
COMMUTING TIME HOUSE TO WORK

		AVERAGE COMMUTING TIME HOUSE TO WORK				ARRIVES IN MORE THAN 30 MINUTES			
		HEAD		SPOUSE		HEAD		SPOUSE	
		Poor	Total	Poor	Total	Poor	Total	Poor	Total
Total		41.57	41.33	34.63	33.45	52.18	50.90	40.64	39.29
Working Class	**Inactive**	---	---	40.24	37.18	---	---	47.01	43.74
	Unemployed	---	---	34.56	35.95	---	---	42.56	42.81
	Employees (w/card)	45.43	46.29	31.33	36.32	60.97	59.71	37.09	45.79
	Employees (no card)	36.66	38.50	32.75	38.45	37.00	42.35	30.75	44.91
	Self - Employed	25.80	28.08	34.06	31.14	24.31	27.12	37.57	34.21
	Employer	22.88	25.33	24.10	24.30	16.67	25.35	21.15	23.54
	Public Servant	44.21	40.68	36.95	29.09	55.97	51.27	58.39	33.02
	Unpaid	22.20	20.19	30.34	24.12	19.76	10.88	33.23	24.01

Source: PNAD - IBGE **Elaboration:CPS/IBRE/FGV**

Apendix C: Profit Equations for Micro-Entrepreneurial Activities

Few empirical exercises in labor economics are as sucessful as Mincerian Wage Equations. This appendix implements the same approach to the profit resulting from micro-entrepreneurial activities using special surveys on the informal sector (ECINF 94 and 97).

Table 1 - PROFIT EQUATION - SELF-EMPLOYMENT - ENCIF-Rio

	Estimate	t-statistic		Standart Error
Gender - Male	0.4262	6.6162	**	0.0644
Race - White or Yellow	0.2845	5.5644	**	0.0511
Was Born in Rio	-0.1331	-2.7463	**	0.0485
Household Status _ Heads	0.1034	1.7560	*	0.0589
Completed Years of Schooling	0.0737	12.5554	**	0.0059
Has a Partner	0.1074	0.5618		0.1911
Number of Partners	0.2432	3.4146	**	0.0712
Member of Cooperative	0.3943	2.3307	**	0.1692
Does Accounting Work	0.1560	3.1625	**	0.0493
Received Some Assistance in the Last 5 Years	0.1598	0.8332		0.1918
Is Legally Established	0.3533	1.6250		0.2174
Has a Social Security Number (CGC)	0.3808	0.7814		0.4872
Declared Income Tax	-0.0253	-0.1033		0.2446
Developed Activities Outside the Household	0.2552	3.4693	**	0.0735
Has Special Place Within the Household	0.4089	4.7739	**	0.0856
Develops Activities in Office, Shop etc	0.3032	3.7444	**	0.0810
Use Equipment	0.0225	0.3296		0.0681
Type of Equipment - Real State	-0.0766	-0.8489		0.0902
Type of Equipment - Working Tools	-0.0615	-1.0523		0.0584
Type of Equipment - Machines	0.1408	2.2450	**	0.0627
Type of Equipment - Furniture	0.0380	0.5444		0.0698
Type of Equipment - Veicule	0.6571	6.4199	**	0.1023
Has Financial Debt	0.3968	3.1572	**	0.1257
Finance Its Sales	0.2032	3.9643	**	0.0513
Origin of Capital - Informal Agiota	-0.8797	-2.6405	**	0.3331
Was Fired in Last Job	-0.2120	-3.0949	**	0.0685
Origin of Capital - Did not need Any Capital	-0.0432	-0.8365		0.0516
Sector of Activity - Manufacturing	-0.3870	-2.3565	**	0.1642
Sector of Activity - Construction	0.0762	0.4639		0.1643
Sector of Activity - Services	-0.1822	-1.2195		0.1494
Sector of Activity - Commerce	-0.2535	-1.7128	*	0.1480

Number of observations = 1472; R2= 0.407; Confidence Intervals * 90% ** 95%

Table 2 - LABOR INCOME EQUATION - SELF-EMPLOYMENT - ENCIF-Rio

	Estimate	t-statistic		Standart Error
Gender - Male	0.437	7.290	**	0.060
Race - White or Yellow	0.291	6.084	**	0.048
Was Born in Rio	-0.111	-2.463	**	0.045
Household Status _ Heads	0.181	3.300	**	0.055
Completed Years of Schooling	0.088	16.124	**	0.005
Has a Partner	0.149	0.835		0.178
Number of Partners	0.000	0.002		0.067
Member of Cooperative	0.180	1.141		0.158
Does Accounting Work	0.145	3.137	**	0.046
Received Some Assistance in the Last 5 Years	0.033	0.183		0.179
Is Legally Established	0.166	0.818		0.203
Has a Social Security Number (CGC)	0.396	0.870		0.455
Declared Income Tax	0.079	0.346		0.228
Developed Activities Outside the Household	0.125	1.830	*	0.068
Has Special Place Within the Household	0.243	3.037	**	0.080
Develops Activities in Office, Shop etc	0.268	3.551	**	0.075
Use Equipment	-0.036	-0.561		0.064
Type of Equipment - Real State	-0.079	-0.936		0.084
Type of Equipment - Working Tools	-0.127	-2.327	**	0.055
Type of Equipment - Machines	0.049	0.842		0.059
Type of Equipment - Furniture	0.053	0.807		0.066
Type of Equipment - Veicule	0.617	6.431	**	0.096
Has Financial Debt	0.681	5.799	**	0.117
Finance Its Sales	0.194	4.050	**	0.048
Origin of Capital - Informal Agiota	-1.072	-3.448	**	0.311
Was Fired in Last Job	-0.218	-3.399	**	0.064
Origin of Capital - Did not need Any Capital	-0.095	-1.960	*	0.048
Sector of Activity - Manufacturing	-0.481	-3.133	**	0.153
Sector of Activity - Construction	0.022	0.144		0.153
Sector of Activity - Services	-0.191	-1.367		0.139
Sector of Activity - Commerce	-0.268	-1.941	*	0.138

Number of observations = 1469; R2= 0.4244; Confidence Intervals * 90% ** 95%

Table 3 - ALL INCOME SOURCES EQUATION - SELF-EMPLOYMENT - ENCIF-Rio

	Estimate	t-statistic		Standart Error
Gender - Male	0.342	5.760	**	0.059
Race - White or Yellow	0.311	6.534	**	0.048
Was Born in Rio	-0.123	-2.741	**	0.045
Household Status _ Heads	0.324	5.949	**	0.055
Completed Years of Schooling	0.091	16.818	**	0.005
Has a Partner	0.170	0.960		0.177
Number of Partners	-0.016	-0.237		0.066
Member of Cooperative	0.016	0.104		0.155
Does Accounting Work	0.140	3.069	**	0.046
Received Some Assistance in the Last 5 Years	-0.094	-0.528		0.178
Is Legally Established	0.186	0.921		0.202
Has a Social Security Number (CGC)	0.493	1.091		0.453
Declared Income Tax	0.092	0.406		0.227
Developed Activities Outside the Household	0.075	1.105		0.068
Has Special Place Within the Household	0.248	3.118	**	0.080
Develops Activities in Office, Shop etc	0.256	3.421	**	0.075
Use Equipment	-0.038	-0.596		0.063
Type of Equipment - Real State	-0.007	-0.081		0.084
Type of Equipment - Working Tools	-0.149	-2.750	**	0.054
Type of Equipment - Machines	-0.012	-0.210		0.058
Type of Equipment - Furniture	0.070	1.073		0.065
Type of Equipment - Veicule	0.621	6.509	**	0.095
Has Financial Debt	0.607	5.198	**	0.117
Finance Its Sales	0.176	3.711	**	0.048
Origin of Capital - Informal Agiota	-1.067	-3.450	**	0.309
Was Fired in Last Job	-0.274	-4.302	**	0.064
Origin of Capital - Did not need Any Capital	-0.071	-1.477		0.048
Sector of Activity - Manufacturing	-0.394	-2.583	**	0.152
Sector of Activity - Construction	0.034	0.222		0.153
Sector of Activity - Services	-0.116	-0.839		0.139
Sector of Activity - Commerce	-0.261	-1.901	*	0.137

Number of observations = 1479; R2= 0.4271; Confidence Intervals * 90% ** 95%

We present now similar exercise to the one pose dabove but focusing on profit, sales and costs as endogenous variables. We use here Ecinf 97-IBGE what allow us to make inferences about the whole country.

Table 4 -LOG PROFIT
SAMPLE: SELF-EMPLOYED AND EMPLOYER
MEAN PROFIT = R$ 741.24

	Estimator	t statistic		Dif. Bivariate	% in population
Gender - Male	0.3439	26.9718	**	0.138	0.6699
Race - White or Yellow	0.2461	25.4467	**	0.270	0.6096
Family status - Head	0.1132	9.4912	**	0.126	0.6686
Years of Age	0.0416	19.0963	**	-	39.7 #
Square Years of Age	-0.0005	-19.8083	**	-	-
Completed Years of Schooling	0.0387	10.4595	**	-	6.6 #
Square Completed Years of Schooling	0.0018	7.9106	**	-	-
Years of Operation	0.0017	15.3914	**	-	7.8 #
Square Years of Operation	0.0000	-10.6249	**	-	-
Hours of working	0.0074	30.4469	**	-	43.5 #
Has another work	-0.1397	-8.7556	**	0.226	0.0911
Employer	0.3175	17.1966	**	1.173	0.2517
Number of No Family Employees	0.0775	12.1063	**	-	0.6 #
Number of Family Employees	0.0520	7.5173	**	-	0.4 #
Has partner	0.2008	5.4382	**	1.364	0.1032
Number of partners	0.0675	4.4111	**	-	0.4 #
Belongs to Co-operative, Associate or Union Member	0.2066	14.0838	**	1.411	0.1532
Received in the last 5 years some kind of assistance	0.1838	7.1890	**	1.336	0.0363
Control the businesses accounts	0.4033	37.4109	**	0.419	0.5881
Has Legal Constitution	0.2401	5.7110	**	1.117	0.2111
Has Legal Registry	-0.1026	-4.1766	**	0.768	0.1620
Has CGC	-0.1622	-4.2984	**	1.093	0.1934
Declared Income Tax	0.2401	9.1649	**	1.332	0.1697
Finance Sales	0.0934	9.9776	**	0.174	0.5750
Has fixed clientele	0.0247	1.7566	*	0.253	0.1173
Has debt	0.0191	1.4263		0.082	0.1420
Debt/Profit Ratio	-0.0036	-15.5818	**	-	0.0 #
Uses equipment	0.0641	4.5415	**	0.097	0.8310
Kinds of equipments - Properties, Tents or Traillers	0.0307	1.8556	*	0.424	0.1009
Kinds of equipments - Tools or Work Utensils	-0.0933	-7.9565	**	-0.231	0.2581
Kinds of equipments - Machines	0.0472	3.5819	**	0.129	0.1742
Kinds of equipments - Furnitures and Equipments	-0.0136	-1.0436		0.546	0.2053
Kinds of equipments - Vehicles	0.4036	24.1990	**	0.576	0.1014
Sector of Activity - Industry	0.0929	5.5442	**	-0.088	0.1290
Sector de Activity - Construction	0.2502	14.3393	**	-0.384	0.1419
Sector de Activity - Service	-0.0081	-0.6498		0.040	0.3573
Has activity out of the dwelling	0.3666	22.9262	**	0.183	0.6899
Has business in shop, workshop, office, etc	0.1251	8.0366	**	0.824	0.3073
In the dwelling has exclusive place	0.3005	17.3487	**	-0.548	0.0402
Was fired in the last job	-0.0115	-0.7023		-0.211	0.0872
Was born in this city	-0.0622	-6.7181	**	-0.027	0.4168
Metropolitan area	0.1971	20.5914	**	0.137	0.3642
Intercept	2.7207	56.6345	**	0.290	0.0091
Number of observations = 45642	**R2 : 0.5074**			**F Value : 1067.37**	
Degrees of Freedon = 45598	**R2 Ajust. : 0.5069**			**Prob>F : <.0001**	

Statistically different from zero: * 90% **
Corresponds to the mean value of the
Obs: Omitted variables: When binary variable is the complement. Example: Gender appers male so the omitted variable is

Source : ENCIF - IBGE **Elaboration :** CPS\IBRE\FGV

Table 5 - LOG SALES
SAMPLE: SELF-EMPLOYED AND EMPLOYER - BRAZIL

MEAN SALES = R$ 2,265.62

	Estimator	t statistic		Dif. Bivariate	% in population
Gender - Male	0.3440	28.9034	**	0.143	0.6699
Race - White or Yellow	0.2266	24.9857	**	0.258	0.6096
Family status - Head	0.1046	9.3617	**	0.130	0.6686
Years of Age	0.0445	21.7171	**	-	39.7 #
Square Years of Age	-0.0005	-22.1701	**	-	-
Completed Years of Schooling	0.0555	16.0000	**	-	6.6 #
Square Completed Years of Schooling	0.0002	0.8804		-	-
Years of Operation	0.0012	11.1418	**	-	7.8 #
Square Years of Operation	0.0000	-7.5607	**	-	-
Hours of working	0.0100	43.9565	**	-	43.5 #
Has another work	-0.1466	-9.7700	**	0.063	0.0911
Employer	0.4178	24.3734	**	1.729	0.2517
Number of No Family Employees	0.1995	33.7027	**	-	0.6 #
Number of Family Employees	0.1664	25.9563	**	-	0.4 #
Has partner	0.3070	8.8637	**	1.976	0.1032
Number of partners	-0.0561	-3.8709	**	-	0.4 #
Belongs to Co-operative, Associate or Union Member	0.1803	13.2859	**	1.621	0.1532
Received in the last 5 years some kind of assistance	0.0753	3.2428	**	1.430	0.0363
Control the businesses accounts	0.4892	48.1526	**	0.527	0.5881
Has Legal Constitution	0.4332	11.2160	**	1.910	0.2111
Has Legal Registry	-0.1718	-7.6471	**	1.339	0.1620
Has CGC	-0.1177	-3.4380	**	1.976	0.1934
Declared Income Tax	0.1890	7.9295	**	2.174	0.1697
Finance Sales	0.1584	18.0216	**	0.278	0.5750
Has fixed clientele	0.0507	3.8423	**	0.159	0.1173
Has debt	0.1034	8.4331	**	0.419	0.1420
Debt/Profit Ratio	-0.0011	-5.0896	**	-	0.0 #
Uses equipment	0.1207	9.1056	**	0.135	0.8310
Kinds of equipments - Properties, Tents or Traillers	0.0402	2.6193	**	1.152	0.1009
Kinds of equipments - Tools or Work Utensils	-0.1248	-11.3285	**	-0.387	0.2581
Kinds of equipments - Machines	0.0496	4.0366	**	0.360	0.1742
Kinds of equipments - Furnitures and Equipments	0.1055	8.6886	**	0.951	0.2053
Kinds of equipments - Vehicles	0.4230	27.3452	**	1.045	0.1014
Sector of Activity - Industry	-0.2491	-15.9808	**	0.097	0.1290
Sector de Activity - Construction	-0.2826	-17.1175	**	-0.700	0.1419
Sector de Activity - Service	-0.3885	-33.5739	**	-0.311	0.3573
Has activity out of the dwelling	0.3051	20.3522	**	0.227	0.6899
Has business in shop, workshop, office, etc	0.3264	22.4948	**	1.193	0.3073
In the dwelling has exclusive place	0.3650	22.4364	**	-0.287	0.1530
Was fired in the last job	-0.0079	-0.5127		-0.246	0.0872
Was born in this city	-0.0525	-6.0438	**	-0.038	0.4168
Metropolitan area	0.1365	15.2514	**	-0.003	0.3642
Intercept	3.1895	70.5789	**	0.220	0.0091

Number of observations = 47931	**R2 : 0.6576**	**F Value : 2090.65**
Degrees of Freedon = 47887	**R2 Ajust. : 0.6573**	**Prob>F : <.0001**

Statistically different from zero: * 90% ** 95%

Corresponds to the mean value of the variable.

Obs: Omitted variables: When binary variable is the complement. Example: Gender appers male so the omitted variable is female.

Source : ENCIF - IBGE **Elaboration :** CPS\IBRE\FGV

Table 6 - LOG COST
SAMPLE: SELF-EMPLOYED AND EMPLOYER - BRAZIL

MEAN COST = R$ 1,527.86

	Estimator	t statistic		Dif. Bivariate	% in population
Gender - Male	0.3197	20.6106	**	0.147	0.6699
Race - White or Yellow	0.1807	14.6324	**	0.255	0.6096
Family status - Head	0.0553	3.6469	**	0.134	0.6686
Years of Age	0.0463	16.3746	**	-	39.7 #
Square Years of Age	-0.0005	-16.6700	**	-	-
Completed Years of Schooling	0.0578	12.1962	**	-	6.6 #
Square Completed Years of Schooling	-0.0014	-4.7969	**	-	-
Years of Operation	0.0003	1.9085	*	-	7.8 #
Square Years of Operation	0.0000	-0.3727		-	-
Hours of working	0.0111	37.7358	**	-	43.5 #
Has another work	-0.1183	-5.9288	**	-0.005	0.0911
Employer	0.6246	29.7868	**	1.998	0.2517
Number of No Family Employees	0.2666	37.2895	**	-	0.6 #
Number of Family Employees	0.2320	29.9303	**	-	0.4 #
Has partner	0.3907	9.2717	**	2.268	0.1032
Number of partners	-0.1382	-7.8848	**	-	0.4 #
Belongs to Co-operative, Associate or Union Member	0.1073	6.3616	**	1.728	0.1532
Received in the last 5 years some kind of	0.0583	2.0342	**	1.474	0.0363
Control the businesses accounts	0.5289	38.3553	**	0.580	0.5881
Has Legal Constitution	0.6274	13.2904	**	2.293	0.2111
Has Legal Registry	-0.1725	-6.3322	**	1.615	0.1620
Has CGC	-0.1221	-2.9327	**	2.401	0.1934
Declared Income Tax	0.1588	5.5280	**	2.579	0.1697
Finance Sales	0.2135	17.9278	**	0.331	0.5750
Has fixed clientele	0.0333	1.9127	*	0.120	0.1173
Has debt	0.2418	15.7505	**	0.583	0.1420
Debt/Profit Ratio	-0.0004	-1.6050		-	0.0 #
Uses equipment	-0.0047	-0.2436		0.157	0.8310
Kinds of equipments - Properties, Tents or	0.0148	0.7950		1.503	0.1009
Kinds of equipments - Tools or Work Utensils	-0.2071	-13.7621	**	-0.461	0.2581
Kinds of equipments - Machines	0.0233	1.4728		0.472	0.1742
Kinds of equipments - Furnitures and	0.1782	11.8000	**	1.147	0.2053
Kinds of equipments - Vehicles	0.4266	22.2657	**	1.272	0.1014
Sector of Activity - Industry	-0.5134	-25.5555	**	0.191	0.1290
Sector de Activity - Construction	-1.0139	-37.9297	**	-0.853	0.1419
Sector de Activity - Service	-0.7998	-53.2457	**	-0.481	0.3573
Has activity out of the dwelling	0.3044	15.0039	**	0.252	0.6899
Has business in shop, workshop, office, etc	0.4732	25.1013	**	1.374	0.3073
In the dwelling has exclusive	0.4590	21.3484	**	-0.329	0.1530
Was fired in the last job	-0.0279	-1.3306		-0.265	0.0872
Was born in this city	-0.0480	-4.1219	**	-0.044	0.4168
Metropolitan area	0.1104	9.1746	**	-0.073	0.3642
Intercept	2.6087	41.0296	**	0.192	0.0091

Number of observations = 40076 **R2 : 0.6454** **F Value : 1655.87**

Degrees of Freedon = 40032 **R2 Ajust. : 0.645** **Prob>F : <.0001**

Statistically different from zero: * 90% ** 95%

Corresponds to the mean value of the variable.

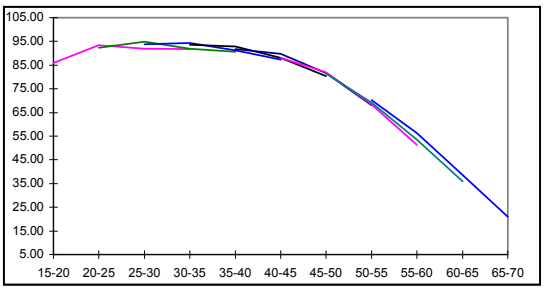
Obs: Omitted variables: When binary variable is the complement. Example: Gender appers male so the omitted variable is female.

Source : ENCIF - IBGE **Elaboration :** CPS\IBRE\FGV

Apendix D: The Life Cycle Behavior of Self-employment

The life-cycle behavior of any variable can be studied using a static age profile or more interesting using pseudo-panels. In the static profile, we plot from a cross-section the value assumed by any chosen variable in various age groups. The main limitation of the static age profile is not taking into account cohort or year effects. Instead in the pseudo-panel, we track the value of a certain statistic for the same generation across time. We will use both approaches here to study the long-run patterns of the decision of becoming an microentrepreneur.

Table 1 - Access Rates to Occupation among Heads



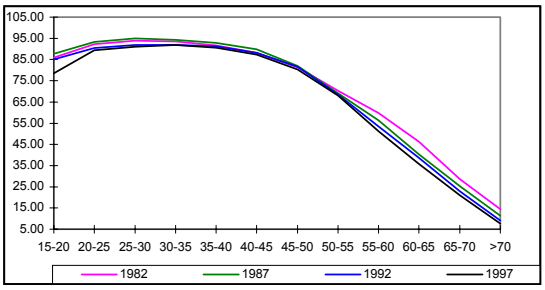
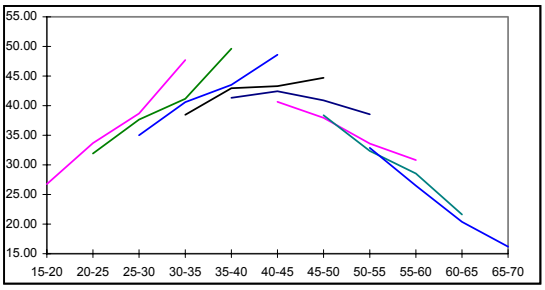
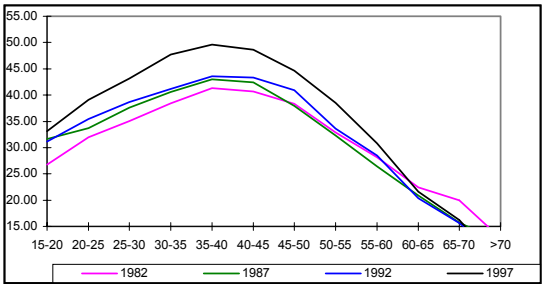


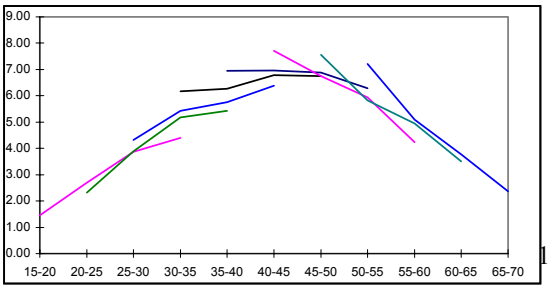
Table 2 - Access Rates to Occupation among Spouses





Fonte : **PME**

Table 3 - Access Rates to Employer Positions Among Heads



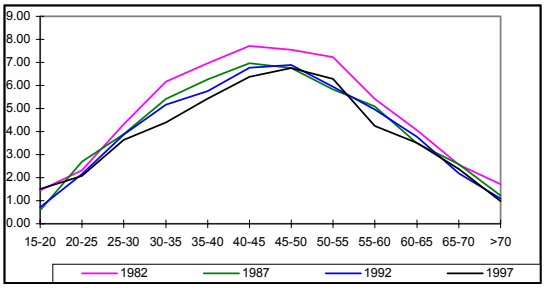
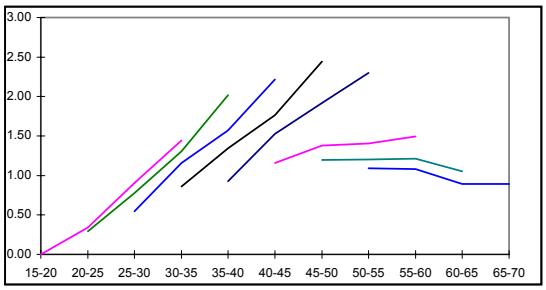
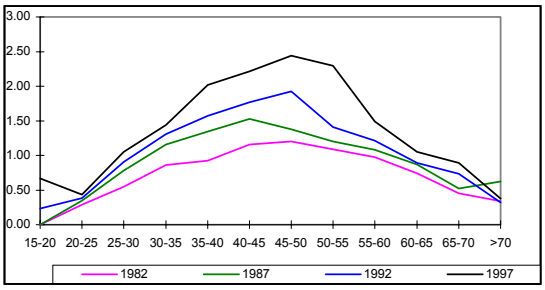


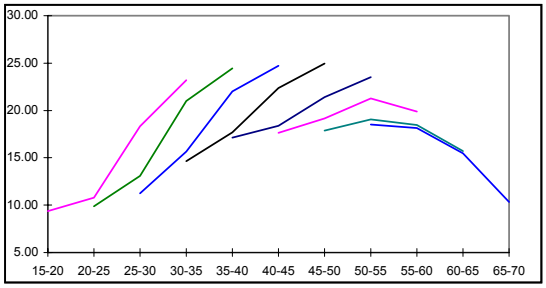
Table 4 - Access Rates to Employer Positions Among Spouses





Fonte : PME

Table 5 - Access Rates to self-employment among Heads



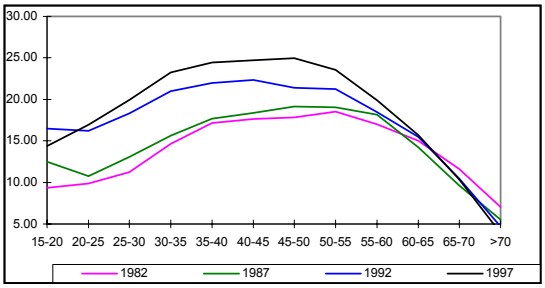
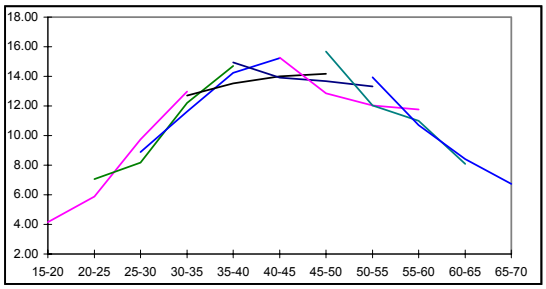
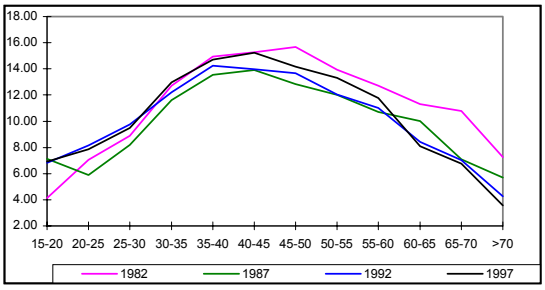


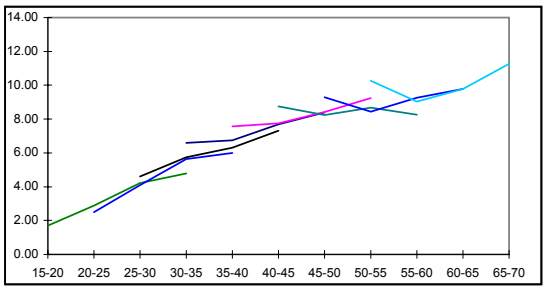
Table 6 - Access Rates to self-employment among Spouses





Fonte : PME

Table 7 - Access Rates to Employer Positions Among Occupied Heads



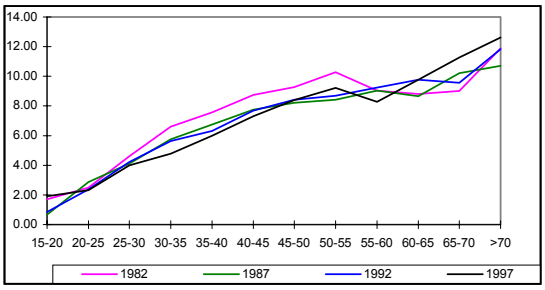
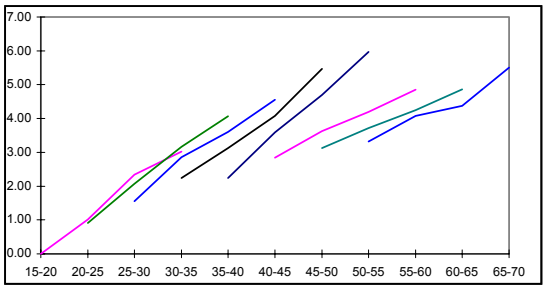
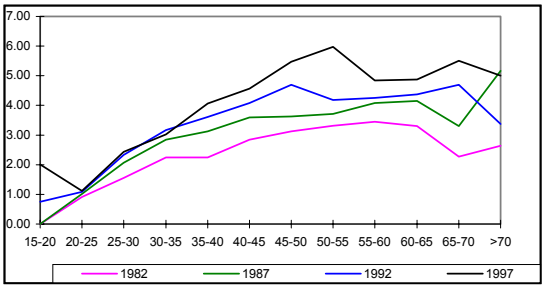


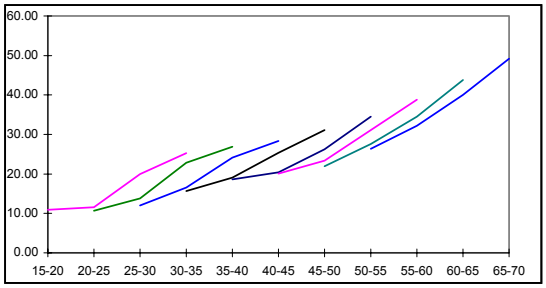
Table 8 - Access Rates to Employer Positions Among Occupied Spouses





Fonte : PME

Table 9 - Access Rates to Self-employment Among Occupied Heads



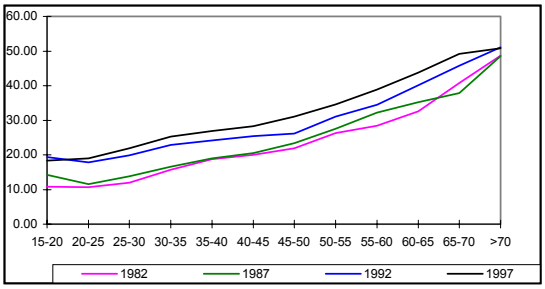
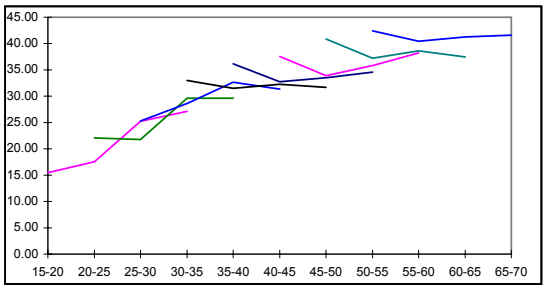
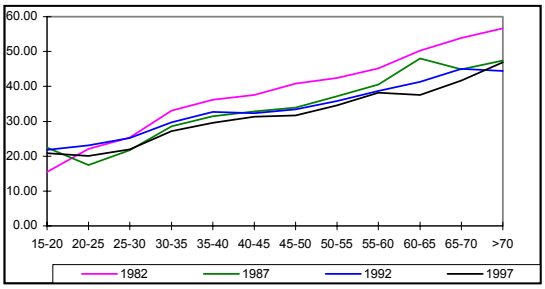


Table 10 - Access Rates to Self-employment Among Occupied Spouses





Fonte : PME