Labor Market Rigidities and Informality in Colombia

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Abstract

Informality is at the center of the economic debate in Colombia, fueled by the substantial increase in the size of the informal sector observed during the 1990s. Labor market rigidities, namely the increase in non-wage costs and the minimum wage, have sizeable effects on the size of the informal sector and the observed wages across sectors. Our estimates indicate that as a result of a 10 percentage points (pp) rise in non-wage costs, the probability of being informal increases by 8pp, formal wages are not affected and informal wages fall by 9pp. An increase of 20pp in the minimum wage increases the likelihood of informality by 6pp, and decreases formal and informal wages by 10.8pp and 28pp, respectively. We also analyze the transition into and out of the informal sector by measuring the flows across sectors, and study the determinants of entry and exit into and out of informality. Given the level of labor market rigidities in Colombia, the formal sector adjusts to the economic cycle through quantities -cutting back on jobs, while the informal sector does so through prices, i.e. decreasing the wages.

Key Words: Informality, Non-wage costs, Minimum Wage, transitions, segmentation

JEL Codes: J31, J32, J38

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1. Introduction

Informality has been at the centre of the economic debate, due partly to the reported increase in informality rates in Colombia during the 1990s. The Colombian labor market is characterized by high levels of non-wage costs (NWC) and minimum wage. NWC are costs faced by the employer, other than the wage. These include health and pension contributions, *parafiscales*[1], among others. We calculate the effect of the observed increase on NWC and the evolution of the minimum wage on the likelihood of being formal or informal as well as on the returns to the formal and informal sectors. Our results suggest that given the existing labor market rigidities in Colombia, the formal sector is thought to adjust to the economic cycle through quantities -cutting back on jobs, while the informal through prices, i.e. decreasing the wages.

The informal sector includes a range of heterogeneous activities, from unpaid labor to any number of unregulated salaried jobs. Informality is thought to have negative implications, mainly through inferior working conditions for workers. Defining informality as the non-compliance with labor market regulations, such as social security provision, workers have no formal insurance against illness, unemployment and/or old age. Many alternative definitions of informality have been proposed in the literature, each implying a different approach to this phenomenon. Since the reasons behind the existence of an informal sector differ, so do the implications in terms of labor policies.

This paper brings new elements to our understanding of informality in Colombia. We study the evolution of informality for a long period of time, which includes both expansions and recessions, structural reforms of the labor market and great variation in non-wage costs and the minimum wage. We find that the observed increase in both NWC and the minimum wage have greatly affected the size of the informal sector as well as formal and informal wages.

Our analysis indicates that the official informality definition –based on occupation and firm size- captures the bulk of informal workers measured by lack of social security compliance. Given this result, and constrained by data availability, we adopt the firm size definition to study the evolution of informality during the period of study. We then characterize informal workers in demographic, socioeconomic and labor market related characteristics, and find that there have been no major changes in observables during the period.

The desirability of the informal sector, however, has deteriorated dramatically over the period of study. The informal sector is counter-cyclical, as expected, which suggests a disadvantaged sector in a dual labor market. The evolution of labor market rigidities affected the size of the informal sector, the probability of transition between sector and wages. The observed increases in NCW and the minimum wage decreased wages in both sectors, but especially so in the informal sector.

Finally, despite the fact that the observable characteristics of informal workers have remained unchanged, the relative returns have deteriorated dramatically, especially after the recession of the late 90's. We also calculate the distribution of the wages within each sector and compare the evolution of the distributions between sectors. Workers, at

[1] The *parafiscales* are employer contributions to finance public social services such as job training and childcare.

any level of education, are –as expected- better protected in the formal sector. In addition, the returns in the informal sector have deteriorated during the period, due to the recession of the late 90's: informal workers are at increased disadvantage vis-à-vis formal ones, even after several years of high economic growth.

To complement the previous analysis we first measure the transition flows between the formal and informal sectors, and unemployment, using transition matrices. This describes, for example, what percentage of the job destruction in the formal sector is absorbed by the informal sector and how much enters unemployment. To characterize those who transit, we estimate the effect of individual covariates on the likelihood of switching sectors. We find that labor market rigidities are important drivers of the transition into informality, but not necessarily into formality.

One strand of the literature associates informality to labor market rigidities in Colombia. Núñez (2002) finds a positive relation between informality and income taxes on labor revenue for the period 1988-1998. His results suggest that formal workers get better wages and better returns to experience, but unlike other results in the literature, he finds higher returns to education in the informal sector. Using a firm panel from the industrial sector, Kugler and Kugler (2009) find that a 10% increase in payroll taxes decrease formal employment between 4 and 5%. Albrecht et. al (2008), in an extension of the Mortensen-Pissarides search model, point out that rises in NWC increase the size of the informal sector.

Some authors, on the other hand, characterize informal workers and study informality from a segmentation perspective: to what extent workers choose to become informal and to what extent are they forced to do so. Flórez (2002) analyzes the role of the informal sector between 1986 and 2000, and finds that some informal workers are excluded from the formal sector, while others opt out. More recently, and along the same lines, the World Bank (2007) documents two coexistent phenomena in the region: *exclusion* from the formal sector and its benefits as a result of labor market segmentation; and *exit* from the formal sector because some workers find better conditions in informality. Whereas in most Latin American countries the self-employed choose to be so, the Colombian self-employed are deemed an exception since they seem to be excluded from the formal sector. Bernal (2007) suggests that informal workers – those who do not contribute to health and/or pension, are relatively young uneducated workers living in urban areas, working in small firms or belonging to ethnic minorities. In line with the literature, the author finds lower wages and less satisfaction with jobs in the informal sector but the dissatisfaction is mainly due to temporality and instability, rather than with inferior working conditions. Regarding the question of to what extent is informality a matter of exit or exclusion, Bernal finds that one half of the informal workers choose to be so since they would not accept a formal job for a wage equal to or lower than the one they currently make.

In a closely related paper, Santa María et al. (2009) find that the increase in NWC, as a result of the Health Reform, has segmented the Colombian labor market. Using a Vector Error Correction (VEC) model, they find that NWC are cointegrated with relative employment and wages between private wage earners and self employed.

The paper is divided into eight sections. The following section compares different definitions of informality, the third describes the evolution of labor market rigidities and

in the fourth informal workers are described in terms of their observable characteristics. In the fifth section we estimate the effect of NWC and the minimum wage on the size of the informal sector and in the sixth we deal with the flows between sectors. The seventh section is devoted to the relative returns between sectors and estimating the effect of labor market rigidities on wages. The last section concludes.

2. To What Extent do Alternative Definitions of Informality Concur?

Alternative definitions of informality, usually dictated by data availability, have been proposed in the literature. This section explores the extent in which informality definitions involving compliance (or non-compliance) with labor market regulations concur with those related to firm size and occupation.

Let us start by introducing the definition of informality used by the Colombian Statistics Department (DANE, for its initials in Spanish). Informal workers: (i) work in firms with 10 or fewer employees; (ii) are unpaid family aids and housekeepers; (iii) are self employed (except for independent professionals and technicians); or (iv) are business owners of firms with 10 or less employees. This definition is similar to that of the International Labor Office. Note that it does not include any criteria related with labor market regulations; and since it is largely driven by the size of the firm in terms of employees, we will refer to it as the *firm size* definition of informality. Given that the size of a firm is associated with many factors such as optimal scale, productivity and transaction costs, among many others, this definition has been criticized in the literature for not measuring the phenomenon directly. Figure 1 presents the evolution of the informality rate for the period 1984-2006 across alternative definitions[2]. According to the firm size definition, informality was stable around 52% from 1984 to 1996, grew steadily between 1996 and 2001 to 56%, and remained at this level until the end of the period. This increase is considerable and is at center of the domestic debate.

[2] See Section 3 for a description of the data. The time series for each definition is presented according to data availability.

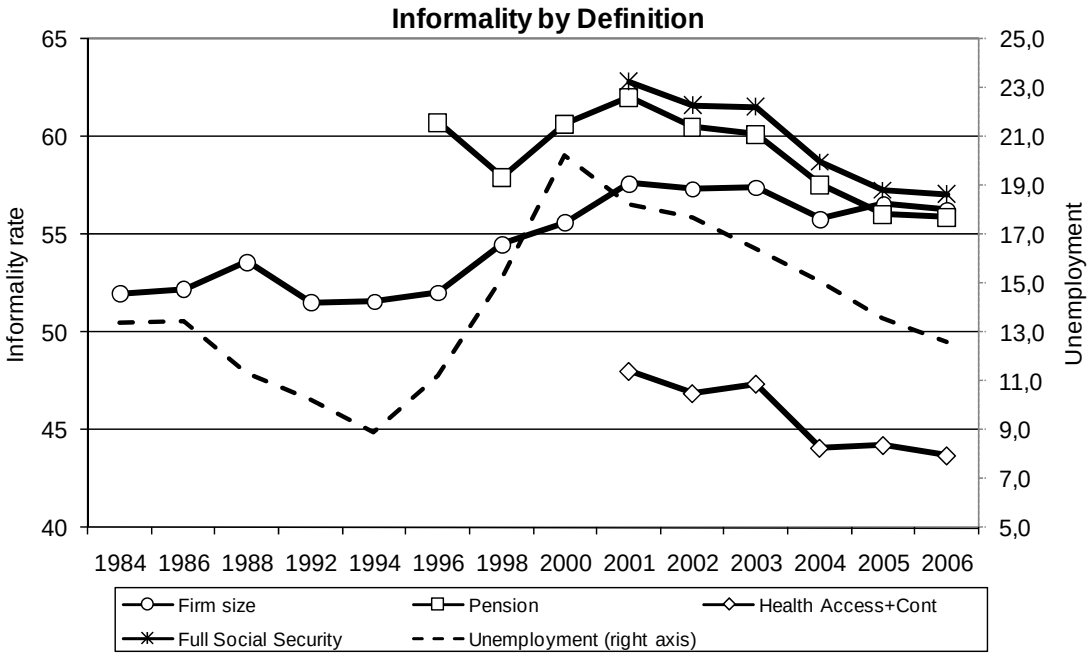


Figure 1

We also consider definitions related to social protection coverage that capture whether workers have access to one or more of the types of benefits associated with formal employment. The first social protection definition only takes into account *Pensions*: we define formal workers as those who make pension contributions. The next informality criterion is *health access and contribution*[3] - *health* in what follows. Note that according to Colombian Law, workers should contribute *individually* to social security. However, if an individual has health insurance the spouse, children and parents are also covered. Therefore, covered spouses have no incentive to contribute as law-abiding families are double-taxed for health insurance. Finally, we consider the *full social security* criterion that defines workers as informal if they do not contribute to health *nor* contribute to pensions. Being the most comprehensive criterion, it implies the highest levels of informality.

Under pensions, the percentage of informal workers increases from 1998 to 2001, and decreases until the end of the analysis period. This measure is more volatile and follows the economic cycle closer than the *firm size* one. Informality as measured by health decreases from 48% in 2001 to 43.7% in 2006. Moreover, informality is higher if measured through pension contributions as compared to health coverage and contribution, suggesting either that agents value health over old-age insurance, or the existence of informal insurance mechanisms such as those linked to double-taxation.

[3] Informality measured by health access behaves very differently than the measure by health access and contribution, mainly due to the secular expansion in the "subsidized regime". In this paper, we consider workers who are covered by spousal/family insurance or who work but are covered by the subsidized regime as informal.

Informality measured by full social security compliance goes from 62.8% in 2001 to 57.1% in 2006. It follows closely the pension criterion, though at a slightly higher level.

In sum, while social security compliance definitions measure informality directly, firm size does so indirectly. Informality levels suggested by full social security compliance are similar that those measured by firm size. However, the question of whether these alternative definitions are classifying the same workers as informal remains. Thus, we present a Venn diagram analysis (Figure 2) portraying to what extent do these definitions coincide.

Dimensions of informality: Venn diagram (2002)

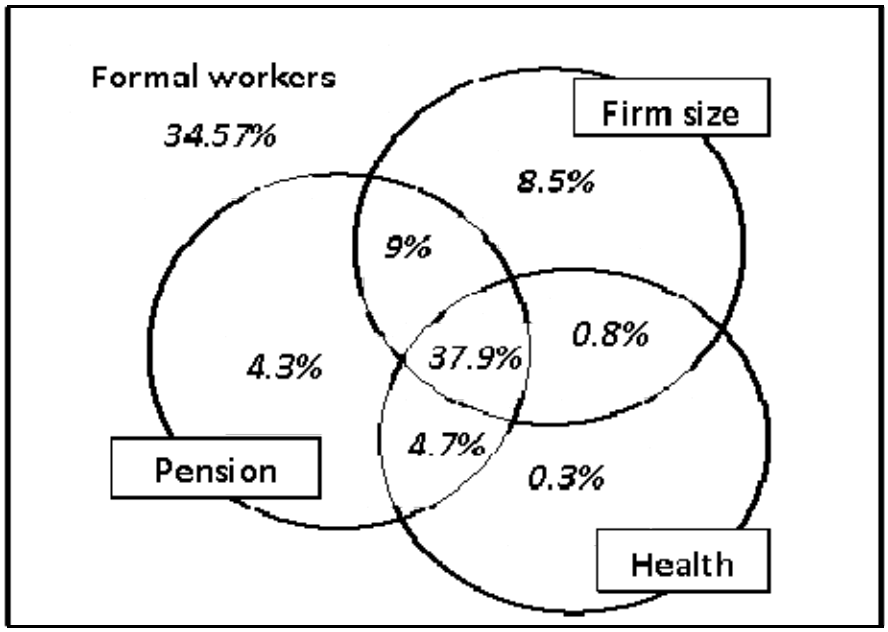


Figure 2

Two important facts emerge from Figure 2. First, almost every worker contributing to pensions contributes to health. Second, and more importantly, the firm size definition captures the bulk of workers considered informal under the other definitions, especially health access and contribution. For instance, 38.7 percentage points of the 43.7% considered informal under *health*, are also considered informal by *firm size*. As far as pensions are concerned, 42.6 percentage points of the 55.9% are also classified as informal by the *firm size* definition. Hence, even though the government's official definition does not include any criteria regarding social security coverage, it captures the bulk of the phenomenon indirectly. This is because non-compliance with social-security regulations is a small-firm phenomenon and varies across occupations (as portrayed in Figure 3). Differences in health contribution are staggering: a little over 10% of individuals working in firms with more than 10 employees are informal compared to over 80% of those working alone. This is mainly explained by the fact that compliance costs are more difficult to cover for small size firms, and it's easier for these firms to stay below the government's radar in regards to compliance. Differences in informality across occupations are also important; about 80% of family aids, self

employed and household services (who are informal according to the government's official definition) do not contribute to health. On the other edge, less than 2% of government employees are informal according to the health contribution criterion. The magnitude of the differences in firm size are similar to than those across occupations.

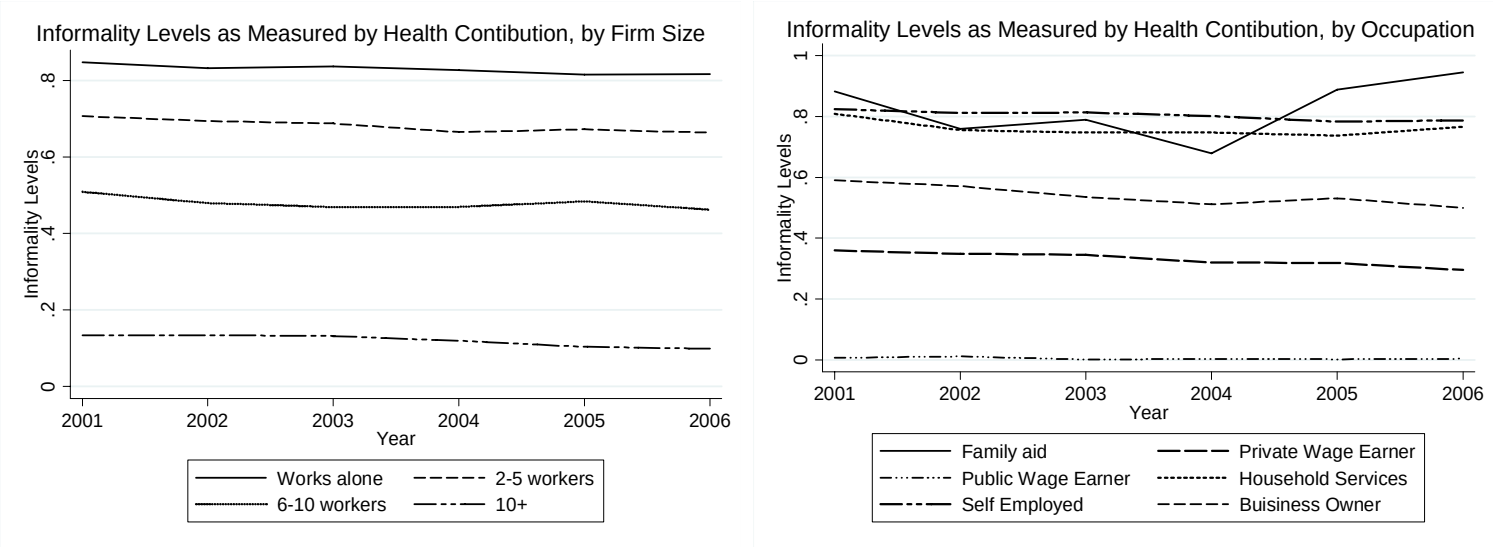


Figure 3

If informality is a disadvantage sector of a segmented labor market detached from formal activity, it should be countercyclical since it expands during downturns to absorb displaced workers from the formal sector. If, on the other hand, the size of the informal sector is procyclical, this is suggestive of a micro-entrepreneurial sector, linked to the formal sector through the provision of low cost goods and services. Aggregate informality for the period 1984-2006 is counter-cyclical, suggesting segmentation in the labor market (see Table 1). Informality is positively and significantly (except for pension) correlated with unemployment. In particular health and full social security are highly correlated with unemployment. We get very similar results when estimating the correlations with GDP growth. Thus, as expected, informality is a strongly counter-cyclical phenomenon.

	Firmsize	Pension	Health Access+Cont	Full Social Security
Unemployment	0.61*	0.57	0.91*	0.97*
p-value	2.0%	10.4%	1.1%	0.1%

* significant at 95% confidence levels

Table 1- Correlation Coefficients between Informality and the Business Cycle (1984-2006).

For the 2000-2006 period, a time of high economic growth, informality was stable according to the firm size definition, but decreasing when measured using definitions related to social security compliance. Flórez (2002) suggests that there are three homogeneous subgroups within the Colombian informal sector: self-employed, unpaid family aids and household services, that is, workers who are forced to be informal as

their last and only possibility to earn a living; workers who have an informal contract in order to lower the cost for the firm; and entrepreneurs. For the period between 1986 and 2000, Flórez (2002) finds that the first subsector is counter-cyclical while the last two are pro-cyclical, which implies that they are voluntarily –and perhaps temporarily- opting out of formality.

We repeat the analysis for the period between 1984 and 2006 and find that all three subsectors are counter-cyclical. Thus, workers with an informal contract and entrepreneurs, who used to opt out of formality, are now *excluded* from it. We repeat the analysis partitioning the period of study in two and find correlations with signs consistent with Flórez (2002), although insignificant, for the first period: 1984-2000. However, for the remainder of the period, all sub-sectors are significantly counter-cyclical[4] (Table 2). Thus, workers with an informal contract and entrepreneurs, who used to opt out of formality, are now *excluded* from it.

What changes in the Colombian labor market have tilted the balance between the exit and exclusion components, evidenced by the reported differences in business cycle response, in favor or the latter?

1984-1998				
	subsistence	lower costs	entrepreneurs	informality total
uneployment	0.70	-0.31	-0.59	0.20
p-value	8.1%	50%	16%	66%
2000-2006				
	subsistence	lower costs	entrepreneurs	informality total
uneployment	0.90*	0.86*	0.84*	0.88*
p-value	0.6%	1.2%	1.7%	0.8%

Table 2- Correlations between Informality and the Business Cycle by subsector

3. Labor Market Rigidities and Informality

Today, the Colombian labor market is characterized by having high NWC and wage inflexibility associated with the minimum wage. Such rigidities of the labor market are thought to contribute to the high unemployment and informality rates prevalent in the economy. However, it is the *interaction* between the very high levels of NWC and minimum wage which reinforce the negative effects of both. The nominal rigidity imposed by a high and binding minimum wage, implies that formal employers cannot completely pass on to workers the increases in NWC by lowering their wages. Employers, unable to adjust via prices, will do so through quantities generating high

[4] The same results hold if we choose the cutoff year to be between 1996 and 2002. Again, our results are robust if we use GDP growth to proxy for the cycle.

formal job destruction rates and thus pushing workers into either the informal sector or unemployment. Let us describe, in turn, the evolution of NWC and the minimum wage.

Colombia faced very profound reforms, as did other countries in the region, in the early 1990s. In particular, Law 100 of 1993 structurally reformed the Colombia social security system, both in health and pensions, increasing non wage costs by 11.5 percentage points. Two regimes were created in health insurance: contributive (an employment-based mandatory insurance system) and subsidized. Before 1993, health contributions amounted to 6% of the wage, while after the reform contributions[5] increased to 12%. Pension contributions rose from 8% of the wage to 13.5% with the reform (Flórez, 2002, and Santa María et al. 2009).

Bernal et al., (2009) suggest that there are three aspects of the design of the social protection system generate informality. First, since social security benefits are multi-dimensional, workers who prefer partial coverage may opt out of the whole package and hence become informal. Second, there is a percentage of the population for whom the quality of the services offered in the contributive and subsidized regimes are comparable. It is therefore efficient for eligible workers to remain in the subsidized regime, since it's free. One of the recent successes of Colombian public policy is precisely the increase in coverage of the subsidized regime. Last, the current design does not allow for an easy transit between the formal and informal sectors. Thus, workers in the subsidized regime are reluctant to accept a formal job and enter the contributive regime, since re-entering the subsidized regime is time-consuming. In addition, workers who are eligible for the subsidized regime are also eligible for an array of social programs. Therefore, by accepting a formal job, the worker and his family gain access to the contributive health insurance regime only, and loose the other benefits.

The minimum wage in Colombia is high and binding. One way to characterize the evolution of the minimum wage in time is to take the ratio between the minimum and the median wage, which has the advantage of not only (trivially) controlling for the effect of inflation, but also accounting for increases in productivity. We will refer to this measure as the min-median ratio in what follows. In a cross-country comparison, Maloney and Nuñez (2004) find that the Colombian minimum wage -as measured by the min-median ratio- is the highest in Latin America.

Also, the minimum wage in Colombia is binding (Kristensen and Cunningham, 2006). Rises in the minimum wage increase the relative cost of labor and, given the presence of downward wage rigidities, the formal sector is unable to adjust via prices and is forced to do so via quantities. The same logic applies during periods of economic downturn: wages cannot be adjusted downwards generating high job destruction rates. Therefore,

[5] For wage-earners, the worker and employer share the burden, 4% and 8%, respectively, and the self-employed have to contribute the full amount. Nearly 10 percentage points of the contribution finance the worker's insurance and the remainder contributes to the health access of the poor and unemployed in the subsidized regime.

the evolution of the minimum wage is expected to affect the relative sizes of the formal and informal sectors.

Maloney and Núñez (2004) suggest that the minimum wage indexes the whole wage distribution, since increases in the minimum wage are adopted as a benchmark for wage increases along the distribution. The effect is stronger for wages near the minimum and decreases as we move up in the distribution. In addition, a sizeable fraction of the workforce earns less than the minimum, especially in the informal sector. Hence, not only does the existence of a minimum wage generate wage inflexibilities -especially around the minimum, but the *evolution* of the minimum wage can have important effects on the labor market behavior.

The min-median ratio remained relatively stable around 85% for the first 10 years of the sample, decreased to 70% in the mid 1990s, and then escalated to around 90% by 2000. This secular increase was the result of a policy miscalculation. The increases in the minimum wage are negotiated at the end of the previous year, following the projected inflation rate of the following year. In December 1998, the expected inflation for 1999 was in the range 15-17%, and hence the negotiated increase in the minimum wage was 16%. However, a profound recession developed during the year, and the observed inflation rate was 9%. Therefore, the real minimum wage increased 7%. The following year, the Constitutional Court ruled that the minimum wage could never increase below the observed inflation rate of the previous year[6]. This implied that the minimum wage has been effectively maintained at a very high level since.

Figure 4 is very suggestive. It displays the informality rate, alongside the min-median ratio and the evolution of NWC. Both the NWC and the min-median ratio display secular increases during the period of study. The major increase in NWC occurred in the early-to-mid 90's as a result of a reform to the social security system, Law 100 of 1993, which substantially increased the payroll taxes. The acceleration of the rate of increase of the min-median ratio happened in the late 90's, because of important increases of the minimum wage in real terms. Graphically, the increase in NWC precedes the increase in informality, while the increase in the min-median ratio follows it.

[6] Constitutionality Sentence Nº 815/99, October 20 1999. "El Gobierno, en la hipótesis de la norma, debe ponderar los factores contenidos en ella, pero que, en todo caso el reajuste salarial que decrete nunca podrá ser inferior al porcentaje del IPC del año que expira. Y ello por cuanto el Gobierno está obligado a velar por que el salario mantenga su poder adquisitivo, de tal forma que garantice el mínimo vital y móvil a los trabajadores y a quienes de ellos dependen. De lo contrario, vulnera el artículo 53 de la Constitución."

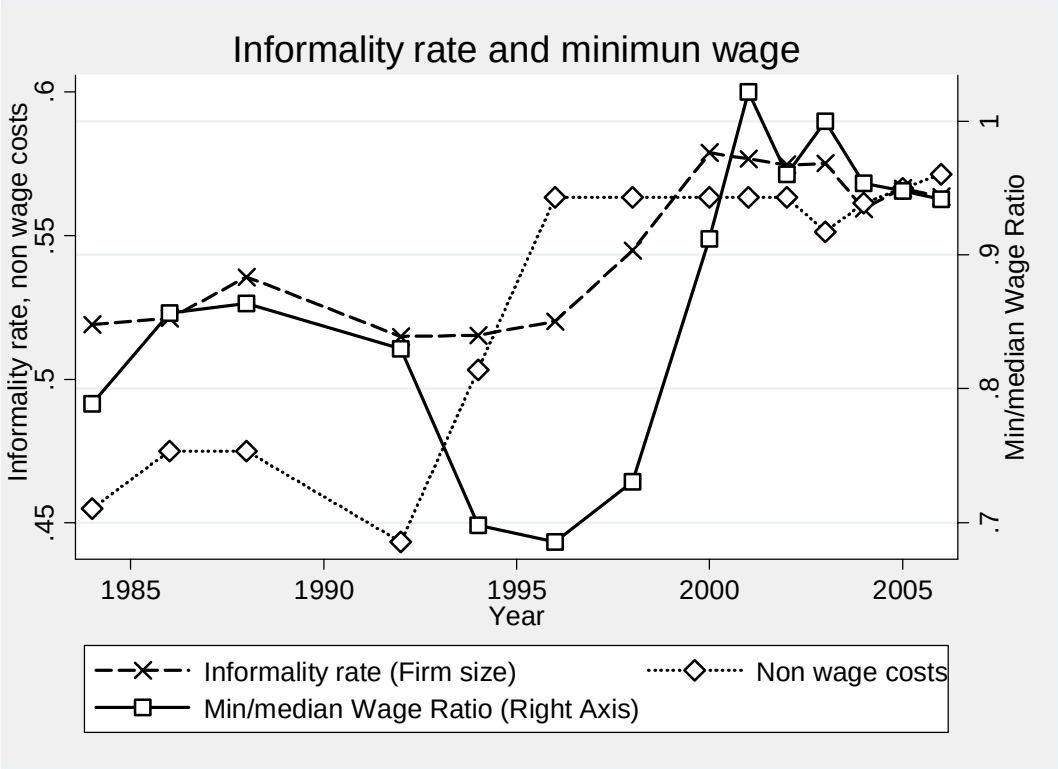


Figure 4- Informality and minimum wage

4. Characterizing Informal Workers

We use the Colombian Household Survey 1984-2006, a repeated cross-section carried out by the National Statistics Department. The survey collects information on demographic and socioeconomic characteristics of the population, such as gender, age, marital status and educational attainment, together with labor market variables for the population aged 12 or more including occupation, job type, income and sector of employment.

Dictated by data availability our analysis focuses on the eleven main cities between 1984 and 2000, and the thirteen main ones for the period 2001-2006. In particular we use the Informality Module in the household survey, which allows for several empirical definitions of informality as described in the previous section. This module was available every two years before 2001 (except for 1990), and yearly thereafter. We use observations with a complete set of covariates and restrict the sample to workers between 15 and 70 years of age (other than unpaid family aids), who report working between 16 and 84 hours per week. Due to potential measurement error, we drop observations at the top and bottom 3% of the distribution of wages. The size of the weighted samples ranged from 1,662,066 workers in 1984 to 6,467,395 in 2006. For our calculations we pool the observations of all years for which the informality module is available in the Survey. We also performed the analysis for individual years and find that there are no big changes across periods.

Given that the informal is a very heterogeneous sector, let us characterize informal workers. To define informal workers we choose the *firm size* criterion for which data is available for the whole period of study, and as described in section 2, it captures the bulk of informal workers measured by compliance with labor market regulations. Thus in what follows, unless otherwise stated, informality refers to firm size informality.

We start by presenting the informality rate by educational level. Education levels are based on the number of completed years of education. Less than primary includes workers with less than five year of education. Those between five and ten years belong to Complete Primary. Complete Secondary corresponds to individuals who have between eleven and fifteen years of education. Finally we call the level of those who completed more than sixteen years Complete Tertiary. Informality is monotonically decreasing on educational attainment: while the informality rate of workers with less than primary education is 79%, only 21% of people with college education are informal (see Figure 5). This finding is robust to changes in the definition of informality.

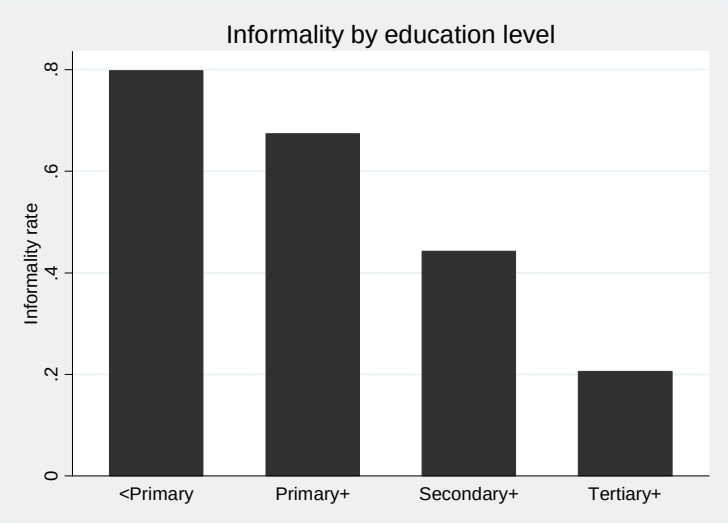


Figure 5 – Informality by education level

When analyzing the informality profile by age, we find it describes a U-shape: informality is higher for youngest and oldest workers, and lower for prime-aged individuals. However it is hard to say whether older workers are more likely to be informal because of life cycle decisions, or because they are more often business owners or self employed. Note that one fourth of the workers over 45 years of age either belong to the subsidized regime or are retired.

Using household survey data we can identify five different occupations: private and public wage earners, household services, self-employed and business owners. The latter are self-employed who employ others. Informality rates vary across occupations. The firm size definition implies that all household workers are informal and all public workers are formal. Figure 6 shows that while only 37% of private workers are informal, informality is very high among self employed (92%) and business owners (89%).

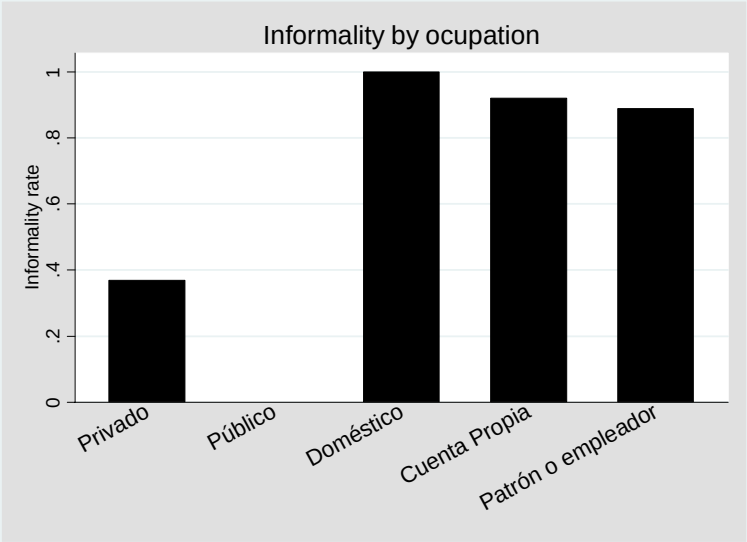


Figure 6- Informality rate by occupation

Our results about occupation combined with those about age suggest that some workers chose to be informal since it is in their best interest to move to the informal sector. This is what the World Bank (2007) calls *exit*.

The informality rate varies across economic sectors as well. Using the available 2-digit economic sector information, we build 10 sector categories: Primary sector (agriculture, farming and extracting activities), Manufacture I (food, beverages, textiles, clothing and shoes), Manufacture II (intermediate goods), Manufacture III (furniture and capital goods), Construction (construction and distribution of gas, water, electricity), Trade (wholesale and retail trade), Entertainment (hotels, restaurants, bars and other entertainment services), Transportation, Financial, Real Estate and Business Services (finance, insurance, business, telecommunications, courier, information technology, equipment rental, real estate), and Other Services (education, health, security).

Broadly speaking, in the primary sector, the informality is around 55%, in the secondary sector the levels are closer to 50%, while in the tertiary sector average informality is nearly 62%. The services sector has the highest variation in informality levels; the highest informality rate, 82%, is observed among individuals who work in HH & personal services[7]. Trade, entertainment and transportation also have high rates of informality. In contrast, the informality rate in finance & business services and in social services are 51% and 47%, respectively, the two lowest rates by economic activity (see Figure 7). Even though the services sector has increased its share of employment for every occupation, there are no big differences in the relative levels of informality.

[7] HH & Personal services include household worker which are informal by definition in the case of firm size. When the Health contribution definition is used, this sector has the highest informality rate of 79%.

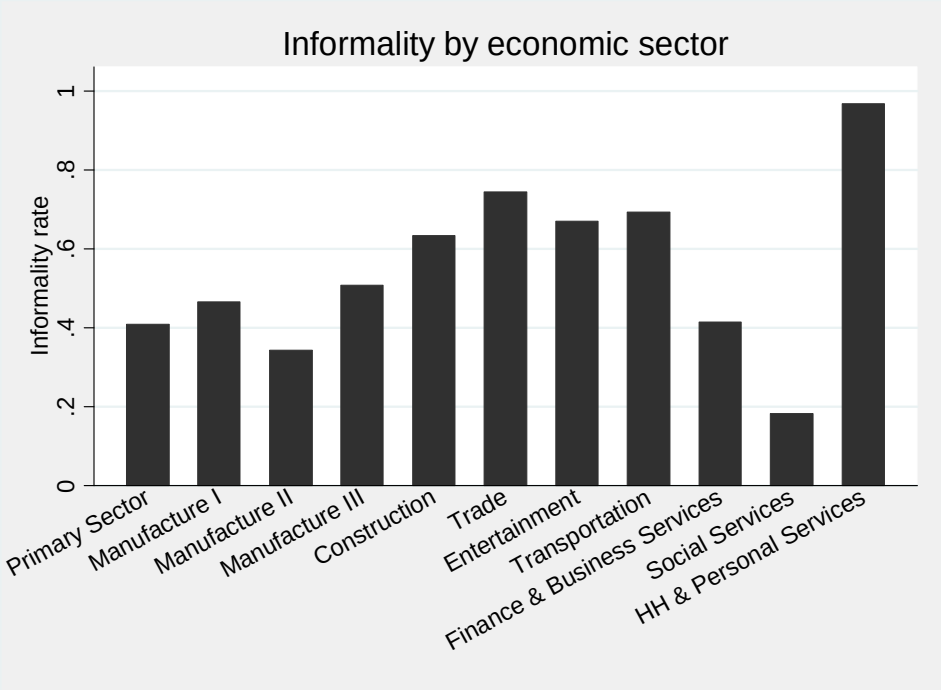


Figure 7

There are also differences in the informality rate by gender (Table 3). Women are more often informal according to the firm size definition: 55.8% of working women are informal, while only 54.2% of men who work. The difference in informality rates between genders is not statistically significant. However, we studying the gender differences in informality rates using the health access definition we find that working women contribute to health more often than men. Furthermore, the size of the difference is considerably higher than what the results using the firm size definition suggested: 77% of women contribute to health insurance while only 67% of men do. Among informal workers who do not contribute to health insurance, but do have access to health coverage in the contributive regime, more women report being covered by a family member's insurance than men: 18% of women vs. 13% of men.

Firm size		Health Contribution	
Men	Women	Men	Women
54.2%	55.8%	66.7%	77.2%

Table 3- Informality rate, by gender

Finally the results by city (not reported) vary both with definition and through time. Broadly speaking, Cúcuta and Montería have the highest informality levels, with observed rates of over 70%. The biggest cities, Bogotá and Medellín, report the lowest informality levels. Ibagué, the city with the highest unemployment level, ranks 6th among the 13 main cities in informality.

5. Labor Market Rigidities and the Size of the Informal Sector

The increase in NWC is regarded by some analysts as one of the factors that contribute to the high levels of the unemployment rate and to the reported increase in informality. Also, the fact that the Colombian minimum wage is binding, among the highest in Latin America and indexes the whole distribution of wages, implies that increases in the level of the minimum wage can affect the informality rate, via exclusion from the formal sector. Since we have data on informality levels using the firm size definition across twenty-two years, we can exploit the observed variations of NWC and the min-median ratio over the period to determine the effect of their evolution on the size of the informal sector. Thus, using household survey data, we estimate the effect of the evolution of NWC and the min-median ratio on the probability of being informal for the between 1984 and 2006. To do so, again, we pool the observations from all the quarters for which the informality module is available and estimate the effect of labor market rigidities and individual characteristics on the probability of being informal using a probit model. We estimate the following equation:

$$Inf_{it} = \beta_0 + \beta_1 \min_t + \beta_2 NWC_t + \beta_3 X_{it} + \beta_4 Y_t + \varepsilon_t$$

Where, the dependent variable, Inf_i, is a dichotomous variable and takes the value of 1 if individual *i* is informal under the firm size definition. The explanatory variables are the min-median ratio, NWC as a percentage of the payroll. X_i is a vector of individual controls including age and its square, educational attainment, gender, marital status[8] and economic activity dummies[9]. Y_t is a vector of controls including city dummies, and regional GDP growth. This regression, and all of the ones in the following sections, was estimated using year clustered robust standard errors. This accounts for the fact that even though our time frame spans over 22 years, we only have observations in 14 periods and some of the controls vary across time but not across individuals at a specific point in time. For example, the level of NWC is the same for all the observations of a given year. Results are reported in Table 3.

Table 3- Probability of Being Informal, Marginal Effects

[8] Marital status is captured through a dummy that equals one if the individual is either married or cohabiting and zero if they're single, separated, divorced or widowed.

[9] The omitted categories for educational attainment and economic activity are less than primary and primary respectively. City dummies are also included but not reported.

Informality	dy/dx	Robust Std. Err.	P-Value
Min/median	0.30	0.07	0%
Non wage costs	0.78	0.09	0%
Regional growth	0.12	0.10	26%
Male	-0.04	0.00	0%
Married	-0.02	0.00	0%
Complete primary	-0.09	0.01	0%
Complete secondary+	-0.27	0.01	0%
Complete tertiary+	-0.41	0.02	0%
Manufacture I	0.04	0.01	0%
Manufacture II	0.00	0.02	90%
Manufacture III	0.15	0.02	0%
Construction	0.16	0.02	0%
Trade	0.31	0.01	0%
Entertainment	0.21	0.01	0%
Transportation	0.23	0.02	0%
Finance & Business Services	0.01	0.03	71%
Social Services	-0.24	0.02	0%
HH & Personal Services	0.46	0.01	0%
Age	-0.01	0.00	0%
Age squared	0.00	0.00	0%

Labor market rigidities have sizeable effects on informality, and the observed increases of NWC and the minimum wage during the period of study substantially increased informality[10]. On one hand, an increase in 10 percentage points (pp in what follows) in NWC is associated with an increase in the probability of being informal of 8pp. To put this result in perspective, Kugler and Kugler (2009) estimate that such an increase in NWC decreases formal employment between 4 and 5%. On the other, a rise of 20pp in the min-median ratio generates an increase of 6pp in the likelihood of being informal. To the best of our knowledge, there are no other estimations of the effect of the minimum wage on the size of the informal sector.

Interestingly, although the informality rate is similar between men and women, after controlling for many relevant variables, women are more likely to be informal in 0.04. People with higher education levels are less likely to be informal: compared with someone who did not finish primary, people with completed primary, secondary and tertiary are 0.09, o,27 and 0,41 less likely to be informal, respectively.

Older people are less likely to be informal. Someone at the mean of the age distribution is between 30 and 34 years old. An additional year decreases the probability of being

[10] The interaction between NWC and the min-median ratio was not included in the presented estimations, but will be included in future versions.

informal in 0.01. The positive sign of the square of age is related to the U-shape of informality by age.

Surprisingly, the business cycle as measured by regional GDP growth is not statistically significant. Several alternative variables were included in the estimation to capture the cycle, including aggregate GDP growth and unemployment, and city-level unemployment. None of them were significant[11]. The magnitude and significance of the variables of interest did not change under the different specifications.

6. Transitions between sectors

6.1 Measuring the Flows: Transition Matrices between Sectors

In this section we study the flows of agents within the labor force across different sectors and states. First, we measure the flows between the informal sector and the formal sector using transition matrices for each of the available cross-sections during the period 1986 to 2006. Then, we characterize each of the flows involving entry or exit of the informal sector by estimating transition probabilities as functions of demographics, occupation-specific and other idiosyncratic labor-history characteristics.

Since our database is composed of repeated cross-sections, we build the transitions within 12-month periods using retrospective questions. We observe the sector to which a worker belongs at the time of the survey. For workers who have been on the same job for over a year, we defined the previous sector to be the same as the current sector. For those who switched, we reconstructed the sector of the previous job according to the firm size definition[12]. For the whole period of study we are able to study the transitions between the formal and informal sector since retrospective questions were available for employed workers. Starting 2001, the information on the previous job started to be available for the unemployed. Therefore, we are able to analyze, in addition, the transitions between the formal and informal sector and unemployment.

The Table 4 displays the average flows between the formal and informal sectors on the left, and on the right we have the relative size of each group within the labor force for the year 2005.

[11] As an additional robustness check, we repeated the estimation changing the informality definition to health contributions and the business cycle again appeared insignificant.

[12] Retrospective questions suffer from measurement error. For example, the reconstructed unemployment rate of the previous year is lower than the observed unemployment rate at that time, for every year; the unemployment rate is underestimated by the retrospective questions.

2005

previous job \ current job	formal	informal	
formal	94.18%	5.82%	100.00%
informal	4.35%	95.65%	100.00%

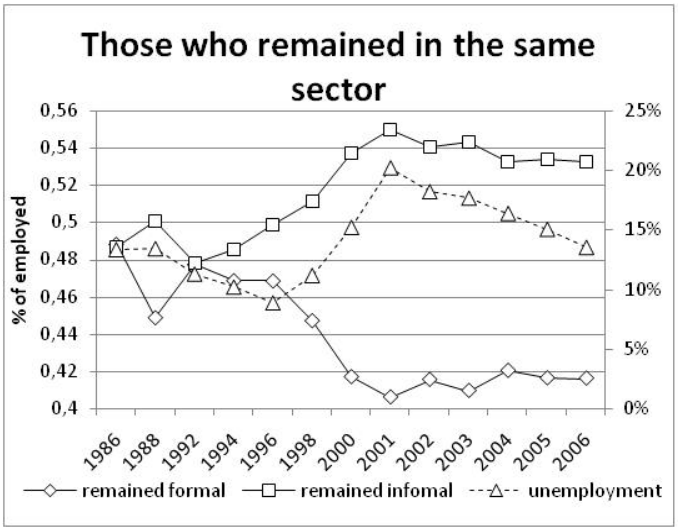
previous job \ current job	formal	informal	
formal	41.63%	2.57%	44.20%
informal	2.43%	53.37%	55.80%
	44.05%	55.95%	

Table 4 Transition matrices

The left panel indicates that in 2005, 94% of those who were formal in their previous job remained formal and 6% became informal. On the other hand from those who were informal 96% remained informal and 4% became formal. The high values on the diagonal indicate high persistence in the same job or sector during last year, but the persistence is slightly higher in the informal sector.

The right panel shows that 42% of workers in 2005 were formal and remained formal, 3% were formal and became informal, 2% were informal and became informal and the remaining 53% was informal and remained informal. The differences in the flows between workers entering the informal sector and those exiting from it are not statistically significant for 2005, portrayed in Table 4.

The evolution of the transition across time is plotted in Figure 10. The left panel shows that the persistence in the formal and informal sectors was similar until 1994. Between 1994 and 2001 they diverged: informality became more of an absorbing state and formality less so. There seems to be a structural change in the flows in this period. The persistence remained relatively constant for the remainder of the years. The right panel shows that the expansion in informality, generated by inflows of workers into the informal sector outweighing those exiting began in 1984 and, interestingly, was reversed in 2006. The differences in flows into and out of the informal sector were sizeable between 1996 and 2002. That is, after the steep increase in NWC, and simultaneous to the increase in the min-median ratio. By the end of the period, however, the flow into and out of informality are very similar, and the size of the informal sector had stabilized.



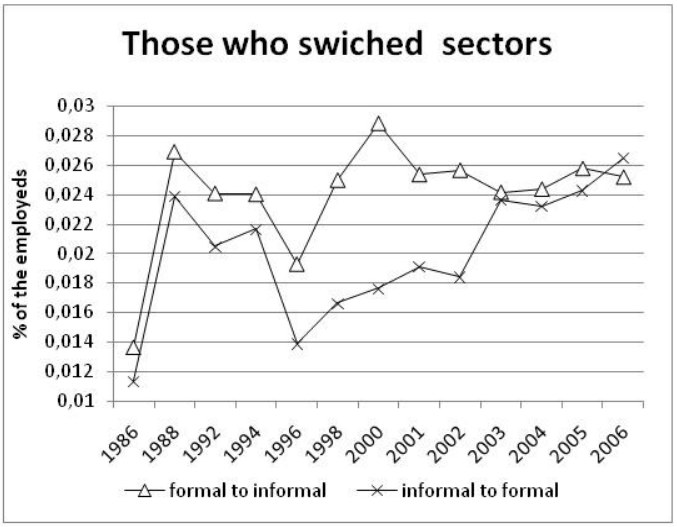


Figure 10- Transitions across time

Graphically, the persistence in the informal sector closely mimics the unemployment rate during the period of economic downturn, but it doesn't decrease as fast during the expansion period. The unemployment rate is positively and significantly correlated with the percentage of formal workers that remained formal and negatively correlated with the informal workers who remained informal[13] –with coefficients of 0.8 and -0.7, respectively. That is, using a simple correlation coefficient analysis, the persistence in the formal sector is procyclical while the persistence in the informal sector is counter-cyclical. This is related to the counter-cyclicality of the size of the informal sector, reported earlier. During economic downturn formal jobs are destroyed and workers, unable to find a formal job, are relegated to the informal sector. Thus, the unemployment rate would be correlated with the fraction of people who switch sectors. Unemployment is not significantly correlated with the percentage of workers changing sector in any direction. However, these results do not hold in the regression analysis presented in sections 5 and 6.3. After controlling for the set of relevant variables, the economic cycle is not significant in explaining either of the probability of becoming informal, or the probability of switching between sectors.

6.2 Measuring the Flows: Transition Matrices between Sectors and Unemployment

Starting 2001 retrospective questions are available for the unemployed, and thus we can calculate the more interesting transition flows between the formal and informal sectors *and* between sectors and unemployment[14]. Table 5 displays the average flows between the formal and informal sectors, and unemployment on the left, and on the right we have the relative size of each group within the economically active population for the year 2005. Even after including unemployment in the analysis, the main message from Table 4 holds, namely, that there is high persistence in each sector.

[13] So are its forward and lag.

[14] In this analysis we exclude first-time job seekers. In addition, we cannot address the transition to 'out of the labor force' because of information constraints.

2005

previous job \ current job	formal	informal	unempl.	
formal	85.03%	5.26%	9.71%	100.00%
informal	3.86%	84.95%	11.19%	100.00%
unempl.	16.56%	23.64%	59.80%	100.00%

previous job \ current job	formal	informal	unempl.	
formal	32.55%	2.01%	3.72%	38.29%
informal	1.90%	41.74%	5.50%	49.13%
unempl.	2.08%	2.97%	7.52%	12.58%
	36.53%	46.73%	16.74%	

Table 5 - Flows between sectors and unemployment.

The left panel suggests that of those unemployed in 2005, 16% found a formal job, 24% found one in the informal sector and 60% remained unemployed. This is because the survey oversamples the long-term unemployed. However, these results suggest a problem of long term unemployment in Colombia.

When adding unemployed in the analysis of transitions, the size of the flows between the formal and informal sectors are put into perspective (see right panel). The difference in the flows between sectors is unimportant between 2001 and 2006. The net flow from formality into informality is very small for the same period. The observed flows from unemployment into each sector are of the same order of magnitude as the flows between sectors: 2% to formality and 3% to informality. The flows into unemployment, however, are higher: 4% from the formal sector and 5.5% from informality.

An alternative way of portraying the flows is through a diagram. Figure 11 describes the average flows, within 12-month periods, across sectors and unemployment as a percentage of the economically active population. The flow between the informal sector and unemployment is more dynamic than that between the formal sector and unemployment. This is because the flows into and out of unemployment are bigger from the informal than from the formal sector. Even if the net direct flow from informality to formality is close to zero, there is an indirect net flow from the informal sector towards the formal sector via unemployment.

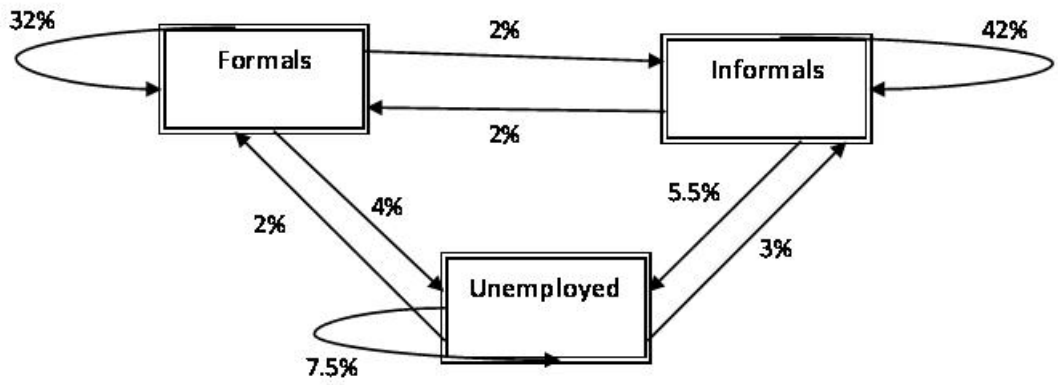


Figure 11 Flows between sectors and unemployment (2005)

We have studied the impact of individual characteristics and labor market rigidities on the probability of being informal. Let us now focus on workers who switch sectors,

since labor market rigidities can also important drivers of the transitions between sectors.

6.3 On the probability of switching sectors

We pool the observations for the period 2001-2006 to study the effect of individual characteristics, labor market rigidities and the unemployment spell, using two probit models. The regressions were estimated using year clustered robust standard errors. Model 1 describes the effect of the explanatory variables on the transition from formality -the dependent variable is one if the person was formal and became informal, and zero if he remained formal. Model 2 describes those who switched from informality to formality.

The independent variables, common to both estimations, are the min-median ratio, NWC, age and its square, educational attainment, gender, marital status and economic activity dummies, city dummies and regional GDP growth. We include a dummy that captures whether the worker changed the economic activity they worked in. We also want to determine the effect of the length of the unemployment spell between jobs in these 12-month transitions: does the unemployment spell increase the probability to move from the formal sector to the informal sector?

Table 6- Probability of Becoming Informal, Marginal Effects

Became Informal	dy/dx	Robust Std. Err.	P-Value
Min/median	0.05	0.02	0%
Non wage costs	0.15	0.05	0%
Regional growth	-0.05	0.14	36%
Change Economic Act.	0.02	0.00	39%
Unemployment Spell	-0.004	0.000	3%
Male	0.00	0.00	39%
Married	-0.01	0.00	3%
Complete primary	-0.01	0.00	0%
Complete secondary+	-0.04	0.00	0%
Complete tertiary+	-0.04	0.00	0%
Manufacture I	-0.03	0.00	0%
Manufacture II	-0.03	0.00	0%
Manufacture III	-0.03	0.00	0%
Construction	-0.03	0.00	0%
Trade	-0.01	0.00	1%
Entertainment	-0.01	0.00	5%
Transportation	0.00	0.00	33%
Finance & Business Services	-0.03	0.00	0%
Social Services	-0.05	0.00	0%
HH & Personal Services	0.09	0.01	0%
Age	-0.01	0.00	0%
Age squared	0.00	0.00	0%

Table 7- Probability of Becoming Formal, Marginal Effects

Became Formal	dy/dx	Robust Std. Err.	P-Value
Min/median	0.02	0.01	4%
Non wage costs	-0.03	0.02	15%
Regional growth	0.03	0.06	62%
Change Economic Act.	0.003	0.001	0%
Unemployment Spell	-0.002	0.000	0%
Male	0.00	0.00	59%
Married	0.00	0.00	44%
Complete primary	0.00	0.00	6%
Complete secondary+	0.01	0.00	0%
Complete tertiary+	0.00	0.00	61%
Manufacture I	0.09	0.01	0%
Manufacture II	0.04	0.00	0%
Manufacture III	0.04	0.00	0%
Construction	0.02	0.00	0%
Trade	0.04	0.00	0%
Entertainment	0.01	0.00	0%
Transportation	0.00	0.00	8%
Finance & Business Services	0.04	0.00	0%
Social Services	0.10	0.01	0%
HH & Personal Services	-0.02	0.00	0%
Age	0.00	0.00	0%
Age squared	0.00	0.00	0%

Labor market rigidities are important drivers of the transition into informality. A rise of 10pp in NWC increases the probability of transiting into informality by 1.5pp, whereas a 20pp increase in the min-median ratio does so by 1pp. However, the estimated effects of labor market rigidities on the transition into the formal sector are not as expected. Even though increases in NCW increase the probability of transiting into informality, the reverse is not true: NWC appear insignificant in the transition into the formal sector. Also, surprisingly, rises in the min-median ratio significantly *increase* the probability of becoming formal. A 20pp increase in the min-median ratio increases the probability of becoming formal by 0.4pp. Therefore, rises in the min/mean ratio are correlated more frequent switching of sector, but its effect in the transit into informality is bigger that that of becoming formal. This implies that while an increase in the min-median generates more transitions in every direction, the increase in transitions into informality far outweighs the effect on transitions into formality. Again, the economic cycle is not statistically significant in either estimation.

Some variables have the same sign in both regressions; they are related to the probability of changing of sector and not of entering a specific sector. For example,

older individuals have a lower probability of changing of sector. A change in the economic activity increases the probability of switching sectors. For example, a construction worker who found a job in trade is more likely to change sector (formal or informal) than a construction worker who found a new job in construction. Finally, as the unemployment spell between jobs increases, the probability of changing of sector decreases. This is expected in the transit from informality, since the odds of getting a job in the formal sector are hurt by a long unemployment spell. However, the sign is not intuitive in the transition from the formal to the informal sector. One would have expected that a formal worker who lost his job, would begin his job search in the formal sector, and the length on the unemployment spell would pushed him to become informal, hence having a positive effect on the transit.

Some variables have a differential effect on the transitions. High levels of education favor formality, as expected: more educated individuals are more likely to become formal and less likely to become informal[15]. Men and married individuals are more likely to become formal, but the effects are small.

Starting 2001 additional questions were included in the informality module. For instance, workers who changed jobs were prompted for the reason hey left the previous job. The survey includes a question of why they left the previous job. We choose two of the possible answers[16]: 'I found a better job' and 'I was fired'. The first can de interpreted as the worker choosing to change jobs, while the second implies that the worker left the job involuntarily. Therefore, we can determine whether workers tend to become formal when they find a better job or whether they forced into the informal sector when they are fired. We repeated the estimations restricting the period of study to 2001-2006. We find that getting fired increases the probability of switching sectors, regardless of the direction of the flow. More interestingly, if an individual reported that he left his job because he found a better one, increases the probability of becoming formal and decreases the probability of becoming informal. This is suggestive of exclusion from the formal sector. The effects of other independent variables are very similar to the ones presented above.

7. Formal and Informal Wages

A central dimension in which the formal and informal sectors differ is the earnings level associated to the sectors. As portrayed in Figure 12, formal workers earn on average more than their informal peers. However, due to a high variance, the effect is statistically insignificant. The gap increased between 1994 and 2002. Whereas during the 1980s an informal worker earned on average around 65% of what a formal worker earned, this figure decreased to around 45% between 2002 and 2006. This suggests that

[15] The education variables could be endogenous since informality the education level is higher in the formal sector.

[16] The possible alternatives include: end of a temporary contract, the firm went out of business, personal/family reasons.

the informal sector is not attractive in terms of the wages earned. Furthermore, it has become even more unattractive since the relative returns decreased steeply between 1994 and 2002.

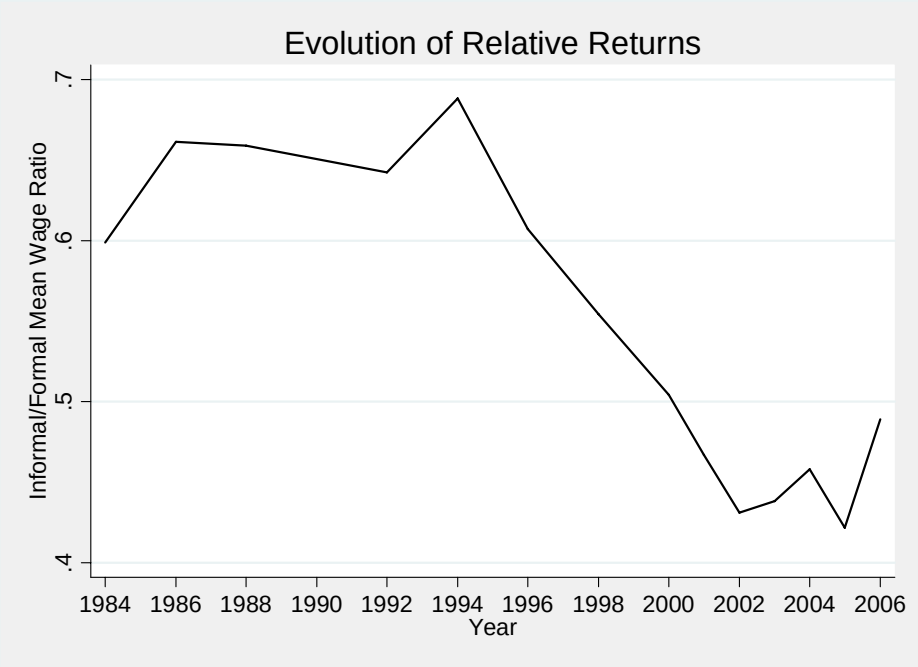


Figure 12 - Trends in Relative Wages

There are, however, some necessary caveats to these results. First, as discussed in the literature, some workers voluntarily transit into the informal sector, while others simply cannot get a job in the formal sector. The former effect implies that the selection of agents into sectors is non-random. There is currently no good way of adjusting for selection, given data availability, and the results may be biased. In this case, the bias would be underestimating the true relative returns, so the presented figures may be interpreted as an upper bound of the relative returns. Second, there is no way given the data structure to disentangle the returns to the labor and capital components in self-employment. Therefore, the returns reported by the self-employed may overstate what they earn as a return for their work. This bias goes in the opposite direction from the previous one.

In any event, the earnings are different in the formal and in the informal sectors. First, not only do formal workers have better wages than their informal peers, but the inequality among them is lower. Then, regardless of the definition of informality and the education levels the mean wage is higher and the variance is lower in the formal sector. This is also true if we measure inequality using the Gini or Theil coefficients.

As evidences in Figure 12, there has been a relative deterioration of informal earnings throughout the period of study. This is true for every education level and is driven by the asymmetric impact of the recession of the late 90's, which affected informal workers

more drastically than formals. In 2006, after several years of high economic growth, the relative informal earnings have not recovered from the crisis. An illustrative example is the earnings density distribution for workers with a college degree (Figure 13). The wage distributions for college educated workers were the same across sectors in 1984. After the economic crisis informal workers saw their wages decrease importantly compared to those of formal workers. This is evident from the graphs, and was confirmed by statistical analysis[17].

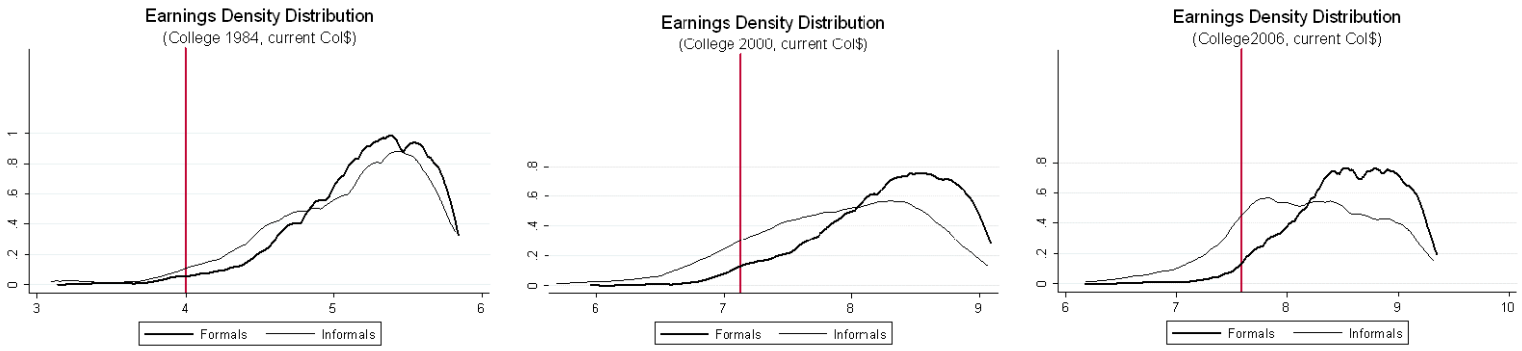


Figure 13 - Density distributions for worker with college degree.

Another interesting fact is that, for lower education levels, the effect of the minimum wage across sectors changed during the period. For those with high school degree, the minimum wage seemed to be binding both in the formal and informal sectors in 1984. With the recession, the minimum wage loses its bite in the informal sector, and it becomes more binding in the formal sector[18]. Also, notice how a high percentage of workers earn less than the minimum wage, especially starting 2000.

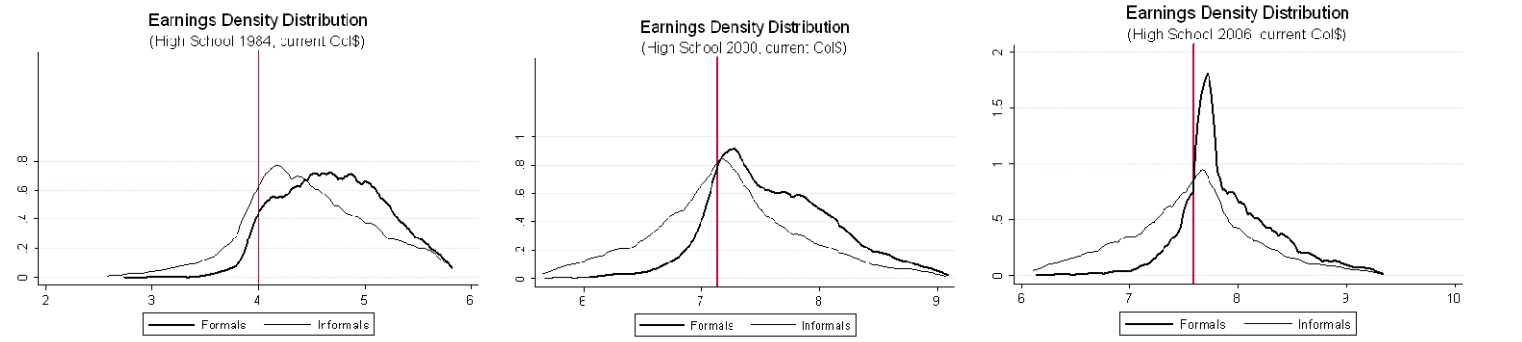


Figure 14 - Density distributions for worker with high school degree.

[17] For 1984 we tested the null-hypothesis of equal distribution for formal and informal workers using the Smirnov-Kolmogorov test. The p-value was 0.00 confirming that the distributions were statistically equal. The same test was performed for 2000 and 2006 for those years the distributions were statistically different.

[18] Results for workers with less than high school are qualitatively similar to those with completed high school.

We also estimate the effect of the evolution of NWC and min-median ratio on the wages of the formal and informal sectors, respectively. To do so, we estimate Mincerian-type regressions, separately for each sector, with the log-hourly wage as the endogenous variable. This regression, again, was estimated using year clustered robust standard errors.

$$Lwage_{it} = \beta_0 + \beta_1 \min_t + \beta_2 NWC_t + \beta_3 X_{it} + \beta_4 Y_t + \varepsilon_t$$

The individual explanatory variables, X_i, include age and its square, educational dummies and gender. We also control for the business cycle by including regional GDP growth[19]. The results for informal and formal sector wages are presented in Tables 8, and 9, respectively.

Table 8. The Effect of Labor market Rigidities on Formal Wages

Formal Sector			
Log Wage	dy/dx	Robust Std. Err.	P-Value
Min/median	-0.54	0.15	0%
Non wage costs	-0.79	0.50	13%
Regional growth	-0.03	0.19	87%
Male	0.09	0.01	0%
Complete primary	0.24	0.01	0%
Complete secondary+	0.66	0.02	0%
Complete tertiary+	1.48	0.02	0%
Age	0.04	0.00	0%
Age squared	0.00	0.00	0%

Our results suggest that NWC do not affect formal wages significantly. This implies that the rigidities imposed by the high and binding minimum wage, hinder formal sector employers from shifting the burden of NWC on employees via lower wages. Kugler and Kugler (2009) find that formal wages fall by between 1.4% and 2.3% as a result of a 10% rise in payroll taxes, using a panel of firms. They attribute this "less-than-full-shifting" to the weak linkages between benefits and taxes and the presence of downward wage rigidities in Colombia. For comparison purposes, Heckman and Pages argue that an increase of 10pp in NWC decreases formal sector wages by 3.6% in Latin America.

There is a negative and sizeable relationship between the min-media ratio and the wages of formal workers. If the min-median ratio increases by 20pp, formal wages decrease by over 10%. The signs and magnitudes of the coefficients of the usual Mincer Equation variables are as expected.

[19] Again, the interaction between NWC and the min-median ratio was not included in the presented estimations, but will be included in future versions.

Table 9. The Effect of Labor market Rigidities on Informal Wages

Informal Sector			
Log Wage	dy/dx	Robust Std. Err.	P-Value
Min/median	-1.42	0.08	0%
Non wage costs	-0.91	0.28	1%
Regional growth	0.07	0.25	77%
Male	0.31	0.03	0%
Complete primary	0.32	0.01	0%
Complete secondary+	0.73	0.03	0%
Complete tertiary+	1.58	0.02	0%
Age	0.05	0.00	0%
Age squared	0.00	0.00	0%

The increases in labor market rigidities have severely influenced wages in the informal sector. Our estimates indicate that informal wages fall by 9pp as a result of a 10pp rise in payroll taxes, which is around four times the effect on formal wages estimated by Kugler and Kugler (2009). This implies that even though the informal sector workers may not be enjoying social security insurance, and thus the employers do not necessarily pay the full NWC, they shift the burden almost completely to the employees.

In addition, a 20pp rise in the min-median ratio is associated with a decrease of 28% in the informal sector wages. This is almost three times the calculated effect on formal sector wages. The estimated effects of the minimum wage on formal and informal sector wages, at a first glance, contradict the findings by Maloney and Nuñez (2004). The authors, using a rotating panel from the Colombia Household Survey, find that increases in the minimum wage increase average wages both in the formal and informal sectors. The difference in the *direction* of the effect may stem from two sources. First, Maloney and Nuñez (2004) calculate the effect of the *real* minimum wage on wages, whereas we calculate the effect of productivity-adjusted minimum wage as measured by the min-median ratio. Therefore, their results suggest that increases in the real wage increase average wages, whereas ours should be interpreted as suggesting that increases in the real wage *over and above the increases in productivity of workers* decrease average wages. Therefore, the two results are not necessarily contradictory. Second, their period of study is 1997 to 1999. As discussed earlier, the minimum wage in Colombia suffered a structural increase after 1999 that may be driving our results.

The signs and magnitudes of the coefficients of the usual Mincer Equation variables are as expected, except for the gender dummy. The size of the implied gender gap is twice the usual estimate in these data, which may be suggestive of problems with the estimation. An important caveat about the results is the selection bias present in the sector decision. This implies that our estimates may be biased. However, given the data structure, there are no available instruments to address this issue.

8. Conclusion

Informal workers are vulnerable, frequently uncovered by social security, with relatively low education and on average earn lower wages. The secular increase in the size of the informal sector is highly correlated with the increases in labor market rigidities, namely the minimum wage and NWC. The combination of increased labor market rigidities and economic downturn hit informal workers hard. Not only has the minimum stopped being binding in the informal sector, but a high percentage of informal workers earn below the minimum. In addition, their relative earnings deteriorated. This deterioration has not reversed, despite the high growth enjoyed between 2001 and 2006.

All in all our results suggest that even though labor market rigidities hurt the formal sector workers, their effect on the wages of informal sector workers is devastating. The coexistence of high NWC and minimum wage lies at the heart of the high unemployment and informality rates prevalent in the country. They also affect wages in both sectors, but especially so in the informal sector. It also implies that the formal sector adjusts to the economic cycle through quantities -cutting back on jobs, while the informal sector does so through prices, i.e. decreasing the wages. Rigidities have also consequences on the relative sizes of the formal and informal sector, and have triggered the documented increase in the latter.

Our results suggest that there are no shortcuts to reduce informality. So long as the NWC and minimum wage remain very high, the high unemployment and informality rates will be a staple of the Colombian labor market. Therefore, a profound reform is required to further flexibilize the labor market. First, the *level* of the minimum wage should be redefined, to reverse the steep increase of the late 1990s, so that it is more in line with worker productivity. Also, the yearly increases should be justified by changes in prices and productivity increases, given that informality varies very closely with the min/median ratio. This calls for accurate measures of worker productivity to better inform the decision making process. ´

Second, non-wage costs must be substantially reduced. Since non-wage costs have seldom decreased in Colombia during the past decades, we have no evidence of the effect of its reductions. A word of caution is in order. Gruber (1997) found that after a reduction of 25pp in NWC form 30% to 5%, between 1979 and 1986 in Chile, the employers fully shifted the cost decrease to their employees, and therefore formal wages increased. He finds no effects on employment. However, the Chilean and Colombian cases differ in the *levels* of NWC: Chile began the reduction at 30%, while in Colombia the level today is 60%.

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