

Social Security Distortions onto the Labor Market

Estimates for Colombia

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Abstract

This paper identifies and quantifies three distortions caused by the existing social security and social assistance systems in Colombia. These distortions refer to the discrepancy between the cost of formal social security for the employer and the worker's valuation of the received service (social distortion); the differences in social security benefits received by salaried and self-employed formal workers (occupational distortion); and the discrepancy caused by the cost in employing a formal instead of an informal worker (informal distortion). Based on recently collected information concerning Colombian workers' willingness to pay for several packages of social security benefits, the study calculates that social distortions range

from 2 to 27 percent of the workers' labor earnings; the occupational distortion amounts to 50 percent of formal salaried workers' earnings; and the informal distortions represent between 45 and 56 percent of formal workers' labor income. Results indicate that valuations of the contributive and noncontributive protection systems play a key role in explaining these distortions. In addition, the Colombian social protection system thereby places a hefty tax on the formal worker (and employer) while transferring resources to the informal worker, but these distortions are not sufficient to revert differentials in earnings among formal and informal workers.

This paper—a product of the Poverty Reduction Group, Poverty Reduction and Economic Management Network—is part of a larger effort in the network to understand the relationships between labor, social protection and poverty reduction. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at jcuesta@worldbank.org.

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Social Security Distortions onto the Labor Market: Estimates for Colombia

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1. Introduction

Social protection systems in Latin America are typically truncated: a formal component of contributive or capitalized insurance covering multiple risks exists alongside a combination of assistance-based social programs that are frequently disarticulated or redundant and have differing degrees of impact upon the most vulnerable (World Bank, 2007). Important design faults persist in the existing social insurance schemes: discrepancies between contributions and service quality, excessive benefits packaging, and rigidity in approaches to mobility or compulsoriness, among others (World Bank, 2007). In the last two decades, efforts to improve and rationalize social protection in the Latin American region have included revising the generosity of the benefits bestowed and evaluating the individual (or mixed) capitalization systems in the case of social security. They also have focused on improving the targeting of social programs aimed at the poor (to avoid errors of inclusion), while also expanding them to cover the greatest possible number of poor people (to avoid errors of exclusion), in the majority of cases through the use of conditional monetary transfers.

There have recently been calls for a more integral vision for public policy on social protection. Levy (2007, 2008), the World Bank (2007), Cunningham (2007) and Bernal et al., (2009) argue that there are important interactions between social protection design and the structure of the labor market and, therefore, between social security and employment, productivity, and growth. At the center of these interactions is the fact that the social protection system is articulated around labor status, with social security associated with formality and social assistance programs associated with informality. If individuals value sufficiently the free insurance provided by noncontributive schemes, the dual system will incentive informality. With increasing informality, formal workers and public finances will have mounting pressures to support the social assistance scheme at a time of declining formal contributions. In those contexts, the co-existence of contributive insurance programs and subsidized or assistance insurance programs creates a perverse subsidy to informality and a tax for formality. Although those perverse interactions have not yet been quantified in any country, some approximations in Mexico suggest that they could be considerable (Levy, 2007).

This paper adds to the understanding of these relationships by quantifying the implicit taxes and subsidies on workers associated with social security and social assistance in Colombia. Colombia is an interesting case study for various reasons. Firstly, Colombia's social protection spending trends are unusual in the Latin American region. Its public spending has increased rapidly—in fact, it is the country in the region that has seen greatest growth since the 1990s—thereby enabling it to eliminate its historic gap with respect to the Latin American average. This rise has been fundamentally caused by an increase in social security spending, whereas spending on social assistance has been stagnant since the 1990s. That allocation of social spending contrasts with the ambitious conceptualization of lifelong comprehensive risk protection *and* fight against extreme poverty that Colombia purportedly pursued. Secondly, Colombia has experienced dramatic increases in the coverage of health care insurance while a disappointed stagnation at low levels of pension coverage. Thirdly, Colombia has very high labor costs as a percentage of the payroll (76 percent of the basic minimum salary according to calculations made by Nuñez [2008]), part of which are linked to financing social security for contributing workers and the rest for social protection for poor people (therefore, not linked to the worker). The fact that Colombia has very high dismissal costs even for Latin American standards (Cunningham, 2007) —although with some recent progress in terms making hiring, firing and working hours more flexible (World Bank 2010)—and a minimum salary that is also high according to regional standards (Maloney and Nuñez, 2004)

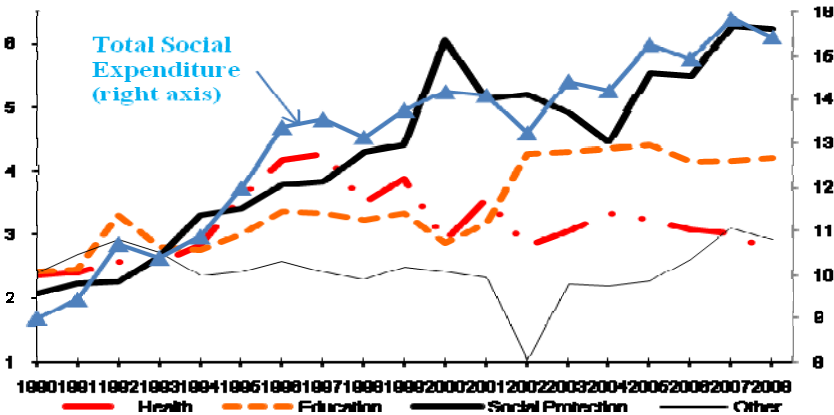
makes it especially important to understand the interactions between social protection and the labor market. Fourthly, Colombia has recently expanded a panel data survey to collect information on individual valuation of social assistance and social security programs. This information complements recent studies that have analyzed the impact of elevated labor costs without any notion of how formal and informal workers value the benefits they receive (see Bernal et al., 2009; Sánchez, Duque, and Ruiz, 2009; Kugler and Kugler, 2003; Mondragón-Vélez, Peña, and Wills, 2009).

The paper is organized as follows. Section 2 reviews the Colombian system of social protection and its relationship with the labor market, emphasizing the mismatch between the multiple objectives of social protection and the unbalanced allocation of social spending. Section 3 presents a methodological framework of labor relations and social protection analysis adapted from Levy (2008) and applied to the Colombian case. Section 4 calculates the distortions, which are separated into three categories: “social,” “occupational” and “informal” Section 5 presents the conclusions.

2. The Colombian Social Protection System

The structural reforms of the 1990s in Latin America and elsewhere prioritized the preventive side of social protection systems, a shift based on the emerging conceptual framework of social risk management developed by the World Bank (see Holzmann and Stiglitz, 2000 and Holzmann and Jorgensen, 2003). That framework aimed at diminishing the possibility of an economic shock affecting the population, and categorized risk-managing interventions as preventive, coping and mitigating. In this way, spending rose in the majority of countries in the region on preventive mechanisms such as public health care, education programs to increase and improve human capital, and social security (pensions and other provisions). Only a small part of these resources were targeted to social assistance programs. Colombia was no exception (see Figure 2). On aggregate, Colombia increased its social expenditures at the fastest pace in the Region to the extent of redressing historical regional gaps.¹ Within those increases, spending on social security experienced the largest surge (ECLAC 2009).

Figure 1. Social Spending in Colombia by Sector (as percent of GDP)



Note: the rubric “others” includes spending on drinking water and basic sanitation, childhood, and other social assistance programs (e.g., Families in Action or *Vivienda de Interés Social* [Social Concern Housing]).

¹ A welfare system was created in Colombia between the 1950s and 1960s and consolidated with the creation of the *Sistema Nacional de Bienestar Familiar* (National System of Family Welfare), directed towards infancy, childhood, and adolescence (via Act 7).

The early 2000s saw the revamping of social assistance programs in Colombia, with the creation in 1999 of the *Red de Apoyo Social* (RAS) (Social Support Network). RAS was set up to tackle the effects of the international economic crisis that began the year earlier and caused the worst recession in Colombian recent economic history (with a 5 point GDP contraction in 1999). Faced with the higher unemployment rates; diminishing labor incomes; increasing premature school dropout and child malnutrition; the RAS was originally set up in Colombia for a period of four years. It was targeted on the vulnerable groups most affected by the crisis: the poor, unemployed, and young people. Although set up as transitory, two of the three programs created (Jóvenes en Acción and Familias en Acción, Youth in Action, and Families in Action) have become permanent – while the third one, Empleo en Acción (Employment in Action) – was replaced by another program that directly supports employment creation. As a result, since 2002 there is a remarkable increase in social assistance spending. The increase, however, has been insufficient to overturn the increasing gap between social assistance and social security spending, as noted above.

Coinciding with the increase in social assistance spending, a new substantive change takes place in the conceptualization of the Social Protection System in Colombia, aimed at articulating the numerous programs under a comprehensive system. In fact, the new approach seeks, ambitiously, to simultaneously tackle prevention and mitigation strategies, on the one hand, whilst attacking poverty, on the other. Act 789 created the *Sistema de Protección Social* (SPS) (Social Protection System), with two components: the *Sistema de Seguridad Social Integral* (SSSI) (Integral Social Security System) and the Social Assistance programs. This is a “combination of policies designed to reduce vulnerability and improve the quality of life for Colombians, especially for the least protected, so that they can obtain, at least, the right to health care, work and a pension” (Act 789, 2002, article 1). The *Plan Nacional de Desarrollo 2006–2010* (National Development Plan) extended the definition of the SPS, thereby seeking to: (i) articulate service provision, (ii) enhance targeting mechanisms; and (iii) improve the prospects of integration with other sectors of the market (DNP, 2007; 2008a). The result is that the said Social Protection System has five main pillars:

- 1- The Integral Social Security System, which is universal, promotes people’s insurance against various risks in healthcare and pensions.²
- 2- The *Sistema Social de Riesgos* (Social Risk System) seeks to look after people in the event of an accident that affects their living conditions.³
- 3- The *Sistema de Formación de Capital Humano* (Human Capital Formation System) is aimed at preparing the population for incorporation into the job market through continuous training throughout the working lifetime.
- 4- The access to assets pillar, whereby families are supported so that they can generate income and acquire assets.
- 5- The *Sistema de Promoción Social* (Social Promotion System) aimed at overcoming structural poverty, which goes beyond the assistance based approach.

The resulting mapping of objectives and instruments at service by the SPS is presented in Table 1. It classifies the programs and the SPS pillars according to these risk management strategies.

² This system is financed with the population’s own resources (contributive regime) and with a solidarity component (*Sistema de Solidaridad y Régimen Subsidiado*/Solidarity System and Subsidized Regime).

³ The *Sistema Social de Riesgo* (SSR) (Social Risk System) was designed through the CONPES Documents 3144 and 3187, from 2001 and 2002 respectively, and was set up via the RAS (DNP, 2008a). The SSR’s financial instrument is the *Fondo de Equilibrio y Protección Social* (FEPS) (Social Protection and Equilibrium Fund), “which should carry out a counter-cyclical function and complement public spending in social programs, in such a way as to capture resources during periods of economic growth and use them, under clear and transparent regulations, during times of recession.” (DNP, 2008a)

Table 1. The Pillars of the Social Protection System, and Social Risk Management

Objective	Pillar	Mechanism	Benefited Population
Prevention	I	Health care: <i>Sistema General de Seguridad Social en Salud</i> (SGSSS) (General Health Care Social Security System) and General Pension System, <i>contributive regime</i>	Formal workers
	II	Social Risk System (<i>Sistema Social Riesgos</i> SSR)	Formal workers
	III	Education: public spending on education	The poor
Mitigation	II	SSR	Formal workers
	V	Social assistance programs	Vulnerable, displaced population; unemployed workers
Elimination	II	SSR	Formal workers
Poverty Reduction	I	Health care and pension system: <i>subsidized regime</i>	Informal workers
	III	Public spending on education by SENA	Informal and formal workers, and the non-occupied
	IV	Social assistance programs such as Generation of Incomes, VIS, Bank of Opportunities	The poor
	V	Social assistance programs	The poor

Source: Authors' elaboration.

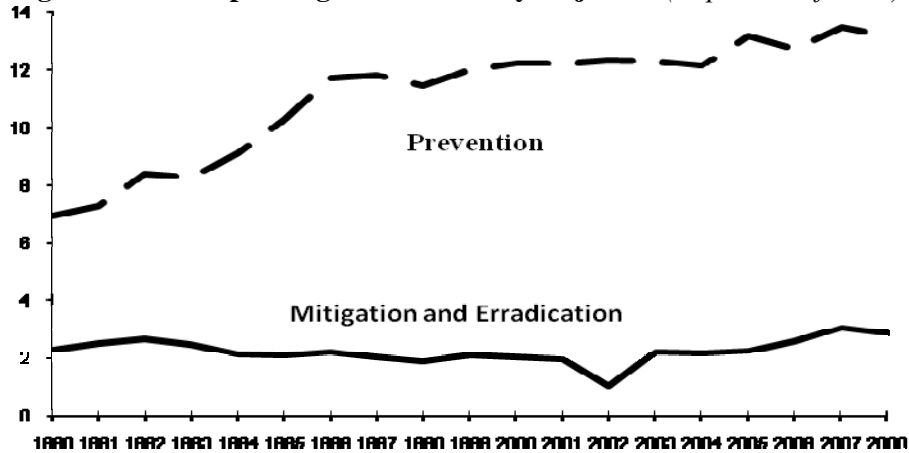
Note: This table does not include natural and environmental disasters such as floods, volcanic eruptions, deforestation, among others.

In its inception, the SPS seeks to cover the entire population regarding different types of risks, with programs aimed at risk prevention in health care (illness, injuries, disabilities) through the General Healthcare Social Security System and economic risks (unemployment), via the solidarity component of the *Sistema General de Pensiones* (General Pensions System), and through spending aimed at improving coverage in education. The *Formación Profesional Integral* (Integral Professional Formation) program, under the auspices of SENA, is also to be found in this group. Through these two programs, the SPS complies with two of its pillars: integral social security and human capital formation. The combination with Social Assistance Programs, the Social Risk System (SSR) and programs aiming to give access to different assets and credit leads the SPS to cover all risks and attack poverty.

In practice, the distribution of spending after 2002 remained as unbalanced as it was during the second half of the Nineties, despite the purportedly integral nature of SPS objectives. Figure 2 substantiates this point. Figure 2 complements the trends presented in Figure 1 by aggregating spending categories into risk prevention, on the one hand, and risk-coping and mitigation categories with poverty reduction, on the other. Interestingly, the creating of the SPS has been associated with impressive increases in individual health care coverage (even among self-employed workers) but scant increases in pension coverage. ILO (2008) shows that health care coverage increased from 47 percent (20 percent) of the working population (self-employed) to 86 percent (81 percent) between 2000 and 2007, whereas for the same period there was only an increase from 34 percent to 36 percent in pension coverage. In other words, 13 million more people are now covered by health

care (those covered increased from 21 to 34 million people) and around 4 million more individuals are covered by the pension system (DNP, 2008a).

Figure 2. Social Spending in Colombia by Objective (as percent of GDP)



Source: Authors' elaboration

Note: Prevention includes social spending on education, health care, drinking water, national and regional social security spending, and unemployment spending. Mitigation and elimination include spending on children's programs (i.e., ICBF interventions) and rural social spending.

Serious design defects are partly to blame for these uneven results in social insurance coverage. Administrative considerations hinder a smooth transition from contributive to subsidized health care programs, which ultimately disincentives the transition from informal to formal jobs and, ultimately, prevents increases in pension coverage. Bernal et al. (2009) argue that the system's design encourages informality, especially multiple benefits packages that include fee-based services that are often similar in quality –and as shown below in valuation– to free services that informal worker can access. Nuñez (2008) suggests that the practice of benefits-packaging does not necessarily coincide with the worker's needs: for example, the requirement to contribute for 1,300 weeks or 26 years in order to enjoy the right to a pension against a backdrop of high labor migration between the formal and the informal sectors. Another shortcoming relates to the fact that some benefits require additional prerequisites that cannot be fulfilled by workers earning only the minimum wage: for example, certain housing subsidies require a salary of two or three times the minimum salary, and those subsidies directed at minimum salary earners themselves also require savings of at least 10 percent of the value of the home (around US\$1,000).

Furthermore, Colombia presents very high labor costs as a percentage of payrolls, which finance social protection programs for poor people. The nonsalary costs of the workforce are estimated to amount to a dismal 76 percent for those in receipt of the minimum wage (Nuñez, 2008); 9 percent of the salary goes towards financing so-called *parafiscal* contributions: welfare programs by the *Instituto Colombiano de Bienestar Familiar* (Family Welfare Colombian Institute); family allowances and unemployment insurance by *Cajas de Compensación Familiar* (Family Compensation Funds); and training programs by SENA. Colombia also has the highest dismissal costs in Latin America (in terms of months of salary per years worked, irrespective of who begins the separation process [Cunningham, 2007]). Analysts agree that the labor market is extremely segmented due to a high minimum wage (the highest in the regions in proportional terms [Maloney

and Nuñez, 2004]) compared to regional standards (the sixth highest in absolute terms from a total of 19 countries studied in Cunningham [2007: 32]).

Despite these widely acknowledged design shortcomings of the Colombian social protection system, no study has systematically provided a quantification of the magnitude of their distortive consequences. The next section provides an analytical framework to quantify such magnitudes.

3. Analytical Framework of the Interrelations between the Labor Market and Social Protection in Colombia

By extending the partial equilibrium model developed by Levy (2007, 2008), this paper assumes a labor market made up of formal and informal workers, according to whether or not they receive legally-defined benefits, specifically those associated with social security. Workers are divided into four groups: formal salaried workers, formal self-employed workers, poor informal workers and nonpoor informal workers. For simplicity, this conceptual analysis merges poor and nonpoor informal workers into one category, but when applied to Colombia, the distinction between poor and nonpoor informal workers is resumed. In Colombia, this distinction—instrumented with a means-test index, Sisben—⁴ determines whether or not households qualify as beneficiaries for certain assistance programs. As we will see below, income levels of formal workers also determine (small) additional social security contributions, but the high income threshold (four minimum wages) limits the size of this group in practice.⁵ As a result, formal workers will not be differentiated by income or socioeconomic levels in the analysis.

The proposed theoretical setup is based on a traditional partial equilibrium analysis (see Albrecht, Navarro, and Vroman, 2009, for a recent review, and Kugler and Kugler, 2009, for an arithmetical representation of payroll taxes), in which the labor market reaches equilibrium when the marginal cost of work is equal to its marginal product. This constitutes the optimal solution to maximize both worker utility and the employing enterprises' profit function. For an algebraic presentation of this kind of model, see Levy (2008). Suppose that this point of equilibrium reaches an ideal situation at points A and B of Figure 3, which will determine a labor distribution without unemployment of among formal salaried workers, formal self-employed individuals, and informal workers, (Lo^A , Lo^C , Lo^I respectively). The labor market efficiently assigns the work factor among the differing occupations and it is only supply and demand, and the availability of each type of occupation within that economy, that determines this assignation.

The economy can move away from this equilibrium for diverse reasons, among which the most interesting ones to analyze in this paper are: (i) the imposition of a minimum salary differing from “W,” the efficient level at which marginal costs and productivity are equal; (ii) the inclusion of labor benefits and their respective costs, “T”—that might be different for each kind of worker—and; (iii) for the workers' different valuations of received benefits, “ β .” Figure 3 shows the consequences of each one of them. The position of the minimum salary above “W” will determine the aggregate demand for formal employment, as well as its distribution between salaried and self-employed

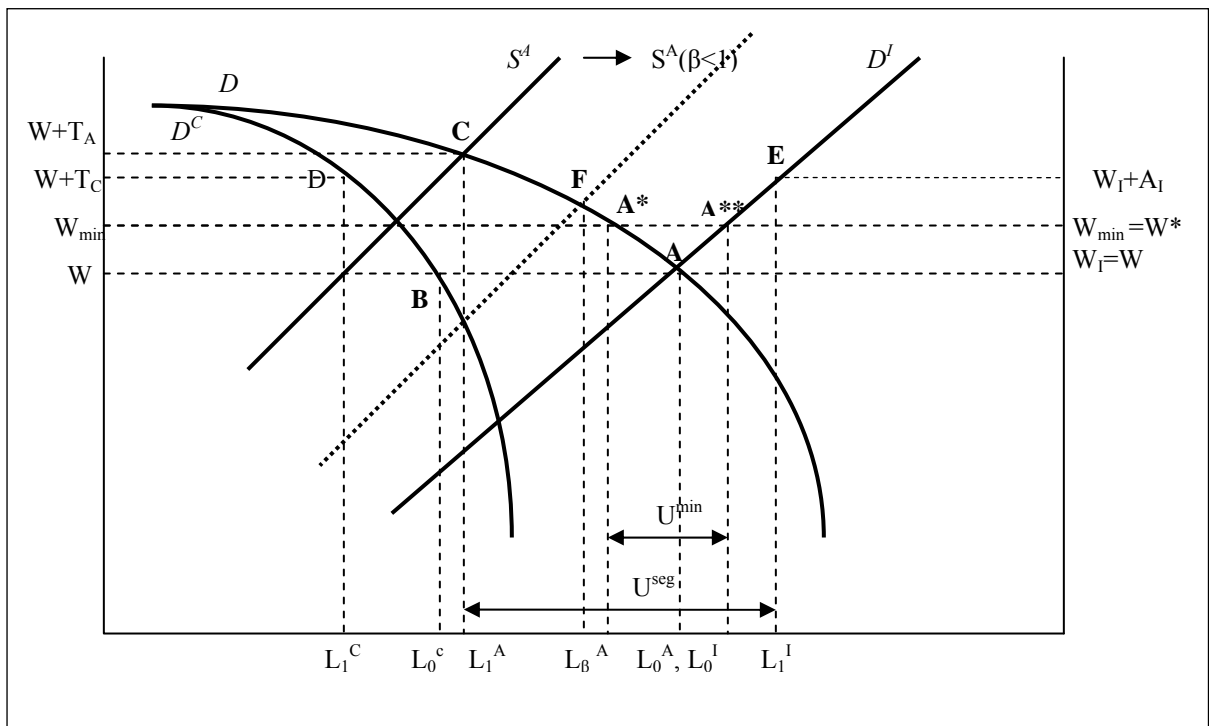
⁴ Sisben, *Sistema de Identificación de potenciales Beneficiarios de Programas Sociales* (System for the identification of potential beneficiaries of social programs), is an index that ranks families in six categories (1 the lowest, 6, the highest) according to a principal components related weighted average of housing conditions, access to public services, education and social security services, household demographics and incomes. Updated versions of Sisben excluded income and social security coverage in the construction of the index.

⁵ Formal workers earning more than four minimum salaries are only 5% of total formal workers in Colombia (Fedesarrollo, 2008).

workers. In cases such as Colombia, where the minimum wage is high (meaning, above “ W ”: $W_{\min} > W$), this will provoke an aggregate decrease in formal work. This can be seen in Figure 3, where the initial equilibrium point passes from A to A^* . Its effect upon informal work will depend on the relevance that the legal minimum wage has for informal workers. In Colombia’s case, the legal minimum wage is high (see Cunningham, 2007), which might cause the availability of informal work to increase by causing an increase in the workers’ reserve price. In that case, W_I would increase until W_I^* , creating unemployment in the economy, given that a portion of informal workers will simply not work (determined by the movement from A to A^{**}). The total unemployment caused by a high legal minimum wage would therefore be $A^* - A^{**}$.

The inclusion of social benefits (net of contributions) can be considered as an increase in the price of work, which has effects on market equilibrium because it alters the demand for work made by enterprises and the workers’ own reserve price. For simplicity’s sake, Figure 3 shows the case where the package of net benefits is greater for formal salaried workers than for self-employed workers (either due to greater gross benefits and/or lesser contributions). The direct result of the introduction of social security is that the points of equilibrium A and B —that determine the employment of self-employed and salaried workers, respectively—now move on to C and D . For both groups, their work availability is now less than it was before the introduction of social security. The magnitude of this drop, and its distribution among salaried and self-employed workers, will depend on the value of each package and of the differences between them. If informal workers also receive social benefits A_I , —either for being poor and/or because benefits are noncontributive or universal—then they will also see a reduction in labor supply, determined by the movement from A to E . The effect is an additional increase in unemployment caused by the introduction of social security for formal workers. The segment U^{seg} in Figure 3 demonstrates this effect.

Figure 3. Equilibriums in the Labor Market in the Presence of Social Subsidies



Source: Authors

A third element of distortion is caused by the fact that the workers' own valuations differ from the benefits conferred. For the sake of simplicity, again, Figure 3 presents the case in which salaried workers have a valuation of less than 1 for each dollar received as part of a public insurance service. The same could be shown in the case of formal self-employed workers and for informal workers. When the valuation is below par, work availability for formal salaried workers is displaced towards the right, moving from S^A to " $S^A(\beta < 1)$ " (that is, in order to obtain the same level of benefits, individuals have to work longer hours). The result is an increase in work availability for formal salaried workers from C to F (although the availability of work for formal salaried workers is still less than in the absence of social security, meaning the point of equilibrium A). If the workers value received benefits over and above 1, then the effect will be exactly the opposite: a reduction in employment.

The aggregate effects of wage levels, the institutional conditions of insurance (benefits and formal contributions and informal benefits), and the valuation of programs by the workers themselves will obviously depend on the magnitude of such changes. In order to exactly measure the scale of these distortions, they have been grouped into three categories of discrepancies or distortions: (i) of a social nature, in which the social cost of the benefit associated with risk insurance is different from worker's individual valuation of the received benefit; (ii) of an "occupational" nature, caused by the different conditions of benefits and costs that workers identical in all but occupation are legally and institutionally subjected to, either as salaried or self-employed, and (iii) a third category of an "informal" nature, caused by behavior (chosen by the worker or his employer) implying nonfulfillment of legal obligations—which in the case of this study are centered solely on the nonfulfillment of social security payments.

Table 2 applies this analytical framework for Colombia. It maps the benefits, costs and valuations associated to each worker category (including now poor and non poor informal workers) and works out analytically the social, occupational and informal distortions associated to the set of social security and social assistance programs in Colombia.

Table 2: The Anatomy of Labor Distortions in Colombia by Type of Worker

	Formal Salaried	Formal Self-employed	Informal Poor	Informal Nonpoor
Costs	$w_f + P + S + V + E + B + F$	w_c	w_p	w_n
Benefits	$w_f + \beta_f (P + S + V + E + F - C_f)$	$w_c + \beta_c (P + S + E + F - C_c)$	$w_p + \beta_p (PS + RSS + E + B + F + AS)$	$w_n + \beta_n (E)$
Distortions				
Social	$(\beta_f - 1) [(P + S + V + E + F)] - (\beta_f C_f) - B$	$\beta_c (P + S + E + F - C_c)$	$\beta_p (PS + RSS + E + B + F + AS)$	$\beta_n (E)$
Occupational	$(w_f - w_c) + [(P + S + E + F)(\beta_f - \beta_c)] + \beta_f V - [(\beta_f C_f - \beta_c C_c)]$	
Informal	$(w_f - w_p) + [(E + F)(\beta_f - \beta_p)]$	$(w_c - w_p) + [(E + F)(\beta_c - \beta_p)]$
	$+ [\beta_f (P + S + V - C_f) - \beta_f (PS + RSS + B + AS)]$	$+ \beta_c (P + S - C_c) - \beta_p (PS + RSS + B + AS)$		

Source: authors

Each "j" category of worker is evaluated at the level of its median wage " w_j " (j=f,c,p,n: formal salaried; formal self-employed; poor informal; nonpoor informal, respectively) and a set of social benefits associated with his/her labor and socioeconomic condition as defined by law. These benefits include social security benefits in the form of contributive pension and healthcare regimes, "P" and "S", respectively. These benefits have contributions, which can be financed partially or totally by employer and/or employee (as detailed in the next section): " C_j ". When subsidized, these regimes are typically targeted to the most vulnerable and poor, and are made dependent on Sisben categories (typically targeted to Sisben 1 and/or 2 categories). These are the social pensions, "PS", and the Subsidized Health Regime, "RSS". Benefits also include a set of provisional benefits that

include vacations, service premiums and severance payments, captured by the variable “V”. Three additional benefits, known as *parafiscales*, are borne entirely by employers but enjoyed by all types of workers: training programs provided by SENA, “E”; family allowances, “B”; and family compensation funds, “F”. Social assistance programs provided by the public agency Acción Social refer to Familias en Acción, a conditional cash transfer, “AS”. For analytical purposes, we allow for different categories of workers to have different valuations of their benefit packages, “ β_j ”. Variations in the benefits received, contributions incurred and valuations-based adjustments constitute the distortions analytically mapped in Table 2. Next section details the magnitudes of such benefits, costs and valuations.

4. Calculation of Distortions in the Labor Market Caused by the Social Protection System in Colombia

In order to calculate those distortions, this section firstly maps in detail the set of wages, benefits and contributions relevant for each representative worker. Secondly, statutory benefits and contributions associated with each worker category and social scheme are calculated and adjusted by socioeconomic levels, as required. Thirdly, the distribution of net benefits is further adjusted to account for each representative worker’s valuation. Ideally, the exercise should be conducted for each individual worker. In practice, the analysis concentrates on the representative worker of each category as it is not possible to estimate a distribution of complete benefits and contributions at the individual level from available sources. Instead, the analysis combines the statutory allocation of net benefits sanctioned by the Colombian legislation with available individual information on valuation from the Fedesarrollo (2008)’s ELS survey.

The 2008 Longitudinal Social Survey, Fedesarrollo (2008) (*Encuesta Social Longitudinal* in Spanish) is since 2004 the only household panel for Colombia. The survey monitors a group of households for four years through a rotating panel. The current stage corresponds to samples taken in 2008 and constitutes the panel’s fifth round. As part of this research project, Fedesarrollo agreed to extend the survey in 2008 in various dimensions: in the geographic dimension, the new survey provides information about the 13 principal metropolitan areas of the country, and not just about three cities, as the ELS had previously done. In the sample dimension, the number of households surveyed increased from 1,900 to 4,500, and in the conceptual dimension additional modules about motives, preferences, accidents, risks, and employment history were included. Unlike other household surveys of living conditions that inquire about social programs, and existing surveys on social security, ELS (2008) asks all workers the following, irrespective of their employment category or the provisions they receive: how much they would be willing to pay per month to be affiliated to the subsidized healthcare regime, to a contributive health care scheme, and for an insurance package that included the complete package of benefits from the social protection system (in terms of health care, pensions, severance pay, holidays, service premium, and affiliation to a family compensation fund). This approach eliminates self-selection errors in the information on willingness that would occur if information were collected solely from the current beneficiaries. Unfortunately, the survey does not ask informants to report the actual amount of benefits received or the exact payment contributed. Appendix 1 describes the survey and provides main statistics in detail.

Table 3 reports the statutory benefits and contributions, and the conditions required to have access to several programs by worker type and socioeconomic level – which for conceptual purposes, are categorized as high and low income categories. In general, Sisben categories determine the package of assistance benefits, with benefits targeted to individuals pertaining to households categorized as

Sisben 1 and/or 2. For social security benefits, the worker's occupation and before-benefit wages determine benefits and contributions. However, there are a number of deviations from the regular practice, which substantiates the complexity of the system. Salaried workers pertaining to Sisben 1 and 2 not participating in the compulsory contributive pension and health care systems qualify for noncontributive subsidized pension and health care regimes. So do independent workers, since they are also obliged legally to insure against health and old-age risks (but not labor related accidents). Hence, workers earning one minimum wage or more who do not comply with their obligation to insure qualify for subsidized social security provided their Sisben categories are 1 and 2. Note that Sisben is a household's welfare index, rather an individual index. If the individual pertains to Sisben 1 and 2 and remains uninsured (either on contributive or subsidized regimes), they also qualify for *Familias en Acción*, a conditional cash transfer whose benefits depend (and vary accordingly) on family composition, location and special circumstances such as being displaced by armed conflict. Although benefiting from a noncontributive subsidized insurance means automatic exclusion from *Familias*, in practice, no cross-reference of beneficiaries' databases take place. Interestingly, other social assistance programs such as those offered by ICBF are received by both formal and informal workers independently of their labor status (and only depending on being part of the targeted group measured by Sisben). The same tenet applies to job training programs by SENA. Other assistance programs, such as the unemployment subsidy, are only received by formal salaried workers and by informal workers (so says the law, which uses the term "informal worker"), but not by self-employed formal workers. Other social assistance benefits, instead, such as family compensation funds, a family allowance, are received according to the income level and composition of the household (whether or not the household has children) and are offered regardless of work status if household income does not exceed four minimum wages. At the other end, provisional benefits such as severance payments, service premiums and holidays are benefited exclusively by formal salaried workers, regardless of earnings.

Table 3: Social security, prevision and social assistance benefits, contributions and qualifying conditions

Benefit	Amount, COP\$	Conditions	WORKER'S CATEGORY						
			Formal Salaried		Formal Self-employed		Informal		
			low	high	low	high	low	high	
<i>socioeconomic status</i>									
A. SOCIAL SECURITY									
Social insurance:			<i>(up to 4 min wages)</i>		<i>(4 - 25 min wages)</i>		<i>(up to 2.5 min wages)</i>		<i>(2.5 + min wages)</i>
Contributive Pension, P	Depends on income	Compulsory	Contribution 4%	Contr 5 - 6%	Contrib 16%	Contrib 16%	...		
					over 100%	over 40%			
					of billed services	of billed services			
Social Pension, PS	COP\$ 55,000- 75,000 if age 55+ *	Sisben 1 and 2; Age	<i>Sisben 1, 2</i>	<i>Sisben 3+</i>	<i>Sisben 1, 2</i>	<i>Sisben 3+</i>	<i>Sisben 1, 2</i>	<i>Sisben 3+</i>	
			Legally does not qualify but no cross-checking of databases		Legally does not qualify but no cross-checking of databases		Only if Sisben 1 and 2		
Contributive Health Care, S	Complete access to health care, categories 1, 2 and 3	Compulsory	Contrib 4%	Employer's contrib 8.5%	Contrib 12.5%	Contrib 12.5%	...		
					over 100% billed	over 40% billed			
Subsidised health care, RSS	Complete access cat. 1 and 3 only partial to cat. 2	Sisben 1 and 2	<i>no socioeconomic differential</i>		<i>no socioeconomic differential</i>				
			Legally does not qualify and cross-checking of databases		Legally does not qualify and cross-checking of databases		Only if Sisben 1 and 2		No connection to occupation
Labor Risks	Depends on risk type	Compulsory for salaried and voluntary for self-employed	Employer's contribution: 0.5%-9%		Voluntary (100% contrib)		...		
			<i>no socioeconomic differential</i>		<i>no socioeconomic differential</i>				
Social Prevision:									
Severance, V	1 salary + 12% interest	Compulsory for employer of salaried	YES		NO		...		
			<i>no socioeconomic differential</i>		<i>no socioeconomic differential</i>				
Holidays, V	15 days of salary	Compulsory for employer of salaried	YES		NO		...		
Service Premium, V	13rd monthly salary	Compulsory for employer of salaried	YES		NO		...		
Transport, uniform, footwear	9.1% minimum wage	Depends on type of work	YES		NO		...		
B. SOCIAL ASSISTANCE									
ICBF, B	Typically in kind (COP\$ 19,150)	By income, household composition and displacement situation	<i>Sisben 1, 2</i>	<i>Sisben 3+</i>	<i>Sisben 1, 2</i>	<i>Sisben 3+</i>	<i>Sisben 1, 2</i>	<i>Sisben 3+</i>	
			YES	NO	YES	NO	YES	NO	
SENA, E	Typically in kind (COP\$ 14,755)	Jovenes en Accion, Jov Rurales Other programs	<i>Sisben 1, 2, 3</i>	<i>Sisben 4+</i>	<i>Sisben 1, 2, 3</i>	<i>Sisben 4+</i>	<i>Sisben 1, 2, 3</i>	<i>Sisben 4+</i>	
			YES	NO	YES	NO	YES	NO	
			YES	YES	YES	YES	YES	YES	
Family Compensation Fund, F	Depends on income and household composition (departmental average, COP\$ 20,760)	Compulsory benefit if income does not exceed 4 min wages	<i>(up to 4 min wages)</i>	<i>(4+ min wages)</i>	<i>(up to 4 min wages)</i>	<i>(4+ min wages)</i>	<i>(up to 4 min wages)</i>	<i>(4+ min wages)</i>	
			YES	NO	YES	NO	YES	NO	
Unemployment Subsidy ("salaried" and "informal" workers!)	1.5 min wage total for lifetime	Provided by ICBF in kind or in cash	<i>(up to 4 min wages)</i>	<i>(4+ min wages)</i>	<i>(up to 4 min wages)</i>	<i>(4+ min wages)</i>	YES		
			YES (if belongs to Fund)	NO	NO				
Accion Social, AS (Familias en Accion)	Depends on city, educational level (not depends on number of children) (COP\$ 11,600)	Sisben 1 and displaced	<i>Sisben 1</i>	<i>Sisben 2+</i>	<i>Sisben 1</i>	<i>Sisben 2+</i>	<i>Sisben 1</i>	<i>Sisben 2+</i>	
			YES **	NO	YES**	NO	YES	NO	
			** Cannot be received if benefitting from pension or health insurance but, in practice, there is no cross-check of information						

Source: Authors' estimates from DNP (2008a), Republic of Colombia (1993)'s Act 100 and (2002)'s Act 789; Superintendencia Subsidio Familiar (2010), SISGOB, Nuñez (2008).

Notes: (*) This average benefit is expressed in net present value for a worker retired at 65 and receiving it for 10 additional years. If discounted at 12%, NPV of that amount is COP \$ 8,700 in 2008.

The law defines noncontributive health care and pensions in Colombia as part of the social security system, although in practice they operate as assistance programs, which are targeted to the poorest segment of the population, as ranked by Sisben. Similarly, unemployment subsidies are considered part of prevision benefits associated with labor circumstances, but, again, they act as a assistance program transferring very low amounts of cash (a total of one and a half monthly wage transferred over six months at a declining rate). In addition, the benefit is provided by family compensation funds, an agency typically transferring social assistance benefits such as the

family subsidy. For that reason, Table 3 places it as a social assistance program. Also, this categorization concentrates on Familias en Acción, the main but not only program provided by Acción Social. Other social assistance programs such as Vivienda de Interés Social (Social Concern Housing program) or Banca de Oportunidades (Opportunity banking) are not included due to the difficulties of allocate a unitary benefit, which varies considerably according to specific household socioeconomic and financial circumstances that a representative worker characterization may not appropriately pick up. The representative benefit for Familias in Acción is below the lowest statutory benefit intended by the program, COP\$ 15,000, but results from official disbursements data reported in SISGOB on benefits distributed and beneficiaries reached.

The individual valuation of social transfers is a widely acknowledged problem (Selowsky 1979), which is typically circumvented by equating individual benefits with costs of provision. In the case of insurance schemes, this is particularly unsatisfactory, as the realized benefits of insurance cannot be precisely anticipated and will depend, among other things, upon each person's life-cycle and personal and family circumstances. For instance, the true benefits on an old-age social security scheme will depend on the future income flows guaranteed by the insurance scheme once the individual retires net of pre-retirement contributions and retirement deductions, if any. This certainly varies by individual. An alternative approximation to measure realized benefits is the value of insurance for the individual, captured by her reported willingness to pay for such services. To the extent that individuals take into consideration expectations of shocks and their future personal circumstances, then the approximation by willingness to pay is more appropriate than provision costs. However, it is uncertain to what extent individual responses on willingness to pay for different packages of benefits dissociate future expectations from their current situation, and more specifically, current ability to pay. When results are compared between those who do and those who do not receive the benefits about which they are being asked to value (see Table 4), different valuations are detected across workers categories. Those more able to pay also report more willingness to pay. Differences are also observed by occupation and reported capacity to choose their occupation. These results expectedly point towards a certain degree of endogeneity caused by self-selection: those who expect most benefits are those more likely to participate in formal jobs. Also, it points towards a potential correlation between ability and willingness: those with more earnings are also willing to pay more for their benefits.⁶

⁶ In addition to these tabulations, an econometric analysis is conducted on the significance of reported appreciation of social security (that is, how highly in a scale from 1 to 5 individuals regard several benefits) vis-à-vis labor earnings (and other controls) on ability to pay. Both the worker's qualitative valuation of the program and income levels statistically determine (at 10%) the ability to pay for the full package across the complete sample of workers. Interestingly, this result varies by type of worker, with the strongest relationship observed among formal salaried and the weakest among informal poor workers. These results, however, must be interpreted with caution as a potential source of endogeneity is likely to exist between valuation and willingness to pay for a service.

Table 4. Willingness to Pay by Package of Benefits (in COP \$)

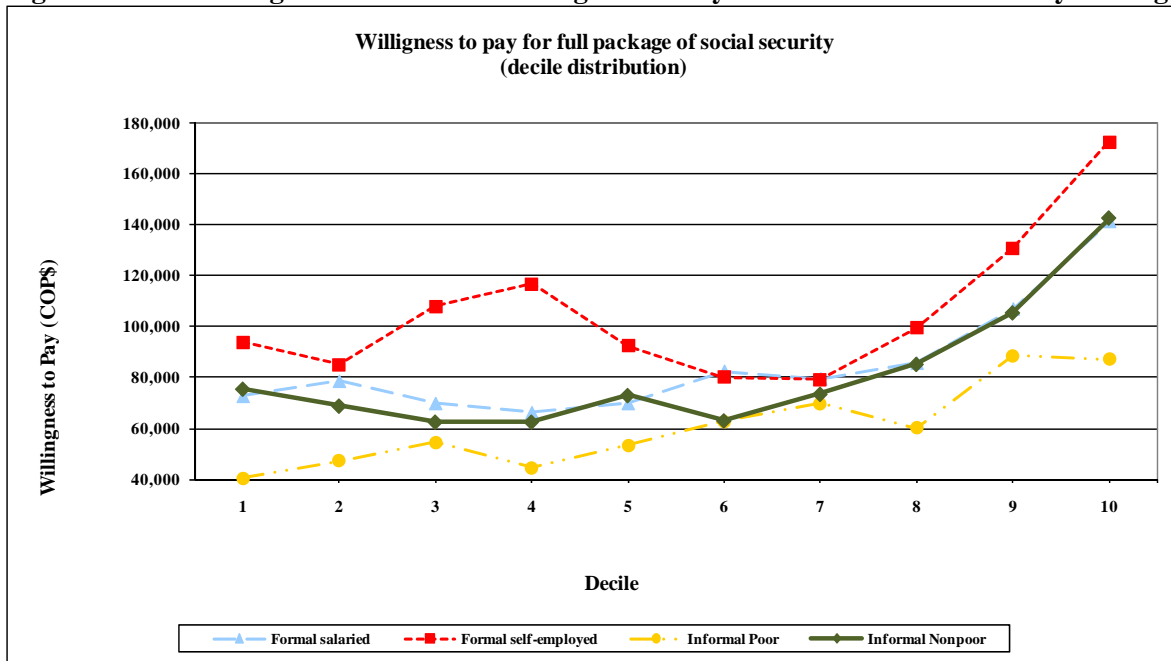
	Health care: Subsidized regime	Health care: Contributive regime	Full package: Contributive healthcare and pension regimes, severance pay, holidays, premium services and family compensation fund
All Occupied Workers	26,561	49,944	78,953
Formal Salaried	29,453	54,353	88,552
Salaried Self-employed	38,812	78,888	129,870
Informal poor	19,770	32,821	51,572
Informal Nonpoor	27,364	52,066	81,501
Beneficiaries Subsidized health care regime	20,316	33,964	54,007
Beneficiaries Contributive health care regime	29,601	56,580	90,372
“Obliged” Salaried	23,178	44,084	68,504
“Obliged” Self-employed	25,253	44,592	74,189
Earns < 1 Minimum Wage	21,611	39,990	62,022
Earns between 1 and 4 MW	29,543	54,053	88,354
Earns more than 4 MW	54,130	103,044	150,995

Source: EFL 2008

Notes: all workers are asked to respond valuation questions, regardless of being benefiting or not from such schemes. Informal poor refer to informal workers belonging to Sisben 1 and 2 categories. Informal nonpoor refer to informal workers with other Sisben categories.

Figure 4 corroborates the relationship between willingness and ability to pay. The figure explores the distribution of willingness to pay for the complete benefits package across deciles of labor earnings (although the question put to formal workers concerns their gross income, whereas informal workers are asked about their net income). Results show that the willingness to pay for the complete, legally established social security package increases along with the worker’s income level, but that this increase is not necessarily linear, sustained, or even similar for each category of worker. This reflects, in part, the fact that labor income distributions (meaning the range of incomes that determine each decile) vary for each occupational category. Therefore, the basic minimum monthly salary of COP\$ 461,500 in 2008 is situated in decile 4 of the aggregate distribution of all employed, in decile 2 of the distribution of formal salaried workers, in decile 3 of the formal self-employed workers, and in decile 6 of informal poor workers and decile also 6 for informal nonpoor workers.

Figure 4. The Earnings Distribution of Willingness to Pay for the Full Social Security Package



Source: ELS (2008)
 Note: US\$1 = COP\$ 2,250

Differences in willingness to pay for the complete package of legal benefits in each category vary in a range between COP\$ 51,000 (US\$ 23) for the median poor informal worker to COP\$ 129,000 (US\$ 58) for the formal self-employed worker, with narrower differences between formal salaried and informal nonpoor workers (whose reported valuation ranges between COP \$ 80,000 – 90,000; US\$ 36–39). Somewhat surprisingly, informal nonpoor workers are those who reportedly are more willing to pay for the package in relative terms, 17.7% of their median labor incomes. Both informal poor and salaried workers would be willing to pay 14.7% of their median labor incomes, while formal self-employed report a willingness to pay for the whole package of 13% of their labor incomes. These results substantiate two important messages: first, there are wide differences in the willingness to pay for the full package of social security across types of workers; second, all types of workers are willing to pay less than 20% of their labor incomes to received the full package, even though, workers –regardless of their occupation and circumstances– typically report to regard highly social security programs (see Appendix 2 for reported answers on how workers “value” or appreciate social programs).

Valuation parameters β 's can be retrieved for each type of worker on the basis of the willingness to pay for the complete legal package of benefits (reported in Table 4) and the statutory amounts for social benefits (reported in Table 3).⁷ As a result, the calculated parameters are as follows: $\beta_f = 0.48$; $\beta_c = 0.42$; $\beta_p = 0.48$ and $\beta_n = 0.57$. In all of these cases, the factor of valuation is below par, which means that workers value each dollar transferred to them by the social protection system well below the cost of its provision. Interestingly, formal self-employed workers value the most the full

⁷ The reported willingness to pay, WTP, for the full legal package, $(P+S+V+E+F-C_f)$, can be expressed as $WTP_j = \beta_j (P+S+V+E+F-C_f)$, so we retrieve β_j for each j-type of worker as: $\beta_j = WTP_j / ((P+S+V+E+F-C_f))$

package and are willing to pay the most for it in absolute terms. This may imply that this group of workers has the largest opportunity cost of not having social protection, on the one hand, and having the most resources to afford it, on the other. In relative terms, this is just the opposite, which relates to this group having the largest median labor incomes. Intimately related to that is the fact that each peso received by a formal self-employed requires the largest contribution across types of worker. Not much difference exists among the relative valuation of each peso transferred to formal salaried workers and poor informal workers, since the advantage in affordability in favor of the former appears to be cancelled out by lower (none) contribution to obtain such peso in favor of the informal worker.

The social and labor market distortions shown in Table 2 can be now calculated with reported willingness to pay for complete packages (the β s), statutory benefits of social protection and estimated median labor earnings. Table 5 reports such calculations as percentage of each representative worker's median pre-benefit labor income.

Table 5. Calculation of Social and Labor Market Distortions for Categories of Workers

Type	Distortion	Estimate (% pre-benefit labor income)
Social distortion:		
formal salaried worker	$(\beta_f - 1) [(P+S+V+E+F)] - (\beta_f C_f) - B$	-0.273
formal self-employed worker	$\beta_c (P+S+E+F-C_c)$	-0.019
informal poor worker	$\beta_p (PS+RSS+E+B+F+AS)$	0.129
informal nonpoor worker	$\beta_n (E)$	0.018
Occupational distortion (between salaried and self-employed)		
	$(w_f-w_c)+ [(P+S+E+F)(\beta_f-\beta_c)] + \beta_f V - [(\beta_f C_f - \beta_c C_c)]$	-0.510
Informality distortion (with respect informal poor)		
formal salaried worker		
formal self-employed worker	$(w_f-w_p)+ [(E+F)(\beta_f-\beta_p)] .+ [\beta_f(P+S+V-C_f) - \beta_f(PS+RSS+B+AS)]$	0.455
	$(w_c-w_p)+ [(E+F)(\beta_c-\beta_p)] + \beta_c(P+S-C_c) - \beta_p(PS+RSS+B+AS)$	0.560

Source: Authors' elaboration.

Note: evaluated at the median worker: COP\$ 600,000 for formal salaried workers; US\$ 1,000,000 for formal self-employed; US\$ 350,000 for informal poor workers; and US\$ 461,500 for informal nonpoor workers.

Distortions in the Colombian labor market associated with the social protection system are substantive. It is worth noting that these distortions are not exclusively caused by the design of the system, but also are associated with differences in preferences and willingness to pay among workers and, importantly, differentials in labor incomes. The distortion for a formal salaried worker created by the employer's cost to provide social security and her appreciation of such service is about 30% of her median wage. It is 2% for formal self-employed, who are willing to pay the most for the legal package but are also the ones contributing most towards it. Instead, informal workers receive free of cost (for the employer and/or by themselves) a package social assistance that includes healthcare and social pensions which they seem to fairly value (as seen above, not very differently from formal workers). As a result, this is a net transfer for them between 2% and 13% of their labor incomes. The low net transfer of 2% to informal nonpoor is explained by the fact that they do not qualify for noncontributive pension nor health care.

The occupational distortion, meaning the difference between the valuations of insurance benefits and labor earnings made by a formal salaried and a formal self-employed worker both is 51 percent of labor incomes in favor of the formal self-employed worker. This is entirely explained by the labor income gap between formal salaried and formal self-employed workers. Higher incomes of those self-employed workers more than compensate the higher contributions –20 percentage points of labor earnings if below 2.5 minimum wages– they are actually required to benefit from social security.

The difference in the valuation of social insurance benefits and labor earnings between a formal and an informal (poor) worker oscillates between 45 and 56 percent of the median labor incomes of formal worker, in favor of the formal worker. Again, these differentials are mainly caused by labor earnings gaps among occupations, because as seen above the valuation of each peso transferred by informal workers equates or exceeds that of a formal worker. As the labor earning gap with an informal poor worker is larger for formal self-employed workers, the calculated distortion also rises.

Table 6 provides a comparison of the relative relevance of some of the factors contributing to the distortions calculated. It re-calculates the distortions in alternative scenarios. In the first alternative scenario there are no differences in labor earnings across workers' categories and they all earn the legal minimum wage ($w_j=w_{\min}$). In another scenario, there are no differences in the valuation of social transfers and all workers share a valuation parameter $\beta_j=1$. In the third scenario, there are no differences in contributions and both salaried and self-reported workers contribute at the current rates established for salaried workers ($C_e=C_f$). In the fourth scenario, employers of salaried workers do no longer bear the cost of *parafiscales*, although workers still benefit from them ($E,B,F=0$ for employers). The fifth scenario complete eliminates noncontributive health care and pension benefits ($PS,RSS=0$) and *parafiscales* (both as costs for employers and benefits for workers, $E,B,F=0$).

Table 6. Distortions in Alternative Scenarios (% of pre-benefit labor incomes)

	Reference	Scenario 1: No wage differentials ($w_j=w_{\min}$)	Scenario 2: No valuation diffs ($\beta_j=1$)	Scenario 3: No contribution diffs ($C_e=C_f$)	Scenario 4: No <i>parafiscales</i> as employer's cost ($E,B,F=0$)	Scenario 5: No RSS, PS, E,F,B (RSS,PS, E,F,B=0)
Social						
Formal salaried	-0.273	-0.264	-0.112	-0.273	-0.162	-0.210
Formal self-employed	-0.019	-0.105	-0.044	0.067	-0.019	-0.033
Informal poor	0.129	0.066	0.271	0.129	0.129	0.016
Informal nonpoor	0.018	0.016	0.032	0.018	0.018	0.018
Occupational	-0.510	0.156	-0.337	-0.596	-0.510	-0.514
Informal						
Formal salaried	0.455	0.086	0.497	0.455	0.455	0.521
Formal self-employed	0.560	-0.106	0.400	0.676	0.560	0.602

Source: Authors' elaboration.

The new calculations confirm that there is not a single or a dominant channel underlying the distortions in the Colombian labor market. When differences in wages are removed across workers' categories and distortions are evaluated at the minimum wage level, occupational distortions dramatically change, to the extent of reversing their direction: the higher social insurance contributions incurred by a formal self-employed show up in the re-calculated "occupational" distortion. Also, the "informal" distortions are slashed: the elimination of otherwise large wage differentials almost fully compensate for the differences in the form of higher net social security

benefits associated with informality. Instead, when the value of a net peso transferred equates across worker's groups (scenario 2), there are significant changes in "social" distortions, which either double up or are halved as a result of the new valuations. Also, the "occupational" distortion suffers a substantive change, as now the elimination of differences in preferences shows that the true differentials in worker's contributions are still quite substantial, although not sufficient to revert the labor incomes gap between formal salaried and formal self-employed.

In scenario 3, getting rid of differentials in contributions to social security by occupation (by equating self-employed contributions to those by salaried workers) reduces markedly only the "social" distortion calculated for formal self-employed, whose contribution rates are now slashed. Smaller changes take place in the remaining distortions, where the effects of valuation and labor income differentials remain strong. Likewise, the elimination of *parafiscales* as a cost for employers of formal salaried workers would reduce about 40% of the original "social" distortion of formal salaried workers. Interestingly, it will have no other effect in the rest of distortions.

Finally, the elimination of social assistance programs providing noncontributive pension and health care as well as those programs financed by *parafiscales* would have a sizeable impact on "informal" distortions. The move would make informality less attractive from a (free) benefit point of view – about 15% of the baseline informal distortion–, which adds to the substantive labor income gaps to further increase "informal" distortions.

5. Conclusions

This article takes advantage of extensions to the Colombian labor and social protection household survey, ELS, that incorporate questions for *all* workers about their valuation and willingness to pay for the complete legal package (whether or not they receive it). This information is used to calculate labor distortions associated with the fact that salaried and self-employed formal workers must contribute differently to a fairly comparable social protection public good, while informal workers do receive noncontributive social protection and other social assistance programs that they also fairly value for free. Although workers certainly appreciate these transfers, each category of worker in Colombia value below par the net transfer received in the form of social security. Workers reportedly regard highly social security and social assistance programs in Colombia (regardless of their knowledge or actual participation in the program) but are willing to pay for them below 20% of their labor incomes. Those earning more are also willing to pay more for social security, but when factored in the discussion the differences between what workers receive and what they have to contribute, the valuation of a net peso transferred as social security (contributive or subsidized) does not vary much across formal and informal workers. In fact, their *betas* are around 0.5, which means that each peso received as benefit is discounted to about 50 cents. Critically, the resulting mix of formality tax and informality subsidies is substantive (between 2 and 27 percent of different representative workers' earnings), these distortions are typically insufficient to cancel out the observed labor income differentials among each category of worker. When wage differentials are removed, the picture changes: in fact, the value of the package of noncontributive social security and social assistance for informal workers is about 10% higher than the value of the social security package of formal self-employed workers evaluated at the minimum wage.

The key public policy question is how both to reduce those multiple labor distortions and improve the large discounts on net benefits from social protection observed in Colombia. The calculations in this paper substantiate that there is not a single factor likely to reduce significantly all these

distortions. Reducing unexplained wage differentials may well reduce “occupational” and “informal” distortions; improving valuation parameters will partially compensate “social” distortions; eliminating *parafiscales* will, instead, reduce “social” costs for formal salaried workers, while equalizing social security contributions among formal workers will reduce “social” costs in favor of formal self-employed workers. Hence, the attention given to the reform of *parafiscales* (see Nuñez 2008; Santa María, García, and Mujica, 2009; Sánchez, Duque, and Ruiz, 2009) simply concentrates one part of the problem, but not on the most substantial in light of the wage gaps, contribution differentials, and sub-valuation of transfers.

Ultimately, the fundamental issue is whether or not the solidarity model chosen by Colombia is the most efficient to perform its purported social protection objectives. The answer, in light of the distortions, is not very rosy. The strategy of expanding spending in social security without institutional changes and augmenting the generosity of social assistance will clearly reinforce the distortional relationship between the labor market and social protection in the future. A debate on labor market reform cannot be understood without a discussion of the social protection reform –and although not discussed here, without a discussion on the growth, productivity and fiscal implications of perpetuating informality (see IADB 2010 for a recent analysis of these interactions). In that debate, also, policy makers need to internalize the mismatch between individuals’ appreciation of social programs and their willingness to pay for them. Future reforms, at the end of the day, will not be viable if social protection reforms create expectations of higher coverage and quality without having to contribute towards it. In Colombia, as currently in other countries, these need to be the critical considerations to discuss in order to ensure a sustainable minimum-standards comprehensive (or universal) social protection system that expands coverage and reduces distortions.

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Appendix 1. Fedesarrollo's Longitudinal Social Survey, *Encuesta Longitudinal Social*, ELS

Since September 1999, Fedesarrollo, a Colombian think-tank, with the support of the Bogota, Cali, and Bucaramanga Chambers of Commerce, has carried out its social survey in these three cities (ELS, 2008). This survey, entitled the *Fedesarrollo* Longitudinal Social Survey since 2004 (Stage IX), has become the only household panel for Colombia. It monitors a group of households for four years through a rotating panel. The method employed corresponds to probability-based sampling at all stages, stratified with random unit selection at each stage and final selection of the informant according to a prior recount of the number of households in the assigned city block. The sample is stratified and taken on a multistage basis in each city through the selection of primary sample units (censal sectors), followed by secondary units (city blocks) and final sample units (the selected household). The sample framework is built around the cartographic inventory and lists of dwellings, households, and persons obtained from information gathered by the 1993 *Censo Nacional de Población y Vivienda* (National Census of Population and Housing) with the latest updates for 2004 obtained from each city's planning office and the DANE. The new households that replaced the sample ones refusing to cooperate with the survey—as well as the 10 additional cities that now form a part of the survey—were selected on the basis of the cartographic inventory and the list of blocks and dwellings updated to the year 2005 (the most recent year) provided by *Servinformación*, an entity supported by the DANE and the planning offices of the cities involved.

The 2008 stage has seen a substantial increase in the sample with the introduction of 10 more cities that form part of the “national urban total” defined by the *Departamento Administrativo Nacional de Estadística* (DANE) (National Department of Statistics Administration) for the calculation of unemployment figures. Coverage therefore includes the urban population of Bogota, Cali, and Bucaramanga, as well as the cities of Medellín, Barranquilla, Manizales, Pasto, Pereira, Cúcuta, Ibagué, Montería, Cartagena, and Villavicencio. The first three cities represent 73 percent of the sample, and the other 10 represent the remaining 27 percent.

The sample is representative for each city and for the three large cities together, as well as by strata—low (strata 1 and 2), middle (strata 3 and 4), and upper (strata 5 and 6)—for each of the three main cities, these three cities together, and the combination of all 13 cities together. The first two strata represent 46 percent of the sample; the following two, 45 percent; and the two highest strata, the remaining 9 percent. The size of the sample rose from 1,865 homes in the previous stage to 4,005 in Stage XIII. There were 1,287 households from the previous stage that were surveyed again in this one. The 2008 survey is divided into eight thematic modules: (i) housing and services, (ii) demography; (iii) education; (iv) health care; (v) labor market and social security; (vi) welfare conditions; (vii) knowledge, coverage, and valuation of social programs; and (viii) vulnerability. The survey was carried out door-to-door, with all household members present. If certain household members could not be present at the time of the survey, other responsible adult members of the household were asked to answer their survey questions. The questions concerning the household as a whole were answered by the head of the household or his or her spouse or, in the case of their absence, by another responsible adult household member.

The variables captured by ELS 2008 enable socioeconomic indicators related to poverty (by income and spending) to be estimated as well as other multidimensional aspects of poverty, such as access to housing, employment and income, social security, education, and public services. In the past, special modules were undertaken that included questions pertinent to Colombian society, such as voluntary or enforced internal migration, access to credit and savings, or child labor and mortality, among others. In the last stage, some of the questions regarding victimization were asked a second time, enabling the citizens' perception about security and safety in their home cities to be explored. Moreover, the latest stage incorporates additional questions that enable labor transactions to be described in detail (from the last job until the present) and about workers' affiliation to the social

security in healthcare and pensions (from the last change in status). This stage also includes a detailed module on past shocks (in the last 12 months) and the response to them. These include economic shocks (such as unemployment or the unexpected loss of assets); health problems (such as illness or grave injury), or of other types (for example, catastrophes or personal calamities such as marital separation or abandonment by an important household member). There is also a module on the perception of future risks (for the following 12 months) and the strategies, planned or executed, available to confront them. This round also includes a new module on valuations, knowledge, and participation in social programs, which is put to each household irrespective of the beneficiary's social stratum.

Table A.1 presents the survey's basic descriptors.

Table A.1 Selected Descriptors of the ELS 2008.

Variable	Average	Standard Deviation	Min	Max
Individual and household				
Age	33.4	21.3	0	99
Gender (% of males)	46.4	49.9	0	1
Years of schooling	9.0	5.2	1	26
Household size	4.8	1.9	1	12
Labor				
Proportion of occupied workers (as % working-age population, WAP)	49.8	50.0	0	1
Proportion of unemployed people (as % of WAP)	5.6	22.9	0	1
Proportion of inactive people (as % of WAP)	44.6	49.7	0	1
Proportion of salaried workers (as % of Occupied Individuals)	60.8	48.8	0	1
Proportion of self-employed people (as % of occupied workers)	37.7	48.5	0	1
Proportion of non-waged person (as % occupied workers)	1.5	12.2	0	1
Salaried workers with full package of benefits ⁽¹⁾	5.4	22.6	0	1
Salaried workers with incomplete package of benefits	60.2	49.0	0	1
Salaried workers with no benefits	34.5	47.5	0	1
"Obligated" salaried worker (as % of salaried workers)	55.6	49.7	0	1
"Voluntary" salaried worker (as % of salaried workers)	44.4	49.7	0	1
"Obligated" self-employed person (as % of self-employed)	51.3	50.0	0	1
"Voluntary" self-employed person (as % of self-employed)	48.7	50.0	0	1
Current occupied workers with previous jobs :	53.8	49.9	0	1
Transition from formal salaried to formal self-employed	2.6	16.0	0	1
Transition from formal self-employed to formal salaried	0.9	9.5	0	1
Transition from formal salaried to informal	27.0	44.4	0	1
Transition from formal self-employed to informal	0.6	7.5	0	1

Transition from informal to formal salaried	9.9	29.9	0	1
Transition from informal to formal self-employed	0.5	7.3	0	1
Transition formal salaried to formal salaried	28.6	45.2	0	1
Transition from formal self-employed to formal self-employed	0.5	6.9	0	1
Transition from informal to informal	27.4	44.6	0	1
Social security coverage				
Salaried workers with full social security (% of occupied workers)	36.0	48.0	0	1
Self-employed people with full social security (% of occupied workers)	3.3	17.8	0	1
Informal workers (% of occupied workers)	60.3	48.9	0	1
Improve social security coverage (% of occupied workers with previous job)	13.0	33.6	0	1
Worsen social security coverage (% of occupied workers with previous job)	29.7	45.7	0	1
Maintains full social security coverage (% of occupied workers with previous job)	32.6	46.9	0	1
Maintains only health or pension coverage (% of occupied workers with previous job)	0.8	8.7	0	1
Maintains no social security coverage (% of occupied workers with previous job)	23.0	42.1	0	1
Shocks (last 12 months)				
Number of shocks in the household	0.4	0.7	0	5
Number of serious shocks in the household	0.2	0.4	0	2
Number of economic shocks in the household	0.2	0.4	0	4
Valuation (between 1 [worst] and 5 [best])				
Average valuation of all social programs	3.9	0.5	1.5	5
Average valuation of social security programs	3.8	0.6	1	5
Average valuation of social programs other than social security	4.0	0.5	1	5

Source: ELS 2008

Notes: (1) Social benefits included in these statistics include holidays, service premiums, severance payments and family compensation funds' benefits.

(2) Reasons "obliging" salaried workers in job selection: i) it is the only job they have found; ii) they have no means to be independent. For self-employed workers: i) they can find nothing else since they lost their jobs; ii) it is the only job they have obtained; iii) employers consider them to be too young. Reasons denoting voluntary job selection for salaried workers: i) it offers greater benefits; ii) earns more as an employee; iii) self-employed work is unstable; iv) greater opportunities; v) less responsibility; vi) would be no good as self-employed; vii) negotiated job with the employer; viii) getting ready to become self-employed. For self-employed workers: i) earns more as self-employed than as an employee; ii) more flexible timetable; iii) greater stability or better future; iv) more options; v) wants to have own company; vi) wants to be own boss; vii) family tradition; viii) less responsibility; ix) accustomed to being self-employed; x) consider themselves to be too young or too old.

(3) Minimum basic monthly salary in Colombia at the time of the survey COP461,500 or US\$205.

(4) Complete social security refers to insurance for both health care and pensions.

(5) Shocks include grave illness or death of a household member; loss of money or assets caused by business failure; fall in income; loss of money due to robbery/assault/kidnapping/fraud; loss of dwelling due to flood/fire/natural disaster.

(6) Public social programs and/or services include: Subsidized Health Regime/ Contributive Health Regime, Pensions System, Families in Action, *Hogares Comunitarios* (Community Homes) *Desayunos Infantiles* (Children's Breakfasts) *Adulto Mayor*

(Elderly Adult), SENA Programs, Public Schools, Public Universities, Social Concern Housing, Family Credit Unions, *Programa de Acceso Microcrédito* (Microfinance Access Program), and the JUNTOS Network. The first three are the so-called social insurance programs.

Table A.1 shows that a significant proportion of Colombian workers voluntarily choose their employment category: 44 percent and 49 percent of the salaried and self-employed workers, respectively. It also shows that important occupational mobility asymmetries exist, with one-third of self-employed workers who were salaried workers in the previous job, but only 5 percent of salaried workers having moved from previous self-employment. Insurance transitions are also asymmetrical: amongst those workers who have changed their jobs (nearly 54 percent of those currently employed in the sample), only one third maintains complete social security, 13 percent have gained insurance and the rest, representing 54 percent of those who changed employment, saw their situation worsen or maintained only incomplete social security. The valuation of social programs, however, is high on average for all social programs, with few differences between the insurance programs (health care and pension, whether contributive, noncontributive or private) and the other programs of social protection and assistance.

Appendix 2. Reported Valuation of Social Programs in Colombia

Table 2.1 Valuation, knowledge and participation in selected social programs as % of workers who report the following categories

Program	How would you value the following programs:		How much do you know the following programs:		Do you or someone in your household participate?
	Very good/good	Don't know	Fairly well	Don't know	Yes
Pension system	44.5	37.0	29.0	71.0	24.6
Contributive health	59.7	10.6	56.7	43.3	61.7
Noncontributive health care program	60.3	13.5	43.8	56.2	40.4
Family Compensation Fund programs	54.1	37.5	60.3	69.7	26.3
ICBF (Hogares comunitarios)	56.5	32.7	29.2	70.8	10.5
ICBF (Desayunos infantiles)	55.4	38.4	27.4	72.6	14.3
SENA training programs	67.7	29.0	35.7	64.3	14.2
Familias en Acción	33.4	59.0	13.7	86.3	8.0

Source: Authors' estimates from ELS 2008

Note: As illustration, the interpretation of the first row in table is as follows: 44.5% of workers report to value as good or very good the pension system in Colombia; 29% of workers report to know it fairly well; and 24.6% report to participate in it.

Table 2.2 Valuation of social programs across selected characteristics of workers: % of those with the characteristic that report to value social programs as “good” or “very good”

Program	Do you know the program:		Occupation:		Social Security Affiliation:		
	Fairly well	A little	Salaried	Self-employed	Pension & Health	Only health	Neither
Pension system	70.9	70.4	68.6	69.4	67.3	68.6	71.0
Contributive health	69.4	63.3	67.2	65.9	67.6	67.2	65.8
Noncontributive health care program	76.2	63.1	70.0	68.7	68.4	63.5	70.8
Family Compensation Fund programs	91.5	82.3	87.9	82.8	87.6	82.6	85.0
ICBF (Hogares comunitarios)	86.7	81.9	84.9	82.8	84.8	77.4	84.3
ICBF (Desayunos infantiles)	92.0	88.3	90.5	90.5	90.8	91.0	89.7
SENA training programs	96.6	94.1	95.4	95.1	95.7	97.0	95.0
Familias en Acción	85.5	79.6	79.4	82.1	76.5	80.5	83.4

Source: Authors' estimates from ELS 2008

Note: As illustration, the interpretation of the first row in table is as follows: Of those who report to know the pension system fairly well, 70.9% report to value it as good or very good. Of those who report to know the pension system only a little, 70.4% value it as good or very good. Some 68.6% of salaried workers report to value the pension system as good or very good, while among self-employed workers, 69.4% do. Some 67.3%, 68.6% and 71% of those workers affiliated to pensions and health care, only to health and affiliated to neither of them report to value the pension system as good or very good, respectively.