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PAYROLL TAXES IN COLOMBIA

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Table of Contents

Preface and Acknowledgements

List of Tables

List of Figures

1. Introduction
2. The Labor Market Situation in Colombia in the 1990s
3. The Major Taxes on Payrolls and their Administration
 - 3.1. Cajas de Compensación
 - 3.2. Instituto Colombiano de Bienestar Familiar (the Colombian Institute for Family Welfare, or ICBF)
 - 3.3. Servico Nacional de Aprendizaje (the National Training Service, or SENA)
 - 3.4. Apprenticeship Programs
 - 3.5. Social Security
4. Some Effects of the Payroll Taxes
 - 4.1. The Incidence of the Parafiscales
 - 4.2. Erosion of Parafiscales Revenues
 - 4.3. Sectoral, Occupational, and Employment Effects of the Parafiscales
5. Conclusions

List of Tables

Table 1. Tax and Contribution Rates in Main Payroll Programs

Table 2. Tax Rates from Payroll Taxes and Social Security Contributions in Latin American Countries

Table 3. Tax Rates from Payroll Taxes and Social Security Contributions in OECD Countries

Table 4. Some Features of the Parafiscales

Table 5. Distribution of Cajas de Compensación Contributions, 2000

Table 6. Percent of Urban Workers Receiving Family Subsidies, 1997

Table 7. Wage and Total Income, by Formal and Informal Sector, 1998

Table 8. Some Effects of Payroll Tax Reform in a CGE Model

Table 9. Health Social Security Coverage in 10 Metropolitan Areas, 1994-2000

Table 10. Pension Social Security Coverage in 10 Metropolitan Areas, 1996-2000

List of Figures

Figure 1. Urban, Rural, and National Unemployment Rates, 1984-2001

Figure 2. Urban, Rural, and National Labor Force Participation Rates, 1984-2002

Figure 3. Index of Minimum, Qualified, and Total Real Wages for Seven Main Cities, 1991-1999

Figure 4. Growth of GDP versus Growth of “Informality” in Seven Main Cities

Figure 5. Indices of Total Collections of Parafiscales and Payroll Base, and Effective Tax Rate

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1. Introduction

Even aside from the individual income tax, the central government of Colombia imposes a variety of taxes on the wages of workers. Some of these taxes are more properly viewed as “contributions” because individuals are entitled to benefits, the size of which varies with their contributions. Some may also be seen as a way to force people to save for old age or for insurance against health problems and occupational injury. Several have all the features of a tax, but nevertheless do not go into the general revenues of the government and instead are used to finance government and non-government provision of training programs and social services. In total, these various payroll taxes constitute a significant additional burden on labor, a burden that many believe has had a substantial range of effects on such things as employment and unemployment. Because of this additional burden, many also believe that these payroll taxes are escaped via evasion and avoidance in significant amounts, in part by switching labor from the formal to the informal sectors of the Colombian economy, by switching compensation from taxed to untaxed forms, and by outright evasion.

This paper analyzes all of these payroll taxes, but focuses especially on what is called the *parafiscales*. The *parafiscales* are defined by Article 2 of Law 225 (1995) as “mandatory taxes established by law, which affect a certain and unique social or economic group and are used for the benefit of that same sector”. These quasi-fiscal contributions are imposed on the payrolls of employers, and are used to finance the *Instituto Colombiano de Bienestar Familiar* (the Colombian

Institute for Family Welfare, or ICBF), the *Servicio Nacional de Aprendizaje* (the National Training Service, or SENA), and the *Cajas de Compensación*. In total, collections from these parafiscales are substantial, amounting to over 1 percent of Gross Domestic Product (GDP). Several other of the major payroll taxes are briefly discussed, largely in order to give a more complete picture of the total amount by which the cost of labor is increased by these charges. These additional programs include apprenticeship programs (or the “Learning Quota”) and social security contributions for health, pensions, and professional risks.¹

The next section describes the Colombian labor market during the last decade, emphasizing the dramatic increase in unemployment over this period and discussing some possible reasons for this increase. The structural features of the main payroll taxes are then discussed, followed by an analysis of their likely effects. The final section presents some conclusions.

2. The Labor Market Situation in Colombia in the 1990s²

The Colombian economy experienced strong economic growth through the first half of the 1990s, with real GDP growth rates in excess of 5 percent in 1993, 1994, and 1995. During this time, the unemployment rate generally but somewhat erratically fell, and reached its lowest level in 1994, at around 7 percent (Figure 1). However, during the last 5 years of the decade economic growth slowed significantly. In 1999 real GDP rose by only 0.5 percent, and in 1999 the economy experienced its worst recession since the 1930s when real GDP fell by

4.3 percent. By the end of the decade, the unemployment rate in some urban areas exceeded 20 percent, and the national unemployment rate was around 17 percent.

The poor economic performance of the Colombian economy during the latter half of the 1990s is at least partly responsible for the increase in unemployment during this period. However, there is some evidence that the recession is not the only explanation (International Monetary Fund, 2001). Even during the economic boom of the early 1990s unemployment did not fall appreciably. Further, unemployment increased significantly even before the economic collapse of 1998 and 1999, and, in addition, the economic recovery that occurred in 2000 had little impact on the rate of unemployment. These considerations point to other, more structural aspects of labor markets as contributing factors to the high and stubborn rate of unemployment.

These structural aspects are difficult to identify, but likely include several factors as identified by the *Departamento Administrativo Nacional de Estadística* (DANE). For example, although unemployment rates increased significantly even for those with higher education and also among heads of families, unemployment tended to be highest among those with low levels of education between 15 and 30 years of age.³ Perhaps related to the increased unemployment rate of heads of families, the overall labor force participation rate in 2000 was 6 percentage points higher than in 1995 (Figure 2). Also, real labor costs (inclusive of all payroll taxes) generally rose during the 1990s, and did not decline until

2000 (Figure 3). Among contributing factors, the real minimum wage has increased by 8 percent since 1998, after a decade of little trend. Overall, the price of labor relative to capital more than doubled over the decade, despite the high and increasing levels of unemployment. Other factors for the high and increasing levels of unemployment include the continuing guerrilla war in Colombia and the economic struggles of neighboring countries.

Finally, and related to the increase in the price of labor, there were significant changes during the 1990s in the ways that labor was taxed, especially in the various payroll taxes imposed upon labor. It is this factor that is examined next.

3. The Major Taxes on Payrolls and their Administration

There are many taxes imposed on roughly the same base, the wage bill or payrolls of firms. These major taxes here include contributions for social security, an apprenticeship charge (or the Learning Quota), and the parafiscales; the latter are used to finance SENA, ICBF and the Cajas de Compensación. Some of the main features of these taxes are shown in Table 1. In particular, it is important to note that several of these taxes (e.g., those for social security) entitle the individual to benefits, the magnitude of which is tied somewhat to the level of contributions. However, the parafiscales do not have any individual-specific benefits linked to their payment, and instead finance programs that benefit a specific social or economic group. Overall, the parafiscales have the same

mandatory characteristics of taxes, but they are not incorporated in the public treasury. Each of these taxes is discussed in detail in López-Castaño (2002).⁴

In total, social security contributions were about 7 percent of GDP in 2000, an amount that represents a significant tax burden. The parafiscales themselves accounted for another 1.2 percent of GDP in 2000. It is important to note that the level of all of these taxes, including the additional taxes on payrolls represented by the parafiscales, is generally quite high in Colombia. Table 2 shows the rates of taxation in selected Latin American countries, as documented in the International Bulletin of Fiscal Documentation; Table 3 gives similar information for OECD countries.

This section discusses the major features of the parafiscales.

3.1. Cajas de Compensación

The Cajas de Compensación were created at the end of the fifties by entrepreneurs and workers with the objective of reducing the economic burden of the poorest workers, through monetary subsidies and in-kind services. In 1957, through Extraordinary Decree Number 118 the family subsidy was introduced as an obligation for every firm with more than 20 employees, with the Cajas de Compensación designated as the organization that would redistribute the resources collected for family subsidies; currently, all firms are required to contribute to the Cajas. In 1980 firms affiliated with the Cajas totaled 67 thousand, with 1.3 million affiliated workers; the 4 percent tax on payroll

represented 0.38 percent of GDP. There are currently 55 separate funds, operating in all departments in Colombia. In total, roughly 171,000 formal sector companies, with 3.3 million affiliated employees, pay 4 percent of their payroll to the Cajas de Compensación, and nearly 10 million people (nearly one-quarter of the total population of Colombia) receive or are eligible to receive benefits.

There are many and diverse organizations operating under the Cajas de Compensación umbrella. The funds were first conceived in 1948 and then formally established in 1957. In 1982 Law 21 dictated that the Cajas de Compensación were to be private, non-profit entities of private law, organized as corporations and supervised by the *Superintendencia de Subsidio Familiar*. The main function of the Cajas is to redistribute a portion of the payroll of the covered work force for the benefit of those workers affiliated with the specific caja who receive the lowest salaries (e.g., less than four times the minimum wage); in fact, the original intention of these funds was to collect contributions and to distribute them to the working beneficiaries. Over the years additional activities and programs have been added. Today the funds provide education, recreation, culture, tourism, health, and childhood programs, among many other things.

The distribution of the affiliated workers and the contributions between the different funds is varied. The three largest funds – *Colsubsidio*, *Comfama*, and *Cafam* – encompass 35 percent of the affiliated workers and collect 37 percent of the total contributions. There is also a group of 7 medium-sized funds, with 30 percent of the affiliated workers and 30 percent of the contributions. The 45

remaining funds cover 35 percent of the workers and collect 33 percent of the contributions. This distribution of employees and contributions largely reflects the regional concentration of the economic activity and the norms that regulate its activity at departmental level. For example, the 10 funds that operate in Cundinamarca, Bogota, and Boyacá have over one-fourth of the companies, two-fifths of the affiliated workers, and also two-fifths of the contributions; in contrast, the three funds in Antioquia have 15 percent of the companies, 16 percent of the workers, and 16 percent of the total contributions.

By economic activity, commerce and industry jointly covered 32 per cent of the workers and 41 per cent of the affiliated companies in 2000. Firms in community services have 32 per cent of the companies and 47 per cent of the workers; within this sector are subsectors covering education (8 per cent of the workers), health (12 per cent), and real estate activity (11 per cent). Nearly 95 per cent of the companies and 80 per cent of the affiliated workers belong to the private sector, with the remaining companies and workers in the public and mixed sectors. Indeed, one rationale for the formation of the Cajas was to extend to private sector workers the benefits that public sector workers were already receiving.

The funds provide several types of services to their beneficiaries. The division of the total contributions between these services is proscribed by law, and differs by the type of fund according to the fund's *cuociente*. The *cuociente* is a ratio that equals the total annual contributions received by a fund and divides it by

the annual average number of beneficiaries. The funds are classified according to the size of their cuociente, and funds within different classifications are required by law to spend specified percentages of the contributions on the different types of services.⁵ The 2000 distribution of these allocations across functions is shown in Table 5. The percent of urban workers who receive some form of benefit from these programs (in 1997) is given in Table 6. It is apparent that many urban workers, especially in the lower deciles of the income distribution, do not receive a subsidy. Instead, the bulk of the benefits are paid to higher income urban workers, which is to be expected given that higher income individuals in urban areas are more likely to work in firms that are members of the Cajas.

The most basic service is the provision of a monetary subsidy to low-income workers. The monetary subsidy is paid to workers (and their family members) with income less than 4 times the minimum wage. Nearly 53 per cent of the workers who are affiliated employees benefit from this subsidy, or 1,760,000 workers in 2000. The amount ranges between P7000 and P21,600 per beneficiary, depending on the financial capacity of the specific caja. In total, over P385 million was paid in 2000, and nearly P438 million was paid in 2001.

Each fund is also required to spend specified percentages of its contributions on social housing and health, as well as on various administrative functions (e.g., fund management, legal reserves, payment to the Superintendencia de Subsidio Familiar). Any remaining amounts can be used by the fund in a number of additional areas, as determined by the fund's board of

directors: education, recreation and sports, hotels, travel agencies, theaters, groceries, loans, special education for children, clinics, services for the elderly, and so on. For example, in 2000 there were 80 supermarkets, 44 warehouses, 80 drug stores, and 41 other facilities of various types (e.g., cafeterias, optical firms), totaling 460 units. It should be noted that some of these additional services are funded by the revenues of the commercial activity itself, and not by the parafiscales tax itself. In 2000 only one-third of the activities of the 55 cajas was financed with the 4 percent payroll tax. Although the funds enjoy considerable latitude in the provision of these other services, several rules must be followed, largely of an administrative nature.

In total, the Cajas de Compensación employ over 43,000 employees (31,456 permanent employees). The system has total assets of P34 trillion; the 10 largest funds control 75 per cent of the assets, and Cafam itself has 23 per cent of the total assets.

Several aspects of these services require emphasis. First, the major categories of fund expenditures are the monetary subsidy and social service delivery. Nevertheless, many of the activities of the funds compete directly with private sector firms, such as travel agencies, grocery stores, hotels, and recreation centers. Second, according to ASOCAJAS, an association of many of the major funds, there are no studies that evaluate the cost effectiveness of the Cajas service delivery. Although the Cajas de Compensación must report their activities to the Superintendencia de Subsidio Familiar, the Superintendencia is mainly

responsible for ensuring that the fund spends its contributions in accordance with legal requirements. The Superintendencia itself does not do any formal evaluations of cost effectiveness, and there are no other organizations that evaluate these services. Third, there is little direct supervision of the cajas. The Superintendencia does not monitor expenditures, and simply ensures that the caja spends its contributions in accordance with legal requirements.

With some exceptions, all firms with at least one permanent worker are required to collect the 4 percent tax for the Cajas de Compensación on the payroll of their entire labor force; exceptions include transitory workers (or those for whom employment does not exceed a month) and workers engaged in certain exempted lines of employment. The tax base is the same one used for social security (e.g., the annual basic wage excluding payments for transportation). For administrative reasons, the collection of all three of the parafiscales taxes is centralized in the funds specified in the Cajas de Compensación. Each firm collects the entire 9 percent parafiscales tax, and transmits these collections to a bank account in the name of its designated fund; this Cajas then retains the 4 percent tax on total wages for the family subsidy system managed by the Cajas, and redistributes the 2 percent tax to the national training service (SENA) and the 3 percent tax to the Colombian Institute for Family Welfare (ICBF). Note that Law 344 of 1994 specified that any bonuses or extralegal payments agreed between employer and employee are not to be considered as salaries and therefore do not enter into the base for the computation of parafiscales contributions; there

is some speculation that this change has led to a decline in parafiscales contributions. In addition, the growing use of contracts with honoraria or fees, which are exempt from parafiscales contributions, has also contributed to such deterioration, as has outright evasion of the parafiscales contributions.

3.2. Instituto Colombiano de Bienestar Familiar (the Colombian Institute for Family Welfare, or ICBF)

The *Instituto Colombiano de Bienestar Familiar* is a decentralized public establishment created in 1968 with the aim of providing protection to children and improving the welfare of the Colombian families (Article 53 of Law 75 of 1968). For financing the Institute, Law 27 of 1974 created a 2 percent contribution on the monthly payroll of private and public entities. With Law 89 of 1988, this contribution was increased by one point, to 3 percent of monthly payroll, the rate that is currently in force (Ayala et al., 2001). More generally, the broad legal framework for the provision of family services is Decree 2388 of Law 7 of 1979, which constituted the *Système National de Bienestar Familiar* (the National Family Welfare System, or SNBF), the Ministry of Health, the ICBF, the family compensation funds, departments and municipalities, and various other public and private institutions to provide family services, as coordinated by the ICBF. The activities of ICBF are financed by a 3 percent tax on payrolls of firms.

There are several major programs of the ICBF:

- daycare programs

- food programs for pregnant women
- school food programs
- aid to abandoned, abused, or at-risk children.

The daycare programs are provided in the homes of women selected and trained by the ICBF, typically in urban areas (or *Hogares comunitarios de bienestar*).

Participating daycare providers receive P150,000 per month (or 50 percent of the minimum wage) plus food for their families. These programs provide food and basic household needs for the children. In 2002, over 800,000 children received daycare in the program. Roughly half (48 percent) of participating mothers are actually unemployed; they place their children in the daycare programs largely for the food that is provided to the children. Families are required to pay a monthly charge that starts at P2000 per month and rises with income.

The programs for pregnant women provide food to the lactating mother and her children. In 2002 nearly 240,000 children participated; estimates are that another roughly 400,000 pregnant women also participated in the program. The school food programs provided breakfast and/or lunch to over 2.3 million children in 2002.

The final main program is aid to abandoned, abused, or at-risk children. Also included here are programs that provide assistance to children with physical or mental limitations, adoption programs, and programs that deal with family counseling and conflict resolution.

The ICBF reports a potential target population of 8,174,520 people for year 2001 for all of its programs of prevention. Of this total target population, 55 per cent are between 7 and 18 years old, mainly students; the remaining 45 per cent correspond to children between 0 and 7 years, including developed and suckling babies. The ICBF estimates that it serves 92 percent of the developed and suckling babies target population, 40 percent of all other children in the 0 to 7 years old population, and 49 percent of the 7 to 18 years old population. Overall, the ICBF believes that it is covering 50 percent of the target population (Morales, 2002). In total, there are over 5000 employees in the ICBF, located in 33 regional and 200 local ICBF offices.

It should be noted that there are few systematic evaluations of the cost effectiveness of ICBF programs, including the targeting of its programs, the quality of service provision, or the performance of the community daycare providers (Perotti, 2000). Studies that have been performed show no increase in the labor supply of women who participate in the daycare programs; others suggest that no more than half of the food targeted to children actually goes to the children, with the rest going to other family members. The National Department of Planning (2002) estimates that the cost per user in the ICBF could be reduced from its current level of P280,000 pesos to 230,000, with no appreciable impact on the quality of service provision.

3.3. Servicio Nacional de Aprendizaje (the National Training Service, or SENA)

The *Servicio Nacional de Aprendizaje* is a public institution under the supervision of the *Ministerio de Trabajo* (or the Ministry of Work). Its main function is to invest in social and technical development of the workers through various training programs of integral professional formation. For its financing, Decree 1042 of 1978 and Law 21 of 1982 established a 2 percent contribution on the monthly value of payroll of the productive sector, and a 0.5 percent tax on payroll for the public sector.⁶

SENA offers various training programs that are financed with the payroll tax of 2 percent. These programs fall into four main areas:

- professional training in short and long courses, especially for younger workers and for displaced workers
- enterprise development (e.g., diagnostic analysis of firm organizational problems)
- information systems (e.g., job placement information for workers, employment orientation programs for firms, general studies of unemployment and labor market patterns)
- assistance to firms for technological development, such as business “incubators”, technology centers, and quality insurance monitoring.

The major program is for professional training. Here, SENA has traditionally concentrated on providing training via “short courses” (e.g., those between 50 and 400 hours of training) and “long courses” (e.g., those lasting from 1 year or

more). Both types of courses are typically offered with no fee for participants. The short courses are directed mainly to technical skill development in such narrow areas as motor repair or hotel services. Most of these courses are offered in SENA facilities, although some of these short courses are provided in the firms rather than in SENA facilities. The short courses typically lead to a certificate that indicates completion of the course. The long courses have received increasing funding in recent years, in part because studies that indicate a greater social return for this type of training (Jimenez, Kugler, and Horn, 1986). In 1998 SENA enrolled about 97,000 students in long courses, with 53,000 in programs of qualified workers and 44,000 in technical and technological programs at the postsecondary level. In total, there were over 700,000 trainees in SENA facilities in 2002.

According to SENA officials and SENA annual reports, the total budget of SENA in 2002 exceeded P300 million, of which roughly 20 percent paid for purely administrative costs. Also, 55 percent of the budget went to professional training programs, 10 percent to enterprise development programs, 7 percent for information systems programs, and 6 percent for technological development programs. SENA capital expenditures were P5.2 million in 2002.

There are 7000 permanent SENA employees, most of whom are unionized, and another 5000 temporary or contract employees. According to SENA officials, the average pay of SENA instructors is generally higher than comparable private sector instructors.

As with the other parafiscales programs, it is important to note that there are few formal evaluations of the quality of the training programs or of the outcome of these programs, including no long-term tracking of SENA graduates. The evaluations that have been done indicate that SENA training does not increase the probability of employment; in fact, a study by SENA (1999) indicated that the unemployment rate among its graduates was substantially higher than the national average (19 percent versus 15 percent). Also, according to a study done by the National Planning Agency, the costs of training in SENA are typically 25 percent higher than comparable private sector training (19 per cent versus 15 per cent), and in the long courses the costs by student/semester were greater than the national averages for similar programs. The limited evidence on its distributional impact suggests the SENA training is used more heavily by higher income quintiles, according to attendance information. Perhaps because of these findings, the International Labor Office (2000) concluded that:

“With annual income in excess of US\$350 millions, 8,500 civil employees, 111 training centers, one of the highest rates of taxation of wages (2 per cent) in Latin America, and a cost per hour of instruction (US\$41 per hour) among the most elevated of the continent, SENA has been the object of critics and discussions from the beginning of the 1990s.... In summary [SENA suffers from] a problem of existence, quality, costs, and excessive centralization of the discussions with respect to what type of qualification is required and for whom. This indicates the necessity of a reform.”

3.4. Apprenticeship Programs

Although the central focus of this paper is on the parafiscales, it is worth discussing several other payroll taxes. One of these is the apprenticeship program (or Learning Quota), sometimes considered a parafiscales tax. Like SENA, the apprenticeship program is designed to address labor force training needs by financing a trainee's living expenses and giving the individual training in a specific field of practice.

The program was established by Decree 2838 of 1960 (Article 1), subsequently amended by Decree 2375 of 1974 (Article 6). All employers (except those in the construction sector) with capital above P100,000) or with 20 or more permanent workers are required to hire as apprentices a number of workers that is at least 5 percent of their total permanent workforce. The apprenticeship program therefore amounts to an effective tax of 5 percent on the payroll of firms.⁷

The training can occur at the company itself, at SENA, or at an authorized training organization. Individuals eligible for training must be at least 14 years old and must have completed primary education or have equivalent knowledge; the training period cannot exceed 3 years. After the training period, the company is not obligated to hire the apprentice. Decree 2375 of 1994 (Article 7) fixes the pay of the apprentice; initially, payment is 50 percent of the legal minimum wage for the same job, and is then increased up to 100 percent (including benefits) in the last stage of training.

SENA's National Board of Directors determines the specific jobs within a company, regulates each company's quota, and pre-selects the apprentices (with final approval by the company). The Board also has sanctioning power. Employers that do not fulfill their trainee quota are subject to monthly fines equivalent to 75 or 80 percent of the monthly legal minimum wage for each trainee not hired.

3.5. Social Security

Social security programs are also financed by taxes on payroll. All employers and their employees are required to contribute for health, pensions, and occupational risks (or worker's compensation).⁸ Employers contribute 8 percent of the employee's wage for health, 10.125 percent for pensions, and 2.0 percent for occupational risks; the corresponding employee contribution rates are 4 percent, 3.375 percent, and 0 percent. The total employer (employee) contribution rate is 20.125 (7.375) percent.

These payments fund a variety of employee benefits. In health, individuals and their families receive general health care, including surgical, maternity, and prescription benefits; there is a separate regime that provides subsidized health care for the poor. For pensions, Law 100 (1993) established a dual system. Individuals may elect to participate in a defined benefit system administered by the *Instituto de Seguro Social* (or ISS); alternatively, they may designate that their and their employer's contribution be paid into a specific

private pension fund for which pension benefits depend upon fund performance. In the ISS plan, workers receive benefits at age 55 for women and at 60 for men; in the private plan, the pension begins at age 57 (women) and 62 (men). For the most part, older workers have opted for the ISS plan, and younger workers have chosen the private plan. Worker's compensation is designed to "prevent, protect, and attend workers from the effects of diseases and accidents that they may suffer as a consequence of the job they carry out" (Decree 1295 of 1994). Any covered worker who experiences a work-related accident or illness may receive medical, surgical, therapeutical, and prescription benefits until complete recovery; the individual may also receive compensation for lost wages, including indemnity for temporary or permanent incapacity.

There were significant reforms to these programs in 1993, when the dual pension system was established and contribution rates were increased from 17.2 percent (12.8 percent on the employer and 4.4 percent on the employee) to the current rate of 27.5 percent. Despite these reforms, there is strong evidence that the current system of contributions and benefits is unsustainable. The urgency of this imbalance is well-recognized, and its correction will require actions to broaden participation in the system and to reduce the program's benefit cost. Reforms could reduce the number of private sector workers who are exempt from participating in the social security system, as well as the number of public sector workers who are granted "transitional" relief from participating in the system.

Reforms could also reduce benefit costs, such as changes in the age at which benefits become available and modifications to the benefit formulae.

4. Some Effects of the Payroll Taxes

This section examines some of the main effects of the payroll taxes, focusing especially on the parafiscales.

4.1. The Incidence of the Parafiscales

As noted above, the parafiscales generate substantial revenues, even if these revenues do not contribute to the general revenues of the government. Because these revenues must ultimately be paid by someone, the parafiscales have a significant impact on the distribution of income. This subsection analyzes the “incidence”, or the distributional effects, of the parafiscales, and attempts to answer the basic question: “Who bears the burden of the parafiscales?” It should be emphasized that it is only the incidence of taxes that is considered. Any benefits that may be received by individuals are ignored, in large part because of the absence of information on benefits.

Economists have devoted much attention to the question of tax incidence. Although there is wide agreement about the incidence of some taxes, such as excise or individual income taxes, the incidence of other taxes remains controversial. Several basic observations on tax incidence should be kept in mind in the discussion that follows. First, only individuals can bear the burden of a tax

(or a contribution). The employer's share of a payroll tax is clearly not paid by legal entity of the firm, but instead must be paid by its stockholders, workers, suppliers, or consumers of its product. Tax incidence attempts to find ways to assign the burden of a tax to these individuals. Second, and relatedly, there is a difference between who is legally responsible for paying a tax – its “statutory” incidence – and who ultimately bears the true burden of the tax – its “economic” incidence. For example, most recognize that an excise tax on cigarettes collected by retail stores is unlikely to be actually borne by the owners of the retail stores. Instead, the stores are likely to shift at least some of the tax to consumers. The relevance to the parafiscales is clear: employers who are legally responsible for collecting the taxes may not bear the true economic burden of the parafiscales.

Third, and perhaps most importantly, when a tax is imposed, individuals will adjust their behavior to reduce their tax liabilities, and those who are better able to adjust their behavior are better able to shift the tax burden to others. Workers may reduce their work effort or shift their labor to untaxed sectors to reduce their payroll tax burdens, firms may cut back on their hiring to decrease their payroll tax liabilities, and so on.

There are two issues here. The first is whether the incidence of a tax depends upon how the tax is collected, whether from the employer or the employee. It is widely accepted in economics that in competitive markets the incidence of a tax does not depend upon where the tax is statutorily levied; that is, a tax collected from an employer has the same economic effects as the same rate

tax collected from an employee. However, when markets are not competitive because of, for example, monopolistic business practices, employers may be able to pass on their share of a tax to consumers.

The second issue is the incidence of the (combined) tax. Here the conclusion is more unsettled. One school of thought asserts that labor bears the full burden of parafiscales tax rates, so that its after-tax income falls by the full amount of the taxes. Another school holds that labor is able to shift at least some of the tax to capital and to consumers. The crucial issue here is the degree of responsiveness of labor to a change in its wage, or its elasticity of labor supply. If labor is fixed in supply to the taxable sectors – or if its supply elasticity is zero – then labor will bear the full burden of the parafiscales. Conversely, the more responsive is labor to a wage change, the more will the tax burden be shifted elsewhere.⁹

Much, though not all, of the empirical work in developed countries concludes that labor supply is almost completely inelastic, so the usual assumption made is that labor bears the full burden of any payroll tax. However, estimates of the labor supply elasticity in Colombia suggest that labor supply is not completely inelastic (Kugler, 2001; Kugler, 2002; Kugler and Kugler, 2002). One possible channel of labor supply response is migration. Of greater importance is the fact that only labor in certain sectors of Colombia is taxed: labor can escape most of the parafiscales by moving to the untaxed or uncovered sectors, such as the informal sector or the self-employed sector. These avenues of

escape suggest that labor may be able to shift some of the parafiscales tax burden to other groups, even though the precise magnitude of the shifting is unknown.

Because of these considerations, the incidence of the parafiscales is examined using several different approaches. In a first, and somewhat informal, approach, we make alternative assumptions about the incidence of the parafiscales, and examine some suggestive information on the distribution of wage income across sectors. In a second approach, we utilize the computable general equilibrium model constructed by Rutherford, Light, and Barrera (2003) and calibrated to Colombian data in order to generate more precise estimates of the impact of various payroll tax reforms on the distribution of income.

4.1.1. The Incidence of the Parafiscales by Wage Income and Sector.

Consider the more informal approach first. Here we make two alternative assumptions about the incidence of the parafiscales. Under the first assumption, labor is assumed to bear the full burden of the parafiscales. This assumption implies that the statutory tax burden is the same as the economic burden; that is, there is no shifting of the tax burden from labor. It is made operational by examining the distribution of wage income (and the percent of wages in total income) for all workers in Colombia. The alternative assumption recognizes that labor is able to escape the tax by shifting to untaxed sectors and activities. Under this assumption, the incidence of the parafiscales by sectors is examined. In particular, it is assumed that only workers in the formal sector of the Colombian economy bear the burden of the payroll taxes, so that the distribution of wage

income (and the percent of wages in total income) is examined for workers in the formal sector alone.

Some information on wages is shown in Table 7, as reported by DANE for 1998. In the formal sector, wages as a percent of total income are roughly one-third for the lowest and highest decile, and the percent has some tendency to decline with total income, at least above the 4th decile. If one assumes that workers in the formal sector bear the burden of the parafiscales in proportion to their wage income, then the incidence of the payroll taxes is largely regressive. Table 7 also shows by decile the percent of wage income received by formal sector workers. For example, formal sector workers in the first decile receive as wages 13.2 percent of total formal and informal sector wage income of the decile; similarly, formal sector workers in the top decile receive 64.9 percent of total formal and informal sector wage income. There is a clear tendency for the percent of total wage income received by formal sector workers to increase with decile. This implies that the earlier pattern of payroll tax regressivity for formal sector workers is somewhat offset for all workers, formal and informal sector; that is, if we now assume that workers (or their employers) in the informal sector largely do not pay the payroll taxes, and if these workers tend to be concentrated in lower income deciles, then the parafiscales will be paid mainly by higher income, formal sector workers.

Note that even the alternative assumption – that only workers in the formal sector of the Colombian economy bear the burden of the payroll taxes – does not

allow for any shifting of the burden of payroll taxes via adjustments in wages and other prices. The existence of a sector to which resources may move to the payroll taxes means that these taxes drive a wedge between the returns to factors of production in the different sectors. For example, if labor is mobile between the formal and the informal sectors of the economy, then labor will move between these sectors until the net-of-tax return in the formal sector equals the untaxed return in the informal sector.¹⁰ This movement will affect the wages of labor in both sectors, raising wages in the formal sector as labor flows from this sector and reducing wages in the informal sector as labor moves into this sector. Fully identifying the impact of this factor movement requires a general equilibrium model of the Colombian economy. It is this approach this is considered next.

4.1.2. A Computable General Equilibrium Model of Colombia.

Rutherford, Light, and Barrera (2003) construct a computable general equilibrium (CGE) model of Colombia, using 1997 social accounts, and use this model to estimate the welfare costs of alternative tax changes. This model is used here to evaluate the distributional effects of several payroll tax reforms. In one reform, the existing payroll tax rate is increased by 25 percent; in a second reform all payroll taxes are replaced with a higher VAT tax rate that generates equal revenues. It should be noted that **payroll** taxes are viewed in the model as an ad valorem price increase on labor inputs to production; in contrast, **labor** taxes are also in the model, and are seen as an ad valorem tax that applies directly to an individual's wage and so reduces household income. If all sectors paid the same

payroll tax rate, then there would be no difference between payroll and labor taxes. However, Colombian social accounts data indicate that sectors do not pay the same payroll tax rate.¹¹ See Rutherford, Light, and Barrera (2003) for a complete discussion of their model.¹²

Table 8 shows the impacts of these tax reforms on household welfare. An increase in payroll tax rates has a progressive impact on the distribution of income, reducing the welfare of higher decile groups by a larger percentage than its impact on lower decile groups. This result occurs largely because employment in the informal sector is concentrated in lower income groups, so that these individuals do not pay much of any increase in payroll tax rates. This result is consistent with our earlier incidence conclusion where it was assumed that only workers in the formal sector bear the burden of payroll taxes. Table 8 also indicates that a replacement of payroll taxes with the VAT reduces welfare for all groups, but tends to reduce welfare by greater percentages for lower income deciles.

4.2. Erosion of Parafiscales Revenues

It is widely suspected that the existence of the payroll taxes gives an incentive for individuals to attempt to escape the payment of taxes. There are several avenues that are available to individuals. One avenue is to move from the formal sector to the untaxed, informal sector of the Colombian economy to escape legal payment of the taxes. Another legal avenue is to change the nature of

compensation from taxable forms (e.g., wages) to tax-exempt forms (e.g., bonuses, honoraria, fees). Still another avenue is outright evasion of the legally due payroll tax liability.¹³ Measuring the extent of this erosion via avoidance and evasion is obviously quite difficult.¹⁴ Attempts to infer the extent of erosion, mainly from the movement of employment from the formal to the informal sector, are discussed in detail by López-Castaño (2002).

Some preliminary evidence indicates that the degree of “informality” in employment (e.g., for the most part employment in firms with small numbers of employees, fewer than 10) is countercyclical (Figure 4); that is, the decline in GDP growth rates that occurred in the last half of the 1990s led to an increase in employment in the informal sector. This finding suggests that one cost of the growth in informal employment is the loss of importance of the wage-earning employment (mainly the one generated by companies of more than 10 workers), and the consequent loss in parafiscales tax revenues. Put differently, workers in the formal sector are able to avoid the burden of the parafiscales by shifting sectors of employment. Further evidence of such sector shifts from the parafiscales is discussed in the section on reforms.

Figure 5 shows the evolution of the collection of the parafiscales in Colombia. Measured in units relative to thousands of the monthly minimum wage, the real collection of the parafiscales rose considerably between 1995 and 1998, and then fell through 2000 before rising slightly again in 2001. This behavior reveals the impact of two factors that move in opposite directions:

- the base of the tax – the annual national wage-earning payroll – is strongly procyclical;
- the effective rate of taxation – collections relative to the payroll base – is countercyclical.

Recall that the statutory tax rate of the parafiscales is 9 percent. Consequently, one measure of the amount of erosion in the parafiscales is the difference between the statutory tax rate of 9 percent and the effective tax rate of Figure 5. By these estimates, erosion in 1995 was 3.6 percentage points (or the 9 percent statutory tax rate less the 5.4 percent effective tax rate); in 2001 it was only 2.6 percentage points. Consequently, erosion of the parafiscales was reduced from 40 percent in 1995 (or $3.6/9$) to 29 percent in 2001.

Indeed, by this measure erosion of the parafiscales does not seem very high. Other estimates are less comforting. For example, in November 2001 SENA reported 127,288 contributing companies at the national level, a number that represents only 24 percent of the 532,413 companies affiliated in that year with the *Confecámaras*, or the Chambers of Commerce of Colombia. However, the SENA approach is somewhat misleading because 81 percent of the companies are micro-firms, which totaled 432,269 according to the *Confecámaras*. Such firms are unlikely to be liable for the parafiscales taxes, and, even if liable, they have a very small amount of the total national payroll.

Some additional indications of the extent of payroll tax erosion are given in Tables 9 and 10, which show the coverage rate (or the fraction of workers

affiliated with a social security program) in ten metropolitan areas for health (Table 9) and for pensions (Table 10). For both programs, the coverage rate is lower, and the corresponding estimated erosion rate is higher, for workers in small firms, for self-employed workers, and for all workers in the informal sector. For example, in 2000 only 38.4 percent of workers in small firms are covered by health plans, and only 23.1 percent are in pension plans. Coverage rates for workers in the informal sector are even lower. It is therefore clear that many firms, especially the smaller ones, escape health and pension obligations. On the assumption that these firms similarly escape their parafiscales obligations, erosion of the parafiscales is also quite large.

4.3. Sectoral, Occupational, and Employment Effects of the Parafiscales

In order to quantify the sectoral, occupational, and employment effects of the parafiscales at a more disaggregated level than available in the Rutherford, Light, and Barrera (2003) model, López-Castaño (2002) utilizes a different formulation of a CGE model of the Colombian economy. He divides the economy into four sectors: farming, urban/informal, urban/unskilled, and urban/skilled. He assumes that the payroll taxes do not have a direct impact on either the informal sector (29 percent of the labor force in 1999) or the farming sector (22 percent of the labor force); rather the taxes affect only non-farming wage earners (skilled and unskilled), or the remaining 49 percent of the Colombian labor force. Labor demands are specified with both fixed coefficients

(e.g., government services) and CES production functions. He calibrates the model with data from the 1999 social accounting matrix for Colombia.

López-Castaño (2002) examines several scenarios:

- 1) an increase (for non-farming skilled and unskilled workers) of 2 percentage points in the parafiscales tax rate, to be used to finance pension reforms;
- 2) an increase of the parafiscales applied exclusively on skilled workers, calculated in such a way as to generate the same revenue as in the previous case;
- 3) the abolition of the contributions to the Cajas de Compensación (4 percent), to the SENA (2 percent), and to the ICBF (3 percent), financed by an increase in the fiscal deficit;
- 4) the abolition of the contributions to the Cajas de Compensación, to the SENA, and to the ICBF, financed by an increase in the value-added tax; and
- 5) the abolition of the contributions to the Cajas de Compensación, to the SENA, and to the ICBF, financed by an increase in company income tax.

He presents estimates of the effects of these reforms on total employment, the unemployment rate, GDP, the external sector, and the overall fiscal deficit.

Perhaps of most interest are the first, third, and fifth scenarios. In the first case (or an increase in the parafiscales tax rate of 2 percentage points), there is a loss of 52,000 jobs and a corresponding increase in the national unemployment

rate from the benchmark rate of 17.6 percent to 17.9 percent. The main effects are felt in the unskilled labor force, where 33,000 jobs are lost, and in the urban labor market, as workers move into the informal sector. Also, GDP falls slightly by 0.5 percent, the volume of imports and exports also falls slightly, and fiscal deficit declines from 4.8 percent to 4.7 percent of GDP.

In contrast, changes in the way that parafiscales are financed (e.g., by deficit or by an income tax surcharge) have larger effects, especially on employment. Assuming that savings determine investment, then elimination of the 9 percent parafiscales tax rate, with the programs financed by an increase in the deficit (from 4.8 percent to 5.9 percent of GDP), increases employment by 115,000 but has virtually no impact on GDP. If instead the parafiscales are financed by an increase in the company income tax rate from 35 percent to 42.7 percent, then employment increases by 126,000 and GDP rises by 0.5 percent. Even in these cases, however, the overall effects are relatively modest.¹⁵

5. Conclusions

There are several major conclusions from this study. **First**, it is clear that the parafiscales should properly be seen as a tax, just like other taxes whose revenues contribute to the general fund of the government. In this perspective:

- the parafiscales tax rates are high;
- they are distorting, especially between sectors;
- they are costly and cumbersome to comply with;

- they are escaped by legal and illegal avenues, and
- they raise unemployment.

Second, the programs financed by the parafiscales – the SENA, the ICBF, and the Cajas de Compensación – are:

- doing some things that are appropriate for government, especially given the high levels of unemployment and the delivery of social services in Colombia (e.g., the provision of training by the SENA, the provision of social and welfare services by the ICBF and the Cajas de Compensación);
- doing some things that are inappropriate for government (e.g., the direct competition between the Cajas de Compensación and the private sector in the provision of services like recreation and sports, travel agencies, theaters, supermarkets, and the like, and the ICBF provision of income subsidies financed by a tax that discourages employment);
- doing some things with uncertain efficiency, given the almost complete lack of evaluation and the absence of competition (e.g., the significantly higher cost of training in SENA than comparable training in the private sector); and
- doing some things with virtually no accountability, given a general lack of oversight.

These findings suggest several avenues of reform of the parafiscales.

A first set relates to the programs financed by the taxes, in SENA, ICBF, and the Cajas de Compensación:

- Programs currently financed by the parafiscales should be subjected to thorough evaluation.
- If found to be productive, the programs should be continued, conditional upon improving accountability.
- If found to be unproductive, programs should be eliminated or reformed.
- Accountability of the programs must be improved via greater oversight.

Note that elimination of some programs would allow a general rate reduction of the parafiscales tax rates.

As for the parafiscales themselves, a second set of reforms focuses on the taxes:

- The elimination (or reform) of some programs currently financed by the parafiscales would allow a reduction in the parafiscales tax rates. For example, moving some of the training programs currently in the SENA to the private sector would likely allow a reduction in the parafiscales SENA tax rate from 2 to 1 percent. Also, the Cajas de Compensación are currently providing some services that are in direct competition with the private sector.

Eliminating these programs would likely allow a reduction in the parafiscales tax rate for the Cajas from 4 to 2 percent.

- Consideration should be given for the use of presumptive methods of taxation for currently uncovered workers.
- Consideration should be given to complete elimination of the 9 percent parafiscales tax rates, with funding for the programs currently financed by the 9 percent tax on payrolls replaced by general tax funds.

In addition, broadening the tax base via administrative improvements that increase compliance would allow parafiscales tax rates to be reduced.

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Table 1. Tax and Contribution Rates in Main Payroll Programs

Program	Rate on Employer (percent)	Rate on Employee (percent)	Total Rate (percent)	Individual-benefit?
1. Social Security Contributions				
Health	8.0	4.0	12.0	Yes
Pensions	10.125	3.375	13.5	Yes
Professional Risks	2.0	0	2.0	Yes
Total: Social Security Contributions	20.125	7.375	27.5	---
2. Parafiscales				
SENA	2.0	0	2.0	No
ICBF	3.0	0	3.0	No
Cajas de Compensación	4.0	0	4.0	No
Total: Parafiscales	9.0	0	9.0	---
3. Learning Quota				
	5.0	0	5.0	No
TOTAL: All Programs	34.125	7.375	41.5	---

Table 2. Tax Rates from Payroll Taxes and Social Security Contributions in Latin America Countries

Country	Total Tax Rate (A) = (B)+(C)	Payroll Tax Rate (Other than SSC) (B)	Total Social Security Contribution (SSC) Rates (C) = (D)+(E)	Social Security Charges to Employers (D)	Social Security Charges to Employees (E)
Argentina	38% - 42%	0%	38% - 42%	21% - 25%	17%
Brasil	19.15% - 22.8%	8.5%	10.75% - 14.3%	3.1% - 3.3%	7.65% - 11%
Colombia	36.5%	9%	27.50%	20.125%	7.375%
Costa Rica	32%	0%	32%	23%	9%
Chile	20.05% - 20.55%	0.05%	20.04% - 20.5%	0.95%	19.09% - 19.55%
Ecuador	21.5%	1%	20.5%	11.15%	9.35%
El Salvador	19%	5.5%	13.5%	9.5%	4%
Guatemala	11.5% - 14.5%	0%	11.5% - 14.5%	9% - 10%	2.5% - 4.5%
Honduras	15%	1%	14%	7%	3.5%
Mexico	42.29% - 44.92%	6% - 8%	36.92%	30.19%	6.73%
Nicaragua	15.25% - 23.5%	2%	13.25% - 21.50%	9% - 15%	4.25% - 6.25%
Panamá	21.31% - 26.35%	2.75%	18.56% - 23.6%	11.31% - 16.35%	7.25%
Peru	24.53% - 25.55%	2%	22.53% - 23.55%	9.53% - 10.55%	13%
Venezuela	24.17% - 27.17%	2.5% - 4.5%	21.67% - 22.67%	15.42% - 16.17%	6.25% - 6.5%

Source: International Bureau of Fiscal Documentation (IBFD), various issues. All

contributions are computed as a percentage of the employee's salary.

Table 3. Tax Rates from Payroll Taxes and Social Security Contributions in OECD Countries

Country	Total Tax Rate (A) = (B)+(C)	Payroll Tax Rate (Other than SSC) (B)	Total Social Security Contribution (SSC) Rates (C) = (D)+(E)	Social Security Charges to Employers (D)	Social Security Charges to Employees (E)
Australia	Up to 7%	Up to 7%	0%	0%	0%
Austria	29.15% - 29.3%	7.5%	21.65% - 21.8	21.65% - 21.8	NA
Belgium	32.89% - 48.66%	0%	32.89% - 48.66	32.89% - 48.66	NA
Canada	% Rate Varies	1% - 4.5%	% Rate Varies	% Rate Varies	NA
Denmark	0%	0%	0%	0%	0%
Finland	26.4% - 28.4%	0%	26.4% - 28.4%	20.1% - 22.1%	6.3%
France	42.25% - 64.63%	4.25% -13.60%	38% - 51.03%	38% - 51.03%	NA
Germany	40.8%	0%	40.8%	20.4%	20.4%
Greece	43.86% - 54.36%	0%	43.86% - 54.36%	27.96% - 34.96%	15.90% -19.40%
Ireland	18%	0%	18%	12%	6%
Italy	36% - 42%	0%	36% - 42%	32% - 36%	4% - 6%
Mexico	42.92% - 44.92%	6% - 8%	36.92%	30.19%	6.73%
Netherlands	25.31%	0%	25.31%	18.66%	6.65%
Norway	26.6%	0%	26.6%	26.6%	NA
Portugal	23.75%	0%	23.75%	23.75%	0%
Spain	37.15% – 37.2%	0%	37.15% - 37.2%	30.8%	6.35% - 6.4%
Sweden	81.34%	48.52%	32.82%	32.82%	0%
Switzerland	13.1%	0%	13.1%	6.55%	6.55%
Turkey	55.5% - 61%	0%	55.5% - 61%	32.5% - 38%	23%
United Kingdom	0% - 23.6%	0%	0% - 23.6%	0% - 11.8%	0% - 11.8%
United States	15.3%	0%	15.3%	7.65%	7.65%

Source: International Bureau of Fiscal Documentation (IBFD), various issues. All

contributions are computed as a percentage of the employee's salary.

Table 4. Some Features of the Parafiscales

Institution	Relevant History and Laws	Percent Tax	Uses of Revenues
<i>Cajas de Compensación</i>	<ul style="list-style-type: none"> In 1957 through Extraordinary Decree 118 the family subsidy was established as an obligation for every firm with more than 20 employees; it was also established that the <i>Cajas de Compensación</i> would be the re-distributors of the contributions for this system. In 1982 Law 21 dictated that the <i>Cajas de Compensación</i> are non-profit entities of private law, organized as corporations and under the control and vigilance of the State. 	4%	To reduce the economic burden of the poorest workers, through subsidies given in money, in kind, and in services
<i>Instituto Colombiano de Bienestar Familiar</i> (ICBF, or Institute	<ul style="list-style-type: none"> Article 53 of Law 75 of 1968 created a decentralized public establishment (ICBF) with the aim of providing protection for children and improving the welfare of Colombian families. For financing this Institute, Law 27 of 1974 created a 2% 	3%	To provide protection for children and to improve the welfare of the Colombian

for Colombian Family Welfare)	<ul style="list-style-type: none"> contribution on monthly payroll of private and public entities. Law 89 of 1988 increased this contribution to 3% of the monthly payroll, a rate that is currently in force. 		families
<i>Servicio Nacional de Aprendizaje</i> (SENA, or National Training Service)	<ul style="list-style-type: none"> SENA is a public establishment attached to the <i>Ministerio de Trabajo</i> (Ministry of Work). To finance SENa, Decree 1042 of 1978 and Law 21 of 1982 established a 2% contribution on the monthly payroll of the productive sector and of 0.5% for the public sector. 	2% for the productive sector 0.5% for the public sector	To invest in social and technical development of the workers through programs of integral professional formation

Table 5. Distribution of Cajas de Compensación Contributions, 2000

Uses	Thousands of Pesos	Percent of Total Contributions	Points of 4% Parafiscales Tax Rate
Social Housing	161,219,392	14.1%	0.56
Health	79,780,556	7.0	0.28
Fund Management	109,820,747	9.6	0.38
Legal Reserve	1,772,636	0.2	0.01
Payment to Superintendencia	89,862,265	7.9	0.31
Education	31,527,832	2.8	0.11
Social Services	283,750,486	24.8	0.99
Monetary Subsidy	385,340,167	33.7	1.35
TOTAL	1,143,074,081	100.0%	4%

Source: Superintendencia de Subsidio Familiar.

Table 6. Percent of Urban Workers Receiving Family Subsidies, 1997

Decile	Workers			Workers with Some Right to Family Subsidies		For Workers Receiving Family Subsidies			
	Average Monthly Income (in Legal Minimum Wages)	Total Number of Workers	Distribution between Nonsalaried and Salaried Workers		Nonsalaried Workers (percent)	Salaried Workers (percent)	Nonsalaried Workers Receiving Subsidies (percent)	Salaried Workers Receiving Subsidies (percent)	Distribution of Total Monthly Subsidy Amount (percent)
			Nonsalaried Workers (percent)	Salaried Workers (percent)					
1	0.01	518,440	99.2%	0.8%	0.5%	58.2%	0.0%	0.0%	0.0%
2	0.48	525,158	73.1	26.9	2.8	10.3	0.8	3.1	0.7
3	0.95	522,730	49.4	50.6	13.3	26.3	2.4	4.7	1.0
4	1.25	522,381	33.4	66.6	45.4	68.2	13.0	19.5	7.1
5	1.56	521,379	43.5	56.5	38.3	67.9	14.0	24.8	9.2
6	1.90	522,728	50.5	49.5	36.8	74.4	18.7	37.8	11.5
7	2.49	521,341	39.7	60.3	49.9	82.8	25.9	42.9	15.6
8	3.37	520,230	38.0	62.0	52.9	85.3	30.6	49.4	20.6
9	5.05	524,843	40.1	59.9	55.7	92.9	21.7	36.2	23.8
10	15.42	522,889	33.9	66.1	62.7	94.8	10.4	15.7	10.6

TOTAL	3.25	5,222,119	50.0	50.0	35.8	71.7	13.7	27.5	100.0
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Source: Quality of Life Survey (1997). Salaried workers include workers in the public and private sectors, and nonsalaried workers include the self-employed, domestic servants, and employers.

Table 7. Wage and Total Income, by Formal and Informal Sector, 1998

Income Decile	Formal Sector Workers Only			Percent of Total Formal and Informal Sector Wage Income Received by Formal Sector Workers
	Wage Income (in millions of pesos)	Total Income (in millions of pesos)	Wage Income as Percent of Total Income	
1	20,487	60,764	33.7%	13.2%
2	129,260	223,994	57.7	27.4
3	174,680	304,551	57.4	30.3
4	241,862	402,653	60.1	36.7
5	282,915	489,758	57.8	39.1
6	324,009	616,253	52.6	44.9
7	407,923	790,377	51.6	49.4
8	490,931	977,198	50.2	48.9
9	693,285	1,496,482	46.3	59.1
10	1,303,002	3,716,949	35.1	64.9
TOTAL	4,068,354	9,078,979	44.8	41.4

Source: DANE.

Table 8. Some Effects of Payroll Tax Reform in a CGE Model

Household Welfare Decile	Impact on Household Welfare	
	25 Percent Payroll Tax Increase (as percent of welfare)	Replacement of Payroll Taxes with VAT (as percent of welfare)
1	-12%	-30%
2	-16	-19
3	-18	-11
4	-18	-13
5	-20	-8
6	-18	-17
7	-20	-13
8	-21	-15
9	-21	-12

10	-26	-8
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Source: Computations from Rutherford, Light, and Barrera (2003).

Table 9. Health Social Security Coverage in 10 Metropolitan Areas, 1994-2000

Type of Employment	Distribution of Employment				Health Coverage Rate								Estimated Erosion Rate, 2000	
					By Fraction of Employment				By Fraction of Payroll				By Employment	By Payroll
	1994	1996	1998	2000	1994	1996	1998	2000	1994	1996	1998	2000		
A. Wage Earners	0.631	0.636	0.594	0.542	0.705	0.710	0.726	0.698	0.799	0.807	0.828	0.803	0.302	0.197
1. Small Firms	0.200	0.205	0.192	0.188	0.417	0.420	0.443	0.384	0.495	0.478	0.560	0.434	0.616	0.566
2. Medium/Large Firms	0.346	0.348	0.315	0.283	0.809	0.825	0.838	0.845	0.858	0.876	0.876	0.890	0.155	0.110
3. Government	0.086	0.083	0.087	0.070	0.958	0.944	0.943	0.951	0.973	0.963	0.955	0.973	0.049	0.027
B. Independent	0.309	0.313	0.341	0.385	0.183	0.271	0.204	0.210	0.443	0.541	0.420	0.467	0.790	0.533
1. Self-employed	0.238	0.255	0.277	0.326	0.135	0.226	0.155	0.159	0.253	0.363	0.282	0.305	0.841	0.695
a. Informal	0.217	0.236	0.253	0.300	0.114	0.203	0.137	0.142	0.179	0.285	0.219	0.260	0.858	0.740
b. Professional/Technical	0.020	0.019	0.024	0.026	0.358	0.500	0.344	0.365	0.455	0.659	0.456	0.492	0.635	0.508
2. Patrons	0.071	0.058	0.065	0.059	0.344	0.470	0.413	0.491	0.638	0.762	0.613	0.699	0.509	0.301
a. Small Firms	0.062	0.051	0.057	0.052	0.292	0.425	0.377	0.458	0.495	0.643	0.523	0.659	0.542	0.341
b. Medium/Large Firms	0.010	0.007	0.008	0.007	0.676	0.783	0.678	0.739	0.886	0.949	0.835	0.833	0.261	0.167
C. Other Employment	0.056	0.047	0.060	0.068	0.198	0.254	0.268	0.258	0.267	0.344	0.391	0.406	0.742	0.594
TOTAL	1.000	1.000	1.000	1.000	0.513	0.549	0.517	0.477	0.631	0.697	0.675	0.675	0.523	0.325
1. Formal Sector	0.461	0.458	0.433	0.386	0.814	0.832	0.829	0.831	0.846	0.887	0.854	0.877	0.169	0.123
2. Informal Sector	0.535	0.539	0.562	0.609	0.257	0.311	0.280	0.257	0.373	0.437	0.415	0.425	0.743	0.575
3. Did Not Report	0.004	0.003	0.005	0.005	0.036	0.033	0.055	0.044	0.016	0.038	0.127	0.068	0.956	0.932

Source: DANE, Quarterly Household Survey (June). Question 25A in the survey

asks “Because of your work, are you affiliated with a health social security entity?” with alternative answers yes, no, does not know, or does not report.

Using this question, the health system’s coverage rate is estimated by the percent of workers covered by the health system and by the percent of payroll covered by the health system; the latter is calculated by dividing the covered payroll (or covered employment times the average wage of covered employees) by the total payroll (or total employment times total average wage).

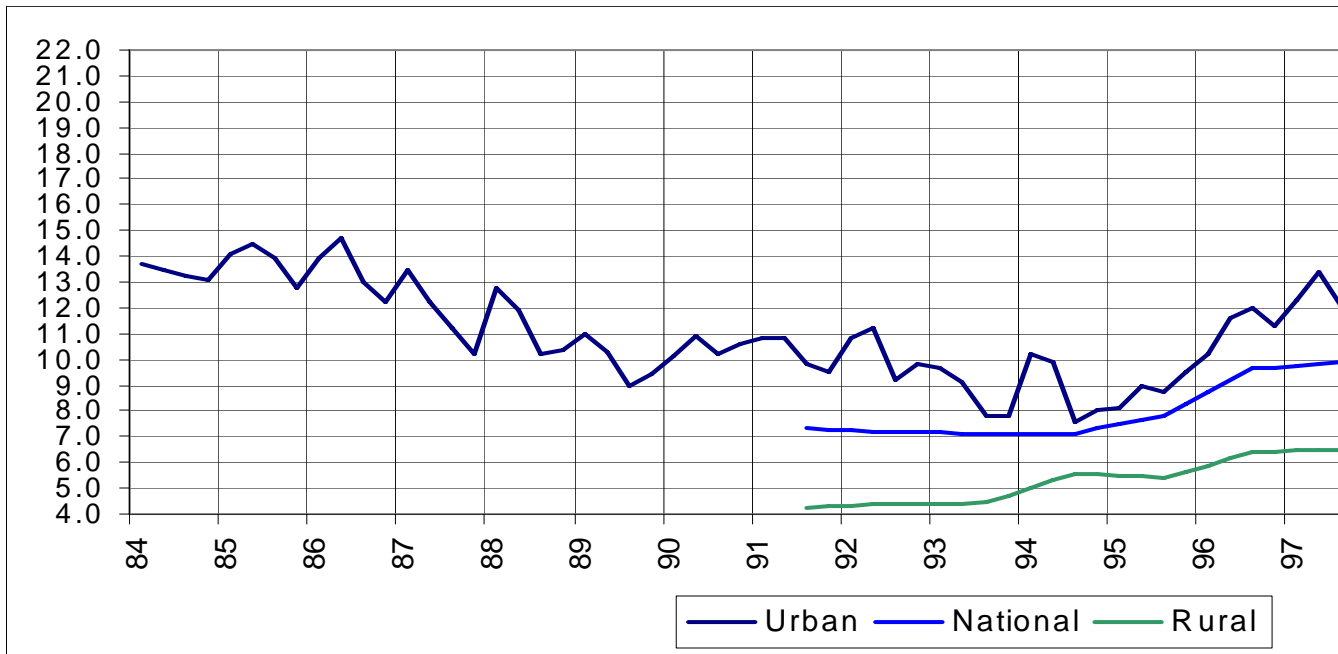
Table 10. Pension Social Security Coverage in 10 Metropolitan Areas, 1996-2000

Type of Employment	Pension Coverage Rate						Estimated Erosion Rate, 2000	
	By Fraction of Employment			By Fraction of Payroll			By Employment	By Payroll
	1996	1998	2000	1996	1998	2000		
A. Wage Earners	0.533	0.594	0.566	0.655	0.733	0.700	0.434	0.300
1. Small Firms	0.251	0.280	0.231	0.284	0.405	0.286	0.769	0.714
2. Medium/Large Firms	0.633	0.706	0.715	0.720	0.780	0.788	0.285	0.212
3. Government	0.803	0.874	0.868	0.861	0.917	0.913	0.132	0.087
B. Independent	0.135	0.122	0.102	0.267	0.285	0.298	0.898	0.702
1. Self-employed	0.102	0.090	0.068	0.185	0.169	0.162	0.932	0.838
a. Informal	0.085	0.076	0.055	0.142	0.118	0.131	0.945	0.869
b. Professional/Technical	0.308	0.240	0.224	0.356	0.327	0.297	0.776	0.703
2. Patrons	0.279	0.261	0.289	0.371	0.448	0.494	0.711	0.506
a. Small Firms	0.242	0.217	0.246	0.401	0.336	0.444	0.754	0.556
b. Medium/Large Firms	0.526	0.585	0.620	0.288	0.723	0.654	0.380	0.346
C. Other Employment	0.101	0.139	0.121	0.132	0.219	0.192	0.879	0.808
TOTAL	0.385	0.401	0.351	0.501	0.564	0.547	0.649	0.453
1. Formal Sector	0.649	0.712	0.709	0.669	0.767	0.776	0.291	0.224
2. Informal Sector	0.164	0.166	0.132	0.250	0.270	0.262	0.868	0.738
3. Did Not Report	0.033	0.016	0.005	0.038	0.004	0.005	0.995	0.995

Source: DANE, Quarterly Household Survey (June). Question 25B in the June

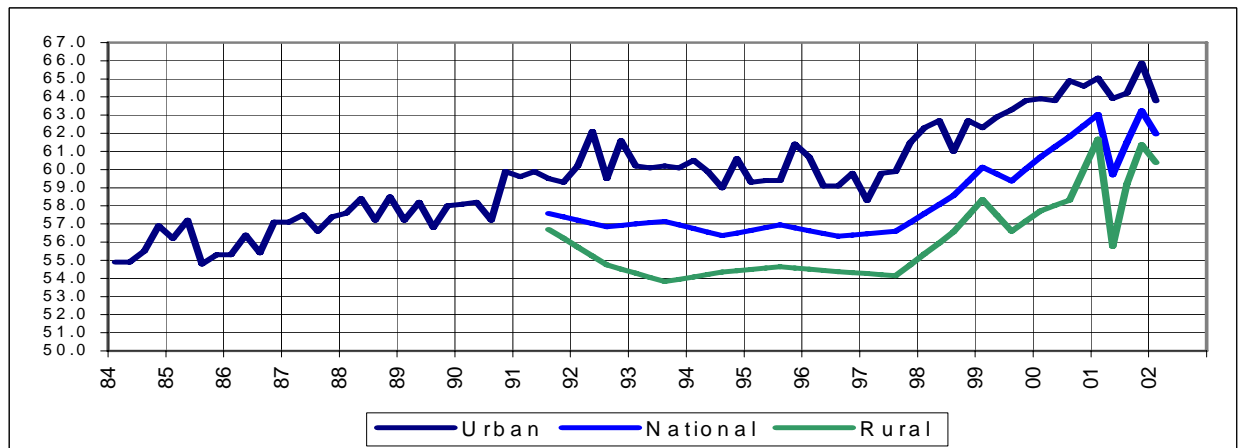
survey asks “Because of your work, are you affiliated with a pension social security entity?” with alternative answers yes, no, does not know, or does not report. Using this question, the pension system’s coverage rate is estimated by the percent of workers covered by the pension system and by the percent of payroll covered by the pension system; the latter is calculated by dividing the covered payroll (or covered employment times the average wage of covered employees) by the total payroll (or total employment times total average wage).

Figure 1. Urban, Rural, and National Unemployment Rates, 1984-2001



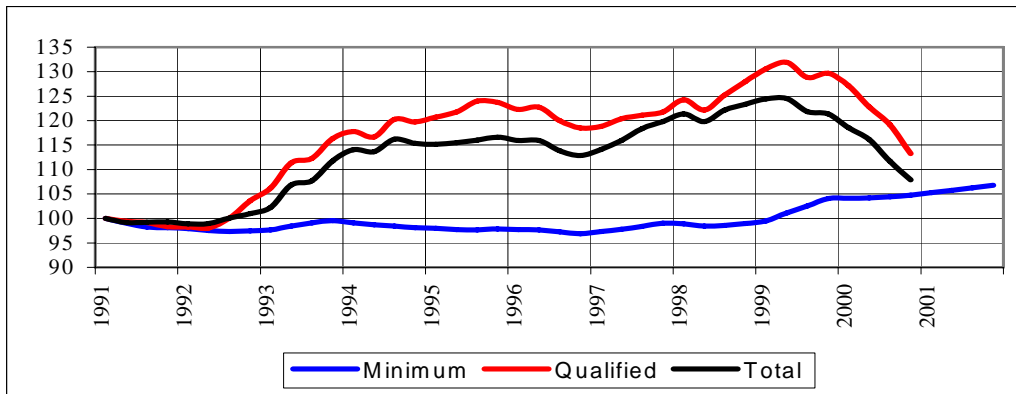
Source: DANE.

Figure 2. Urban, Rural, and National Labor Force Participation Rates, 1984-2002



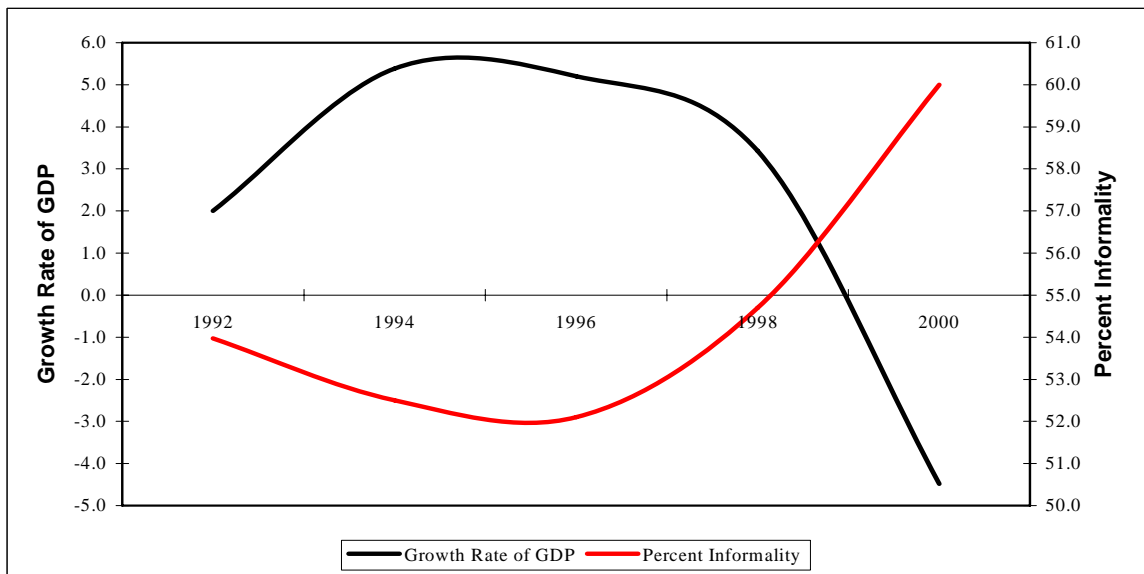
Source: DANE.

Figure 3. Index of Minimum, Qualified, and Total Real Wages for Seven Main Cities 1991-1999^a



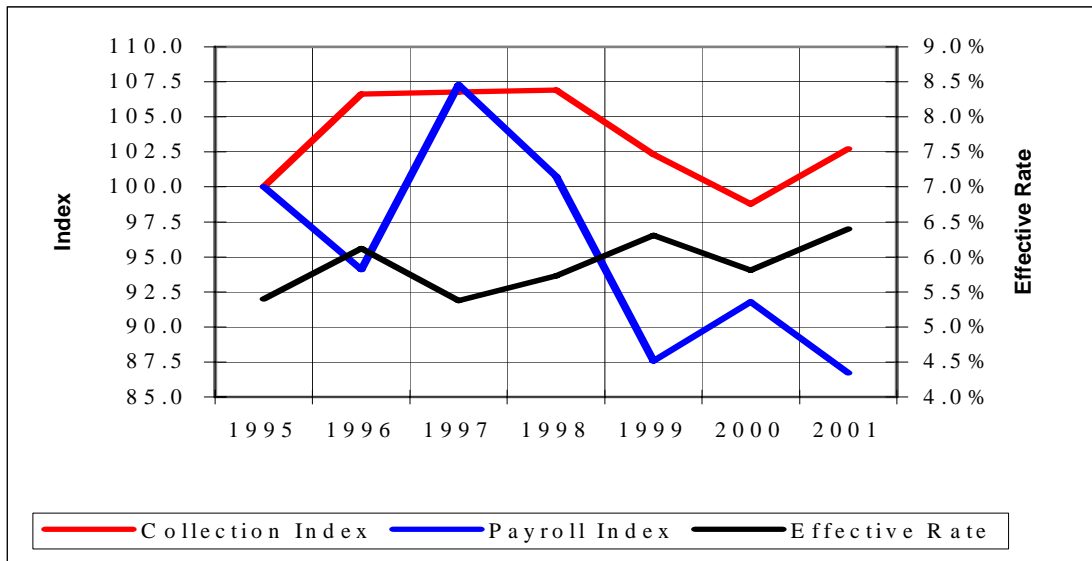
Source: DANE, Surveys of Homes. The wages are the average labor income in the seven main cities. The qualified wage corresponds to people with superior education (completed or incompleted). All series are deflated by the consumer price index with base March 1991=100.

Figure 4. Growth of the GDP versus Growth of “Informality” in Seven Cities



Source. DANE, National Surveys of Homes and National Accounts.

Figure 5. Indices of Total Collections of Parafiscales and Payroll Base and Effective Tax Rate



SSources: For the Collection Index, SENA, ICBF, Ministry of Work and Health, Supersubsidy, and “Asofondos”; for the Payroll Index, DANE and National Surveys of Homes (September). The Collection Index (Base 1995=100) is constructed expressing the collection in thousands of minimum wages. The Payroll Index (Base 1995=100) is estimated by multiplying the wage-earning employment (for urban areas, workers and government employees; for rural areas, working-day laborers and government employees) by the monthly average wage of each category and by 12 months. The Effective Rate of Collection of the parafiscales equals the Collection Index divided by the Payroll Index.

Endnotes

¹ There are also some additional programs in which taxes are withheld from individual wages and are then returned to the individual, either at some point during the year or at the request of the individual. A form of unemployment insurance (or *Cesantias*) is financed via an effective tax rate of 10.31 percent on the wages of the worker; the amount withheld is returned to the worker upon request, and can be used to finance, say, expenditures on housing and education. Also, the *Prima de Vacaciones* is an allowance for vacations that is withheld as 6.7 percent of wages, and the *Prima Legal* is a charge of 8.9 percent of wages that is paid back to the individual in June and again in December. Because these programs have individual benefits paid for by individual contributions, they are not considered here a true tax, and are not discussed further. Social security contributions also generate individually-linked benefits.

² For a detailed discussion of economic trends during the 1990s, including those in the labor market, see Arango and Posada (2001), International Monetary Fund (2001), Kugler and Kugler (2001), and Cardenas and Bernal (2002).

³ Note that a high incidence of unemployment among low skill workers suggests that training programs could well have a high return.

⁴ Recall also that there are several additional taxes on payroll that generate individual benefits (e.g., *Cesantias*, *Prima de Vacaciones*, and *Prima Legal*). The total additional payroll rate from these programs is 25.9 percent.

⁵ For example, a fund whose cuociente exceeds 110 percent must allocate 27 percent of its contributions to social housing, 10 percent to health, 10 percent to fund management, 3 percent to a legal reserve, 1 percent to the Superintendencia, and the remaining 49 percent to the monetary subsidy and to other services.

⁶ Public universities are exempt from the tax. Also, payments from government organizations must be distributed as: 25 per cent to SENA, 25 per cent to the Superior School of Public Administration, and 50 per cent for industrial schools and technical institutes.

⁷ SENA's National Board of Directors determines the specific jobs within a company, regulates each company's quota, and pre-selects the apprentices (with final approval by the company). The Board also has sanctioning power. Employers that do not fulfill their trainee quota are subject to monthly fines equivalent to 75 or 80 percent of the monthly legal minimum wage for each trainee not hired.

⁸ There are also some special programs, such as those for the armed forces and for ECOPETROL.

⁹ A further complicating issue is that the payroll taxes apply to workers making the legal minimum wage. Because the minimum wage is fixed and binding, the imposition of the payroll taxes on employers will result in an increase in the wage by the amount of the taxes and a corresponding reduction in employment; the employment impact will depend upon the elasticity of demand. See López-Castaño (2002) for a complete analysis of this and other cases.

¹⁰ Note also that the movement of labor from the formal to the informal sector generates an inefficient resource allocation. Although the **net-of-tax** return to labor is equalized across the two sectors, it is the **gross-of-tax** return to labor in the formal sector that measures the social productivity to labor, and this gross-of-tax is higher in the formal sector by the amount of the tax. The tax therefore encourages overallocation of resources to untaxed activities and so generates an inefficiency, or excess burden.

¹¹ For example, the coal industry pays payroll taxes at an average rate of 5.9 percent of total labor costs and the oil industry pays 6.9 percent. Average tax rates in some other sectors are 10.6 percent (fibers), 9.5 percent (furniture), and 12.6 percent (communications). Most average tax rates lie in the 4 to 6 percent range. Labor taxes are in the 3 to 4 percent range.

¹² We are very grateful to Miles Light for making these additional calculations.

¹³ See Bird (1992) for an analysis of the impact of labor taxes on employment in the formal and informal sectors.

¹⁴ See Alm, Bahl, and Murray (1991) for an attempt at measuring tax base erosion via legal and illegal means in the Jamaican individual income tax.

¹⁵ See López-Castaño (2002) for further discussion of these cases.