

Structural Analysis of the Formal and Informal Jobs in the Brazilian Economy

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ABSTRACT

The reorganization of the Brazilian economy, in the globalization process, has brought out changes in its productive structure, and, consequently, changes in the job market. These changes had impact on the employment at the sectoral level, with great concerns related to the labor relations and to the growing unemployment rates. In the 1990s, the change in the focus of the development strategy, from a closed protected economy to an open economy with monetary control, has originated deep changes in the labor market. The number of employed persons in the primary and secondary sector was reduced, while in the tertiary sector there was an increase in the number of jobs, but not enough to absorb all the employees released from the previous two sectors. The share of informal jobs in the Brazilian economy was around 52% in 2003. In this way, the question of employment generated by the economic sectors, in number and quality, has become a crucial issue. The goal of this work is to study the characteristics and the evolution of the occupied persons, and to relate it with the formal and informal job market, as well as the economy productive structure, using for that input-output matrices constructed for the Brazilian economy. The main results show that there was a reduction in the capacity of the economy to generate employment for every million of Reais produced in a given sector. The data also shows that despite the ratio of informal workers in the economy being superior to the workers in the formality, the formal sector was responsible for about 60% of the jobs generated in the period of analysis.

KEY WORDS: Job Market; Input-Output; Informality

1. INTRODUCTION

The reorganization of the Brazilian economy, in the globalization process, has brought out changes in its productive structure, and, consequently, changes in the job market. These changes had impact on the employment at the sectoral level, with great concerns related to the labor relations and to the growing unemployment rates.

According to Brasil (1998), in 1990 the reorientation of the development model, which moved from protection to the industrial sector to an open economy with monetary control, had originated deep changes in the Brazilian job market. The sectoral composition of the job market changed, with the primary and secondary sectors showing reduction in their capacity of job generation, with the tertiary sector absorbing, in part, the employees released from the other sectors (HILGEMBERG, 2003).

The last decade of the last century was negative for the job market, with an increase in the share of unemployed persons in the total labor force (LACERDA et al., (2000). According to data from the Institute of Applied Economic Research (IPEA) (2004), the annual average rate of unemployment has increased by 70% in period 1990-2002. Beyond the growth of the unemployment rate, the Brazilian economy has been faced with the problem of the informal workers. There is no consensus in the literature about the definition for informality. In this work, it is considered informal those that are considered diligent and do not possess bond with the social security and without a register in the ministry of labor.

In this context, the present work makes a structural analysis of the Brazilian job market from 1992 to 2001¹, under the optics of the Input-Output analysis, and makes use of the information from the National Household survey to estimate the evolution of the formal and informal jobs in the sectors of the Brazilian economy.

2. METHODOLOGY

The analysis of the intersectorial structure will be carried through the application of the Input-Output approach. The input-output analysis brings information on the structure of production of the economy and the sectoral origin of the generated income (RODRIGUES; GUILHOTO, 1998). It portrays the productive relations in the economy, from the application of the model developed for Leontief. The considered model takes as reference the flows of

¹ The values are presented in constant prices of 2001.

goods and services among the different economic activities, whose database must describe the relations of these activities among themselves and the final demand (FEIJÓ, et al., 2001).

In the Leontief model the intersectoral flows of goods and services can be determined by technological and economic factors from the following system of equations:

$$\mathbf{X} = \mathbf{A}\mathbf{X} + \mathbf{Y} \quad (1)$$

Where \mathbf{X} represents a vector ($n \times 1$) with the value of the total production for sector, \mathbf{Y} is a vector ($n \times 1$) with the values of the sectoral final demand and \mathbf{A} it is a matrix ($n \times n$) with the technical coefficients of the production. The vector of total production is determined solely by the vector of final demand, considered exogenous to the system:

$$\mathbf{X} = \mathbf{L} \times \mathbf{Y} \quad (2)$$

Where \mathbf{L} is the Leontief inverse ($\mathbf{L} = (\mathbf{I} - \mathbf{A})^{-1}$). The elements in the final demand vector, \mathbf{Y} , are: a) household consumption (\mathbf{Y}_f); b) exports (\mathbf{Y}_e); c) government expenditure (\mathbf{Y}_g); and e) investment (\mathbf{Y}_k).

To estimate the induced effect, that is, how much was the increase, for example, in employment, given the consumption of the newly employed, the family, the household consumption can be made endogenous into the model, so that

$$\bar{\mathbf{A}} = \begin{bmatrix} \mathbf{A} & \mathbf{H}_c \\ \mathbf{H}_r & \mathbf{0} \end{bmatrix} \quad (6)$$

where $\bar{\mathbf{A}}$ is the new matrix of technical coefficients with size $(n+1) \times (n+1)$, \mathbf{H}_r is a $(1 \times n)$ vector with the income coefficient, and \mathbf{H}_c is an $(n \times 1)$ vector with household consumption coefficients. Therefore, the new production and final demand vectors would be given by $(\bar{\mathbf{X}}, (n+1) \times 1)$ and $(\bar{\mathbf{Y}}, (n+1) \times 1)$ respectively. They would be represented as

$$\bar{\mathbf{X}} = \begin{bmatrix} \mathbf{X} \\ \mathbf{X}_{n+1} \end{bmatrix} \quad e \quad (7)$$

$$\bar{\mathbf{Y}} = \begin{bmatrix} \mathbf{Y} \\ \mathbf{Y}_{n+1} \end{bmatrix} \quad (8)$$

The Leontief system would then be represented by:

$$\bar{\mathbf{X}} = \bar{\mathbf{L}}\bar{\mathbf{Y}} \quad (9)$$

$$\bar{\mathbf{L}} = [\mathbf{I} - \bar{\mathbf{A}}]^{-1} \quad (10)$$

where $\bar{\mathbf{L}}$ is an $((n+1) \times (n+1))$ matrix of the Leontief inverse, taking into consideration the induced effect.

3. MAIN RESULTS

This section presents the main results to the Brazilian economy from 1992 to 2001.

Table 1 presents the sector participation in the value added value. The sector of Financial Institutions had a brusque fall in the total participation of the economy, passing from 28.45% in 1992 to 10.89% in the year of 1995, remaining relatively stable until 2001. In the beginning of the period it was the activity with the highest share and in the end of the period it dropped to the 9th place. This reduction can be explained by the stabilization of the currency that reduced the deriving profits originated from inflationary process.

The participation of the Public Administration represented 23% in 1995, maintaining a value around this share until the end of the studied period and corresponding to the biggest participation in 2001. The sectors Wholesale and retail trade, Food Industries in General, Civil Construction and Agriculture were the others 4 biggest participation, with 15.81%, 15.64%, 15.52%, 15.15%, respectively, in the year of 2001. The sector Petroleum and gas mining, that in the beginning of the decade of 1990 corresponded to about 1.4% of the total added value, in the period from 1995 the 1998 shows shares below 1%, in 1999 it increase its share to 1.6%), and in 2001 reached 3.01% of the participation in the economy.

From Table 2, the sectors that have showed the biggest participation in the total of jobs have been: a) Agriculture, with a falling share from 28% in 1992 to 21% in 2001; b) Wholesale and retail trade, increasing its participation from 12.55% in 1992 to 14.76% in 2001; c) Personal services, 14.1% in 2001; d) Public Administration, 10.66% in 2001; e) Private households with employed persons, 8.61% in 2001; and f) Civil Construction, 6.84% in 2001.

Table 1 – Sector participation in the value added (%) – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Agriculture | 14.10 | 13.74 | 14.57 | 13.83 | 13.18 | 13.59 | 14.61 | 15.15 |
| Metal Mining | 1.48 | 1.25 | 1.04 | 0.95 | 0.94 | 0.93 | 1.06 | 1.10 |
| Petroleum and gas mining | 1.39 | 1.04 | 0.74 | 0.92 | 0.89 | 0.69 | 1.60 | 3.01 |
| Nonmetallic mineral | 3.11 | 2.98 | 2.59 | 2.36 | 2.48 | 2.48 | 2.50 | 2.46 |
| Metallurgy / Nonferrous metal production | 10.73 | 10.27 | 8.87 | 8.11 | 8.13 | 7.56 | 8.23 | 9.22 |
| Industrial machinery manufacturing | 4.58 | 4.72 | 3.82 | 3.45 | 3.50 | 3.26 | 3.46 | 4.43 |
| Electrical equipment/ Electronic instrument | 4.29 | 4.36 | 4.72 | 4.25 | 3.90 | 3.49 | 3.17 | 3.65 |
| Autom/Trucks/Bus parts and other vehicles | 5.58 | 6.20 | 6.47 | 5.97 | 6.29 | 5.19 | 5.02 | 6.31 |
| Wood and furniture | 2.04 | 2.25 | 2.07 | 1.96 | 1.87 | 1.70 | 1.91 | 1.84 |
| Cellulose/Paper/Graphic | 3.86 | 3.49 | 3.35 | 3.14 | 2.95 | 2.86 | 3.45 | 4.02 |
| Plastics and rubber | 1.31 | 1.33 | 1.12 | 1.00 | 0.97 | 0.86 | 0.99 | 1.14 |
| Chemical industries | 9.89 | 10.41 | 6.88 | 6.45 | 6.58 | 6.81 | 8.75 | 11.36 |
| Oil Refinery | 6.03 | 6.00 | 4.51 | 4.47 | 4.65 | 4.34 | 4.96 | 5.11 |
| Pharmaceutical and medicine | 1.92 | 2.12 | 1.71 | 1.65 | 1.84 | 1.96 | 2.10 | 1.86 |
| Plastic articles | 1.50 | 1.56 | 1.36 | 1.39 | 1.35 | 1.25 | 1.23 | 1.27 |
| Textile industry | 3.82 | 3.61 | 2.93 | 2.62 | 2.30 | 2.24 | 2.47 | 2.31 |
| Clothing industries | 1.88 | 1.81 | 1.56 | 1.43 | 1.22 | 1.18 | 1.22 | 1.85 |
| Footwear industries | 1.34 | 1.38 | 0.94 | 0.87 | 0.76 | 0.69 | 0.77 | 0.89 |
| Food Industries in General | 16.60 | 16.49 | 15.13 | 15.07 | 14.64 | 14.41 | 15.63 | 15.64 |
| Miscellaneous manufacturing | 1.36 | 1.45 | 1.16 | 1.06 | 1.04 | 1.04 | 1.11 | 1.28 |
| Electricity, gas and water supply | 6.82 | 6.59 | 4.86 | 4.86 | 4.94 | 5.67 | 6.19 | 7.30 |
| Civil Construction | 15.39 | 16.08 | 15.98 | 15.99 | 16.62 | 16.87 | 16.33 | 15.52 |
| Wholesale and retail trade | 15.61 | 16.56 | 14.36 | 13.56 | 13.71 | 13.58 | 14.51 | 15.81 |
| Transports | 8.00 | 8.05 | 7.01 | 6.47 | 6.57 | 6.61 | 7.06 | 7.53 |
| Communications | 2.04 | 2.33 | 1.86 | 2.40 | 2.59 | 3.27 | 4.11 | 5.07 |
| Financial Institutions | 28.45 | 36.02 | 10.89 | 9.86 | 9.40 | 9.71 | 9.48 | 9.49 |
| Personal services | 12.96 | 13.11 | 12.45 | 12.66 | 11.94 | 11.37 | 10.97 | 10.85 |
| Business services | 5.67 | 5.93 | 4.81 | 5.32 | 5.39 | 5.76 | 5.81 | 6.43 |
| Real estate | 10.91 | 7.49 | 11.03 | 14.51 | 15.53 | 15.58 | 14.88 | 12.62 |
| Public Administration | 20.91 | 21.88 | 24.54 | 22.56 | 22.07 | 23.17 | 23.29 | 23.21 |
| Private households with employed persons | 1.38 | 1.42 | 1.37 | 1.30 | 1.28 | 1.30 | 1.35 | 1.34 |

Source: Research data.

Table 2 – Sector participation in the employment (%) – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|--------|--------|--------|--------|--------|--------|--------|--------|
| Agriculture | 28.39 | 27.47 | 26.10 | 24.49 | 24.35 | 23.62 | 24.39 | 20.88 |
| Metal Mining | 0.40 | 0.40 | 0.34 | 0.27 | 0.28 | 0.30 | 0.27 | 0.27 |
| Petroleum and gas mining | 0.07 | 0.05 | 0.05 | 0.05 | 0.03 | 0.05 | 0.05 | 0.07 |
| Nonmetallic mineral | 0.99 | 1.00 | 0.90 | 0.89 | 0.91 | 0.81 | 0.84 | 0.85 |
| Metallurgy / Nonferrous metal production | 1.39 | 1.33 | 1.34 | 1.37 | 1.29 | 1.34 | 1.19 | 1.28 |
| Industrial machinery manufacturing | 0.61 | 0.49 | 0.60 | 0.64 | 0.67 | 0.54 | 0.54 | 0.68 |
| Electrical equipment/ Electronic instrument | 0.46 | 0.39 | 0.44 | 0.44 | 0.46 | 0.43 | 0.39 | 0.41 |
| Autom/Trucks/Bus parts and other vehicles | 0.67 | 0.75 | 0.69 | 0.63 | 0.65 | 0.60 | 0.62 | 0.65 |
| Wood and furniture | 1.38 | 1.47 | 1.46 | 1.51 | 1.43 | 1.33 | 1.32 | 1.44 |
| Cellulose/Paper/Graphic | 0.72 | 0.69 | 0.71 | 0.71 | 0.72 | 0.70 | 0.71 | 0.69 |
| Plastics and rubber | 0.11 | 0.14 | 0.12 | 0.10 | 0.10 | 0.09 | 0.08 | 0.09 |
| Chemical industries | 0.12 | 0.12 | 0.09 | 0.09 | 0.10 | 0.10 | 0.09 | 0.09 |
| Oil Refinery | 0.49 | 0.45 | 0.42 | 0.43 | 0.45 | 0.40 | 0.34 | 0.33 |
| Pharmaceutical and medicine | 0.22 | 0.22 | 0.18 | 0.21 | 0.21 | 0.23 | 0.21 | 0.22 |
| Plastic articles | 0.28 | 0.29 | 0.25 | 0.29 | 0.29 | 0.26 | 0.28 | 0.32 |
| Textile industry | 0.80 | 0.81 | 0.63 | 0.65 | 0.56 | 0.50 | 0.54 | 0.51 |
| Clothing industries | 2.56 | 2.64 | 2.64 | 2.60 | 2.42 | 2.30 | 2.32 | 2.41 |
| Footwear industries | 0.67 | 0.74 | 0.57 | 0.62 | 0.57 | 0.60 | 0.59 | 0.83 |
| Food Industries in General | 2.65 | 2.54 | 2.57 | 2.52 | 2.61 | 2.53 | 2.48 | 2.41 |
| Miscellaneous manufacturing | 0.41 | 0.46 | 0.43 | 0.38 | 0.43 | 0.51 | 0.50 | 0.55 |
| Electricity, gas and water supply | 0.57 | 0.60 | 0.49 | 0.50 | 0.48 | 0.54 | 0.47 | 0.43 |
| Civil Construction | 6.39 | 6.70 | 6.34 | 6.65 | 6.88 | 7.40 | 6.97 | 6.84 |
| Wholesale and retail trade | 12.55 | 13.14 | 13.50 | 13.78 | 13.70 | 13.87 | 13.92 | 14.76 |
| Transports | 3.17 | 3.16 | 3.33 | 3.39 | 3.57 | 3.61 | 3.49 | 3.69 |
| Communications | 0.40 | 0.37 | 0.42 | 0.46 | 0.51 | 0.46 | 0.51 | 0.60 |
| Financial Institutions | 1.46 | 1.46 | 1.27 | 1.25 | 1.23 | 1.13 | 1.12 | 1.16 |
| Personal services | 11.89 | 11.60 | 12.70 | 13.13 | 13.15 | 13.48 | 13.45 | 14.10 |
| Business services | 2.37 | 2.39 | 2.76 | 3.00 | 3.09 | 3.36 | 3.27 | 3.60 |
| Real estate | 0.40 | 0.39 | 0.47 | 0.46 | 0.51 | 0.47 | 0.50 | 0.57 |
| Public Administration | 9.98 | 10.14 | 10.09 | 10.31 | 10.06 | 10.30 | 10.34 | 10.66 |
| Private households with employed persons | 7.44 | 7.59 | 8.10 | 8.18 | 8.28 | 8.14 | 8.22 | 8.61 |
| Total | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Source: Research data.

Tables 3 and 4 show the evolution of the sectors share into formal and informal jobs. The formal jobs corresponded to about 46% of the total jobs of the economy in 2001. The sector of Petroleum and gas mining shows the highest share of formal jobs in this period, while that the Agriculture sector has the highest share of informal jobs (about 90%). One notices that the sectors of Electricity, gas and water supply, Financial Institutions and the Automobiles, trucks, bus, parts and other vehicles also show a high share of forma jobs.

Table 3 – Formal jobs share into the total employment of each sector (%) – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Agriculture | 9.56 | 9.93 | 9.70 | 11.00 | 10.40 | 9.80 | 10.43 | 10.69 |
| Metal Mining | 41.00 | 40.18 | 47.17 | 43.89 | 46.61 | 46.80 | 44.92 | 46.14 |
| Petroleum and gas mining | 94.10 | 91.13 | 98.42 | 97.14 | 93.44 | 92.96 | 98.45 | 99.03 |
| Nonmetallic mineral | 54.03 | 50.92 | 56.81 | 57.07 | 58.83 | 59.6 | 58.87 | 60.65 |
| Metallurgy / Nonferrous metal production | 82.40 | 81.57 | 80.36 | 77.82 | 75.44 | 74.77 | 70.52 | 71.14 |
| Industrial machinery manufacturing | 87.39 | 92.85 | 87.98 | 84.06 | 87.15 | 87.13 | 82.36 | 86.73 |
| Electrical eq./ Electronic instrument | 90.24 | 92.33 | 91.85 | 87.95 | 87.84 | 89.41 | 85.66 | 87.34 |
| Autom/Trucks/Bus parts and other vehicle | 93.89 | 95.23 | 94.02 | 95.04 | 91.98 | 92.46 | 92.71 | 92.2 |
| Wood and furniture | 49.92 | 47.82 | 48.39 | 48.06 | 47.04 | 47.94 | 49.81 | 53.16 |
| Cellulose/Paper/Graphic | 84.81 | 82.45 | 80.94 | 78.64 | 79.03 | 75.19 | 78.26 | 76.48 |
| Plastics and rubber | 89.54 | 91.86 | 94.88 | 92.93 | 83.43 | 84.82 | 85.81 | 87.95 |
| Chemical industries | 98.31 | 97.05 | 95.19 | 95.65 | 89.50 | 96.62 | 93.19 | 93.3 |
| Oil Refinery | 92.28 | 90.08 | 91.55 | 90.91 | 87.88 | 90.99 | 91.08 | 89.46 |
| Pharmaceutical and medicine | 90.00 | 89.39 | 86.58 | 86.76 | 85.70 | 89.65 | 85.83 | 86.25 |
| Plastic articles | 92.02 | 88.45 | 90.52 | 88.37 | 86.31 | 87.19 | 87.06 | 84.27 |
| Textile industry | 75.19 | 72.85 | 70.44 | 73.52 | 73.47 | 73.33 | 68.24 | 71.81 |
| Clothing industries | 35.32 | 33.9 | 34.03 | 34.02 | 34.63 | 32.91 | 34.71 | 34.57 |
| Footwear industries | 73.87 | 74.86 | 77.96 | 76.41 | 77.90 | 74.69 | 72.29 | 75.2 |
| Food Industries in General | 68.53 | 68.1 | 66.49 | 66.44 | 64.48 | 63.79 | 62.24 | 62.54 |
| Miscellaneous manufacturing | 52.38 | 55.93 | 65.04 | 62.36 | 56.24 | 50.70 | 49.35 | 46.95 |
| Electricity, gas and water supply | 97.35 | 95.52 | 94.88 | 95.09 | 95.56 | 94.63 | 94.06 | 92.55 |
| Civil Construction | 39.51 | 36.89 | 34.67 | 33.64 | 32.63 | 29.22 | 27.88 | 27.8 |
| Wholesale and retail trade | 51.59 | 50.14 | 48.99 | 50.22 | 50.11 | 49.48 | 47.6 | 48.49 |
| Transports | 69.84 | 69.43 | 66.15 | 63.76 | 61.23 | 59.57 | 56.64 | 55.33 |
| Communications | 90.93 | 93.06 | 92.34 | 88.28 | 90.49 | 88.98 | 87.53 | 88.52 |
| Financial Institutions | 94.48 | 91.98 | 91.83 | 89.67 | 90.13 | 85.97 | 88.34 | 85.72 |
| Personal services | 49.50 | 48.66 | 47.86 | 50.67 | 48.83 | 48.21 | 46.84 | 48.48 |
| Business services | 79.23 | 76.34 | 74.42 | 74.83 | 73.76 | 71.54 | 70.48 | 69.49 |
| Real estate | 65.60 | 63.40 | 65.64 | 61.78 | 64.55 | 64.12 | 62.70 | 60.96 |
| Public Administration | 90.64 | 89.35 | 90.06 | 89.69 | 89.35 | 88.19 | 89.18 | 89.03 |
| Private households with employed persons | 23.15 | 23.04 | 25.2 | 27.54 | 28.24 | 29.31 | 30.13 | 30.93 |
| Total | 44.95 | 44.51 | 44.54 | 46.00 | 45.33 | 44.72 | 43.93 | 46.06 |

Source: Research data.

In the majority of the sectors there seems to be an inverse relationship between total capacity to employ and the share of formal jobs, i.e., the highest the share of the sector in the total of employed persons the lowest the share of formal jobs inside the sector. For example, the Agricultural sector had a share, in 1992, of the 28.4% of the total employed persons in the economy with 90.44% of informal jobs inside the sector. The Petroleum and gas mining, which has the highest share of formal employed people shows a share of only 0.07% of the total jobs in the economy. This does not mean, however, that there is a relation of cause and effect between formality and capacity to employment.

**Table 4 – Informal jobs share into the total employment of each sector (%)
1992 to 2001**

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Agriculture | 90.44 | 90.07 | 90.3 | 89.00 | 89.60 | 90.20 | 89.57 | 89.31 |
| Metal Mining | 59.00 | 59.82 | 52.83 | 56.11 | 53.39 | 53.20 | 55.08 | 53.86 |
| Petroleum and gas mining | 5.90 | 8.87 | 1.58 | 2.86 | 6.56 | 7.04 | 1.55 | 0.07 |
| Nonmetallic mineral | 45.97 | 49.08 | 43.19 | 42.93 | 41.17 | 40.4 | 41.13 | 39.35 |
| Metallurgy / Nonferrous metal production | 17.60 | 18.43 | 19.64 | 22.18 | 24.56 | 25.23 | 29.48 | 28.86 |
| Industrial machinery manufacturing | 12.61 | 7.15 | 12.02 | 15.94 | 12.85 | 12.87 | 17.64 | 13.27 |
| Electrical eq./ Electronic instrument | 9.76 | 7.67 | 8.15 | 12.05 | 12.16 | 10.59 | 14.34 | 12.66 |
| Autom/Trucks/Bus parts and other vehic. | 6.11 | 4.77 | 5.98 | 4.96 | 8.02 | 7.54 | 7.29 | 7.80 |
| Wood and furniture | 50.08 | 52.18 | 51.61 | 51.94 | 52.96 | 52.06 | 50.19 | 46.84 |
| Cellulose/Paper/Graphic | 15.19 | 17.55 | 19.06 | 21.36 | 20.97 | 24.81 | 21.74 | 23.52 |
| Plastics and rubber | 10.46 | 8.14 | 5.12 | 7.07 | 16.57 | 15.18 | 14.19 | 12.05 |
| Chemical industries | 1.69 | 2.95 | 4.81 | 4.35 | 10.50 | 3.38 | 6.81 | 6.70 |
| Oil Refinery | 7.72 | 9.92 | 8.45 | 9.09 | 12.12 | 9.01 | 8.92 | 10.54 |
| Pharmaceutical and medicine | 10.00 | 10.61 | 13.42 | 13.24 | 14.3 | 10.35 | 14.17 | 13.75 |
| Plastic articles | 7.98 | 11.55 | 9.48 | 11.63 | 13.69 | 12.81 | 12.94 | 15.73 |
| Textile industry | 24.81 | 27.15 | 29.56 | 26.48 | 26.53 | 26.67 | 31.76 | 28.19 |
| Clothing industries | 64.68 | 66.1 | 65.97 | 65.98 | 65.37 | 67.09 | 65.29 | 65.43 |
| Footwear industries | 26.13 | 25.14 | 22.04 | 23.59 | 22.10 | 25.31 | 27.71 | 24.8 |
| Food Industries in General | 31.47 | 31.90 | 33.51 | 33.56 | 35.52 | 36.21 | 37.76 | 37.46 |
| Miscellaneous manufacturing | 47.62 | 44.07 | 34.96 | 37.64 | 43.76 | 49.30 | 50.65 | 53.05 |
| Electricity, gas and water supply | 2.65 | 4.48 | 5.12 | 4.91 | 4.44 | 5.37 | 5.94 | 7.45 |
| Civil Construction | 60.49 | 63.11 | 65.33 | 66.36 | 67.37 | 70.78 | 72.12 | 72.2 |
| Wholesale and retail trade | 48.41 | 49.86 | 51.01 | 49.78 | 49.89 | 50.52 | 52.4 | 51.51 |
| Transports | 30.16 | 30.57 | 33.85 | 36.24 | 38.77 | 40.43 | 43.36 | 44.67 |
| Communications | 9.07 | 6.94 | 7.66 | 11.72 | 9.51 | 11.02 | 12.47 | 11.48 |
| Financial Institutions | 5.52 | 8.02 | 8.17 | 10.33 | 9.87 | 14.03 | 11.66 | 14.28 |
| Personal services | 50.5 | 51.34 | 52.14 | 49.33 | 51.17 | 51.79 | 53.16 | 51.52 |
| Business services | 20.77 | 23.66 | 25.58 | 25.17 | 26.24 | 28.46 | 29.52 | 30.51 |
| Real estate | 34.4 | 36.6 | 34.36 | 38.22 | 35.45 | 35.88 | 37.3 | 39.04 |
| Public Administration | 9.36 | 10.65 | 9.94 | 10.31 | 10.65 | 11.81 | 10.82 | 10.97 |
| Private hous. with employed persons | 76.85 | 76.96 | 74.8 | 72.46 | 71.76 | 70.69 | 69.87 | 69.07 |
| Total | 55.05 | 55.49 | 55.46 | 54.00 | 54.67 | 55.28 | 56.07 | 53.94 |

Source: Research data.

Throughout the period of analysis the informality was always superior to 54% of the total of the workers, but in recent years its participation fell about 2 percentile points, being, for the first time, a little less than 54%.

Table 5 presents the difference between the number of workers in the year of 2001 considering the number of workers in 1992 as a reference. The values of this table shows in a decreasing sequence the changes in the total number of jobs, and these changes are also separate into formal and informal workers from which it is possible to compare which of the sectors have increased, or not, its capacity to employment.

Table 5 – The difference between the number of workers of the year of 2001 and 1992

| Sectors | Total | Formal | Informal |
|--|------------|-----------|------------|
| Wholesale and retail trade | 2,071,162 | 773,764 | 1,297,398 |
| Personal services | 2,038,213 | 915,769 | 1,122,444 |
| Private households with employed persons | 1,141,183 | 695,699 | 445,484 |
| Public Administration | 956,914 | 756,593 | 200,321 |
| Business services | 913,962 | 498,197 | 415,765 |
| Civil Construction | 621,584 | -270,062 | 891,646 |
| Transports | 496,338 | 1,921 | 494,417 |
| Communications | 152,378 | 129,239 | 23,139 |
| Footwear industries | 136,799 | 108,141 | 28,658 |
| Real estate | 132,633 | 69,889 | 62,744 |
| Miscellaneous manufacturing | 112,596 | 39,639 | 72,958 |
| Wood and furniture | 112,543 | 86,295 | 26,248 |
| Industrial machinery manufacturing | 75,543 | 63,125 | 12,418 |
| Plastic articles | 36,793 | 18,022 | 18,770 |
| Clothing industries | 31,767 | -474 | 32,241 |
| Autom/Trucks/Bus parts and other vehic. | 21,153 | 12,811 | 8,343 |
| Cellulose/Paper/Graphic | 15,399 | -23,993 | 39,392 |
| Pharmaceutical and medicine | 13,441 | 6,793 | 6,648 |
| Petroleum and gas mining | 6,247 | 8,614 | -2,367 |
| Metallurgy / Nonferrous metal production | -90 | -92,891 | 92,802 |
| Electrical eq./ Electronic instrument | -3,589 | -10,979 | 7,389 |
| Plastics and rubber | -10,794 | -10,542 | -252 |
| Oil Refinery | -13,894 | -16,599 | 2,705 |
| Food Industries in General | -19,976 | -106,581 | 86,606 |
| Nonmetallic mineral | -34,296 | 17,932 | -52,227 |
| Electricity, gas and water supply | -57,277 | -69,084 | 11,807 |
| Metal Mining | -67,125 | -18,685 | -48,440 |
| Chemical industries | -78,613 | -78,449 | -163 |
| Financial Institutions | -120,227 | -178,830 | 58,603 |
| Textile industry | -144,128 | -119,545 | -24,583 |
| Agriculture | -3,366,942 | -170,068 | -3,196,873 |
| Total | 5,169,700 | 3,035,659 | 2,134,041 |

Source: Research data.

The sectors Wholesale and retail trade and Personal services have been the ones responsible for the growth in the number of employees in the economy, even so most of this job have been in created in the informal sector. Such result seems to confirm that the opening of the economy, the valuation and stabilization of the national currency, and the increments in the wage have increase the potential of the household consumption, which was restrained in the past by the high inflation rates.

The sectors of Civil Construction, Clothing industries and Cellulose/paper and graphic, despite an increased the number of workers, show a fall in the number of formal workers. The sector Petroleum and gas mining is the only activity that concomitantly presents a surplus of workers and a reduction in the number of informal employees.

It is interesting to notice that although the ratio of informal workers in the total of the employees to be superior to the formal workers, the formal sector was the one responsible for about 60% of the new jobs generated in the period being considered.

Table 6 shows the share of social contributions in the compensation to employees. Given the definition of informality adopted in this work, the compensation to the employees are linked with the total number of workers (formal and informal), while the social contributions are linked only with the formal workers.

With the split of the employees into formal and informal jobs, it is possible to compare how much of the compensation to employees is related to wages and how much of it is related to the social contributions and how it has evolved through time. Some authors say that one of the main causes of the informality is the inflexibility of the social changes and for this reason like to compare the data of the informality and the weight of the social contributions in the compensation to employees. One notices that the share of social contribution has been growing in the great majority of the sectors (Table 6).

With the incorporation of the data from the PNAD (National Household Survey) to the Input-Output system it was possible, to get the total jobs generated in sector, as well as the indirect and induced impacts for the Brazilian economy as a whole and for the formal and informal jobs (Tables 7 to 18).

Table 6 – Share of Social Contributions in the Compensation to Employees

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 7% | 8% | 9% | 12% | 13% | 14% | 16% | 18% |
| Metal Mining | 13% | 14% | 22% | 25% | 25% | 27% | 26% | 28% |
| Petroleum and gas mining | 31% | 35% | 34% | 44% | 43% | 47% | 55% | 55% |
| Nonmetallic mineral | 16% | 15% | 16% | 21% | 23% | 24% | 27% | 30% |
| Metallurgy / Nonferrous metal production | 19% | 16% | 17% | 22% | 22% | 24% | 25% | 29% |
| Industrial machinery manufacturing | 16% | 15% | 16% | 22% | 23% | 25% | 27% | 31% |
| Electrical equipment/ Electronic instrument | 15% | 15% | 16% | 21% | 23% | 24% | 26% | 29% |
| Autom/Trucks/Bus parts and other vehicles | 16% | 17% | 17% | 22% | 23% | 25% | 26% | 30% |
| Wood and furniture | 13% | 12% | 13% | 17% | 17% | 20% | 22% | 26% |
| Cellulose/Paper/Graphic | 15% | 18% | 15% | 20% | 21% | 23% | 25% | 28% |
| Plastics and rubber | 15% | 15% | 16% | 20% | 21% | 23% | 23% | 27% |
| Chemical industries | 29% | 31% | 32% | 44% | 43% | 47% | 54% | 55% |
| Oil Refinery | 15% | 14% | 16% | 22% | 23% | 25% | 27% | 29% |
| Pharmaceutical and medicine | 16% | 16% | 17% | 21% | 22% | 23% | 26% | 29% |
| Plastic articles | 17% | 16% | 16% | 21% | 23% | 25% | 27% | 30% |
| Textile industry | 16% | 16% | 16% | 20% | 21% | 23% | 25% | 27% |
| Clothing industries | 13% | 13% | 13% | 17% | 18% | 20% | 21% | 24% |
| Footwear industries | 15% | 15% | 15% | 20% | 21% | 23% | 25% | 28% |
| Food Industries in General | 16% | 15% | 15% | 19% | 20% | 22% | 24% | 26% |
| Miscellaneous manufacturing | 14% | 14% | 15% | 21% | 22% | 23% | 25% | 29% |
| Electricity, gas and water supply | 19% | 20% | 21% | 25% | 31% | 33% | 30% | 31% |
| Civil Construction | 14% | 13% | 13% | 17% | 18% | 19% | 21% | 24% |
| Wholesale and retail trade | 15% | 14% | 14% | 17% | 19% | 21% | 22% | 25% |
| Transports | 15% | 16% | 16% | 20% | 21% | 23% | 24% | 27% |
| Communications | 19% | 18% | 18% | 24% | 25% | 25% | 24% | 30% |
| Financial Institutions | 16% | 17% | 18% | 21% | 19% | 20% | 19% | 20% |
| Personal services | 14% | 13% | 14% | 19% | 20% | 22% | 24% | 23% |
| Business services | 16% | 15% | 15% | 19% | 21% | 22% | 25% | 27% |
| Real estate | 10% | 9% | 9% | 12% | 14% | 17% | 16% | 23% |
| Public Administration | 7% | 7% | 7% | 8% | 7% | 4% | 4% | 4% |
| Private households with employed persons | 7% | 7% | 7% | 11% | 11% | 14% | 15% | 16% |
| Total | | | | | | | | |

Source: Research data.

Table 7 shows the total employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector. Taking out of the analysis the sector of Private households with employed persons, the sectors of Food Industries in general, Agriculture, Personal services, Clothing industries and Wood and Furniture are the one which show the highest increase in employment for a R\$ 1 million increase in the final demand of a given sector.

Table 7 – Employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 244 | 224 | 212 | 208 | 203 | 195 | 196 | 167 |
| Metal Mining | 108 | 101 | 106 | 109 | 100 | 98 | 90 | 87 |
| Petroleum and gas mining | 75 | 66 | 82 | 83 | 77 | 82 | 70 | 60 |
| Nonmetallic mineral | 115 | 101 | 107 | 113 | 100 | 94 | 95 | 91 |
| Metallurgy / Nonferrous metal production | 138 | 121 | 125 | 132 | 120 | 121 | 110 | 105 |
| Industrial machinery manufacturing | 103 | 82 | 93 | 101 | 92 | 88 | 85 | 81 |
| Electrical equipment/ Electronic instrument | 107 | 89 | 89 | 93 | 91 | 91 | 87 | 82 |
| Autom/Trucks/Bus parts and other vehicles | 131 | 104 | 100 | 102 | 93 | 92 | 88 | 82 |
| Wood and furniture | 177 | 159 | 166 | 171 | 156 | 154 | 148 | 145 |
| Cellulose/Paper/Graphic | 121 | 108 | 108 | 114 | 105 | 104 | 96 | 87 |
| Plastics and rubber | 86 | 72 | 83 | 87 | 81 | 80 | 73 | 67 |
| Chemical industries | 56 | 41 | 58 | 63 | 61 | 60 | 57 | 50 |
| Oil Refinery | 113 | 224 | 100 | 104 | 100 | 97 | 86 | 81 |
| Pharmaceutical and medicine | 98 | 35 | 92 | 98 | 95 | 91 | 88 | 85 |
| Plastic articles | 89 | 72 | 80 | 87 | 82 | 79 | 80 | 76 |
| Textile industry | 118 | 96 | 101 | 105 | 98 | 98 | 98 | 94 |
| Clothing industries | 193 | 180 | 173 | 177 | 168 | 163 | 166 | 184 |
| Footwear industries | 152 | 137 | 142 | 148 | 135 | 141 | 133 | 139 |
| Food Industries in General | 259 | 240 | 228 | 226 | 216 | 206 | 203 | 187 |
| Miscellaneous manufacturing | 118 | 106 | 118 | 117 | 110 | 112 | 106 | 99 |
| Electricity, gas and water supply | 93 | 91 | 85 | 86 | 87 | 79 | 75 | 69 |
| Civil Construction | 111 | 98 | 99 | 103 | 101 | 99 | 100 | 96 |
| Wholesale and retail trade | 159 | 145 | 144 | 150 | 144 | 143 | 142 | 137 |
| Transports | 120 | 112 | 113 | 123 | 122 | 119 | 113 | 107 |
| Communications | 95 | 82 | 85 | 88 | 86 | 83 | 82 | 77 |
| Financial Institutions | 80 | 70 | 104 | 112 | 108 | 102 | 101 | 91 |
| Personal services | 193 | 180 | 175 | 177 | 176 | 178 | 182 | 177 |
| Business services | 129 | 115 | 127 | 130 | 126 | 127 | 125 | 118 |
| Real estate | 43 | 36 | 57 | 63 | 62 | 57 | 61 | 58 |
| Public Administration | 163 | 157 | 151 | 152 | 146 | 143 | 140 | 135 |
| Private households with employed persons | 533 | 527 | 509 | 532 | 525 | 512 | 514 | 497 |
| Total | | | | | | | | |

Source: Research data.

In the generation of formal jobs (Table 8), the sectors which show the greatest values are Food Industries in general, Personal services, Public Administration, Metallurgy and Nonferrous metal production, Footwear industries, and Clothing industries.

Table 8 – Formal employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 53 | 46 | 47 | 51 | 49 | 45 | 46 | 43 |
| Metal Mining | 52 | 48 | 50 | 52 | 47 | 46 | 41 | 41 |
| Petroleum and gas mining | 39 | 34 | 39 | 40 | 36 | 40 | 32 | 28 |
| Nonmetallic mineral | 58 | 49 | 52 | 55 | 49 | 46 | 46 | 46 |
| Metallurgy / Nonferrous metal production | 84 | 74 | 72 | 75 | 67 | 67 | 59 | 58 |
| Industrial machinery manufacturing | 57 | 45 | 49 | 53 | 48 | 45 | 42 | 43 |
| Electrical equipment/ Electronic instrument | 65 | 53 | 49 | 51 | 50 | 50 | 47 | 46 |
| Autom/Trucks/Bus parts and other vehicles | 79 | 65 | 57 | 58 | 51 | 52 | 49 | 47 |
| Wood and furniture | 78 | 68 | 69 | 73 | 65 | 64 | 63 | 66 |
| Cellulose/Paper/Graphic | 64 | 56 | 54 | 57 | 52 | 50 | 47 | 44 |
| Plastics and rubber | 43 | 37 | 39 | 41 | 37 | 36 | 33 | 32 |
| Chemical industries | 28 | 20 | 27 | 30 | 29 | 28 | 26 | 24 |
| Oil Refinery | 54 | 97 | 46 | 49 | 46 | 43 | 39 | 38 |
| Pharmaceutical and medicine | 51 | 20 | 45 | 49 | 46 | 45 | 42 | 43 |
| Plastic articles | 50 | 40 | 41 | 45 | 42 | 40 | 41 | 41 |
| Textile industry | 61 | 50 | 48 | 52 | 48 | 47 | 45 | 45 |
| Clothing industries | 84 | 76 | 71 | 74 | 69 | 66 | 67 | 73 |
| Footwear industries | 85 | 77 | 77 | 82 | 75 | 79 | 72 | 82 |
| Food Industries in General | 122 | 111 | 101 | 103 | 97 | 91 | 89 | 85 |
| Miscellaneous manufacturing | 59 | 54 | 59 | 59 | 54 | 54 | 50 | 47 |
| Electricity, gas and water supply | 49 | 47 | 41 | 43 | 42 | 38 | 35 | 34 |
| Civil Construction | 52 | 44 | 42 | 45 | 44 | 41 | 40 | 40 |
| Wholesale and retail trade | 78 | 70 | 66 | 71 | 68 | 67 | 65 | 65 |
| Transports | 65 | 60 | 58 | 63 | 61 | 59 | 54 | 53 |
| Communications | 50 | 43 | 42 | 44 | 43 | 41 | 39 | 40 |
| Financial Institutions | 41 | 36 | 51 | 55 | 53 | 49 | 48 | 45 |
| Personal services | 92 | 84 | 79 | 84 | 81 | 81 | 81 | 82 |
| Business services | 71 | 63 | 66 | 69 | 67 | 66 | 64 | 63 |
| Real estate | 20 | 17 | 25 | 28 | 28 | 25 | 26 | 26 |
| Public Administration | 89 | 85 | 80 | 82 | 78 | 76 | 73 | 73 |
| Private households with employed persons | 152 | 149 | 149 | 167 | 166 | 166 | 169 | 168 |
| Total | | | | | | | | |

Source: Research data.

The same 5 sectors that are the ones responsible for the greatest number of total jobs in the economy are also the ones that show the greatest values for the increase in the informal jobs generated by an increase in the final demand (Table 9).

Table 9 – Informal employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 191 | 178 | 165 | 156 | 155 | 150 | 150 | 125 |
| Metal Mining | 57 | 54 | 56 | 57 | 53 | 52 | 49 | 46 |
| Petroleum and gas mining | 36 | 32 | 43 | 43 | 40 | 43 | 38 | 31 |
| Nonmetallic mineral | 57 | 51 | 55 | 57 | 51 | 48 | 49 | 45 |
| Metallurgy / Nonferrous metal production | 53 | 47 | 53 | 57 | 53 | 54 | 51 | 46 |
| Industrial machinery manufacturing | 45 | 37 | 45 | 48 | 44 | 43 | 43 | 39 |
| Electrical equipment/ Electronic instrument | 42 | 36 | 39 | 42 | 41 | 41 | 40 | 36 |
| Autom/Trucks/Bus parts and other vehicles | 52 | 39 | 42 | 44 | 41 | 41 | 39 | 35 |
| Wood and furniture | 99 | 91 | 98 | 99 | 91 | 90 | 85 | 79 |
| Cellulose/Paper/Graphic | 57 | 52 | 55 | 57 | 53 | 53 | 49 | 43 |
| Plastics and rubber | 43 | 35 | 44 | 46 | 44 | 43 | 41 | 35 |
| Chemical industries | 28 | 20 | 31 | 33 | 33 | 32 | 31 | 26 |
| Oil Refinery | 60 | 127 | 54 | 56 | 54 | 53 | 47 | 43 |
| Pharmaceutical and medicine | 47 | 15 | 48 | 49 | 48 | 46 | 46 | 42 |
| Plastic articles | 39 | 32 | 39 | 41 | 40 | 39 | 39 | 35 |
| Textile industry | 57 | 45 | 53 | 52 | 50 | 52 | 53 | 49 |
| Clothing industries | 109 | 104 | 102 | 102 | 98 | 98 | 99 | 110 |
| Footwear industries | 67 | 59 | 64 | 66 | 60 | 63 | 61 | 57 |
| Food Industries in General | 137 | 129 | 127 | 123 | 119 | 115 | 115 | 102 |
| Miscellaneous manufacturing | 59 | 52 | 58 | 57 | 56 | 58 | 56 | 51 |
| Electricity, gas and water supply | 44 | 44 | 44 | 44 | 45 | 41 | 40 | 35 |
| Civil Construction | 59 | 54 | 56 | 58 | 57 | 58 | 59 | 56 |
| Wholesale and retail trade | 81 | 75 | 77 | 78 | 76 | 76 | 77 | 72 |
| Transports | 55 | 52 | 56 | 60 | 61 | 61 | 59 | 54 |
| Communications | 45 | 39 | 43 | 44 | 43 | 42 | 42 | 38 |
| Financial Institutions | 39 | 34 | 54 | 56 | 55 | 53 | 53 | 46 |
| Personal services | 102 | 96 | 96 | 94 | 95 | 97 | 101 | 94 |
| Business services | 58 | 52 | 61 | 60 | 60 | 61 | 60 | 56 |
| Real estate | 23 | 20 | 32 | 35 | 34 | 32 | 35 | 32 |
| Public Administration | 74 | 72 | 71 | 69 | 68 | 67 | 67 | 61 |
| Private households with employed persons | 381 | 379 | 359 | 365 | 358 | 346 | 345 | 329 |
| Total | | | | | | | | |

Source: Research data.

In the same way, of the 5 main sectors in the generation of total employment, only the sector of Wood and Furniture does not enter in the list of the 5 activities that more generate direct employment (Table 10). The sector Wood and Furniture loses rank for the sector Wholesale and retail trade. The direct employment generated in the sector corresponds to the additional work required by the activity when it has an increase in production. The sectors of Food Industries in General, Personal Services and Wholesale and retail trade are between the 5 sectors that more generate direct formal (Table 11) and informal job (Table 12).

Table 10 – Direct employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 140 | 135 | 116 | 106 | 106 | 103 | 102 | 83 |
| Metal Mining | 23 | 23 | 17 | 14 | 14 | 16 | 15 | 15 |
| Petroleum and gas mining | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| Nonmetallic mineral | 27 | 26 | 22 | 21 | 20 | 18 | 20 | 21 |
| Metallurgy / Nonferrous metal production | 33 | 30 | 28 | 28 | 26 | 28 | 25 | 25 |
| Industrial machinery manufacturing | 12 | 8 | 9 | 10 | 10 | 8 | 9 | 9 |
| Electrical equipment/ Electronic instrument | 21 | 16 | 13 | 13 | 14 | 14 | 15 | 14 |
| Autom/Trucks/Bus parts and other vehicles | 21 | 19 | 15 | 13 | 12 | 13 | 14 | 12 |
| Wood and furniture | 52 | 49 | 48 | 48 | 45 | 44 | 44 | 48 |
| Cellulose/Paper/Graphic | 13 | 11 | 11 | 11 | 11 | 11 | 11 | 10 |
| Plastics and rubber | 7 | 7 | 6 | 5 | 5 | 5 | 4 | 5 |
| Chemical industries | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| Oil Refinery | 13 | 11 | 10 | 9 | 9 | 8 | 7 | 8 |
| Pharmaceutical and medicine | 9 | 9 | 6 | 7 | 7 | 7 | 7 | 7 |
| Plastic articles | 15 | 14 | 11 | 11 | 11 | 10 | 12 | 15 |
| Textile industry | 19 | 20 | 15 | 16 | 15 | 14 | 14 | 13 |
| Clothing industries | 77 | 76 | 71 | 72 | 73 | 70 | 73 | 79 |
| Footwear industries | 42 | 41 | 36 | 38 | 37 | 44 | 42 | 56 |
| Food Industries in General | 90 | 85 | 74 | 70 | 73 | 69 | 69 | 65 |
| Miscellaneous manufacturing | 26 | 28 | 24 | 22 | 24 | 28 | 26 | 26 |
| Electricity, gas and water supply | 7 | 7 | 5 | 5 | 4 | 5 | 4 | 4 |
| Civil Construction | 29 | 29 | 26 | 26 | 25 | 26 | 26 | 27 |
| Wholesale and retail trade | 60 | 59 | 52 | 51 | 49 | 51 | 54 | 57 |
| Transports | 33 | 32 | 29 | 29 | 29 | 29 | 28 | 30 |
| Communications | 13 | 11 | 9 | 9 | 9 | 8 | 8 | 7 |
| Financial Institutions | 9 | 9 | 9 | 8 | 8 | 7 | 7 | 7 |
| Personal services | 71 | 67 | 67 | 69 | 69 | 72 | 74 | 79 |
| Business services | 33 | 32 | 32 | 33 | 33 | 35 | 34 | 34 |
| Real estate | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| Public Administration | 31 | 31 | 30 | 30 | 29 | 29 | 27 | 28 |
| Private households with employed persons | 401 | 398 | 387 | 410 | 408 | 398 | 400 | 389 |
| Total | | | | | | | | |

Source: Research data.

The data show that the great majority of the sectors have decreased they capability of generate direct employment. The generation of direct employment, with the exception of the Private household with employed persons, is greater in the formal than in the informal market (Tables 10 to 12).

Table 11 – Formal direct employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 13 | 13 | 11 | 12 | 11 | 10 | 11 | 9 |
| Metal Mining | 9 | 9 | 8 | 6 | 7 | 7 | 7 | 7 |
| Petroleum and gas mining | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| Nonmetallic mineral | 14 | 13 | 12 | 12 | 12 | 11 | 12 | 13 |
| Metallurgy / Nonferrous metal production | 27 | 24 | 23 | 22 | 20 | 21 | 17 | 18 |
| Industrial machinery manufacturing | 10 | 8 | 8 | 8 | 9 | 7 | 7 | 8 |
| Electrical equipment/ Electronic instrument | 19 | 15 | 12 | 11 | 12 | 13 | 13 | 12 |
| Autom/Trucks/Bus parts and other vehicles | 19 | 18 | 14 | 12 | 11 | 12 | 13 | 11 |
| Wood and furniture | 26 | 24 | 23 | 23 | 21 | 21 | 22 | 25 |
| Cellulose/Paper/Graphic | 11 | 9 | 9 | 9 | 9 | 8 | 8 | 8 |
| Plastics and rubber | 6 | 7 | 6 | 5 | 4 | 4 | 4 | 4 |
| Chemical industries | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Oil Refinery | 12 | 10 | 9 | 8 | 8 | 8 | 7 | 7 |
| Pharmaceutical and medicine | 8 | 8 | 5 | 7 | 6 | 7 | 6 | 6 |
| Plastic articles | 14 | 13 | 10 | 10 | 9 | 9 | 10 | 13 |
| Textile industry | 15 | 14 | 11 | 12 | 11 | 10 | 10 | 10 |
| Clothing industries | 27 | 26 | 24 | 25 | 25 | 23 | 25 | 27 |
| Footwear industries | 31 | 31 | 28 | 29 | 29 | 33 | 30 | 42 |
| Food Industries in General | 62 | 58 | 49 | 47 | 47 | 44 | 43 | 41 |
| Miscellaneous manufacturing | 14 | 16 | 16 | 14 | 13 | 14 | 13 | 12 |
| Electricity, gas and water supply | 7 | 7 | 5 | 5 | 4 | 5 | 3 | 3 |
| Civil Construction | 11 | 11 | 9 | 9 | 8 | 8 | 7 | 7 |
| Wholesale and retail trade | 31 | 30 | 25 | 26 | 25 | 25 | 26 | 27 |
| Transports | 23 | 22 | 19 | 19 | 18 | 17 | 16 | 16 |
| Communications | 12 | 10 | 8 | 8 | 8 | 7 | 7 | 7 |
| Financial Institutions | 8 | 8 | 8 | 7 | 7 | 6 | 6 | 6 |
| Personal services | 35 | 33 | 32 | 35 | 34 | 34 | 35 | 38 |
| Business services | 26 | 24 | 24 | 25 | 24 | 25 | 24 | 24 |
| Real estate | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 2 |
| Public Administration | 28 | 28 | 27 | 27 | 26 | 26 | 24 | 25 |
| Private households with employed persons | 93 | 92 | 97 | 113 | 115 | 117 | 121 | 120 |
| Total | | | | | | | | |

Source: Research data.

Table 12 – Informal direct employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 127 | 122 | 105 | 94 | 95 | 93 | 91 | 75 |
| Metal Mining | 14 | 14 | 9 | 8 | 8 | 8 | 8 | 8 |
| Petroleum and gas mining | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nonmetallic mineral | 12 | 13 | 9 | 9 | 8 | 7 | 8 | 8 |
| Metallurgy / Nonferrous metal production | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 |
| Industrial machinery manufacturing | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Electrical equipment/ Electronic instrument | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| Autom/Trucks/Bus parts and other vehicles | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Wood and furniture | 26 | 26 | 25 | 25 | 24 | 23 | 22 | 22 |
| Cellulose/Paper/Graphic | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 |
| Plastics and rubber | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| Chemical industries | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oil Refinery | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Pharmaceutical and medicine | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Plastic articles | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 2 |
| Textile industry | 5 | 5 | 4 | 4 | 4 | 4 | 5 | 4 |
| Clothing industries | 50 | 50 | 47 | 48 | 48 | 47 | 48 | 52 |
| Footwear industries | 11 | 10 | 8 | 9 | 8 | 11 | 12 | 14 |
| Food Industries in General | 28 | 27 | 25 | 24 | 26 | 25 | 26 | 24 |
| Miscellaneous manufacturing | 12 | 12 | 9 | 8 | 10 | 14 | 13 | 14 |
| Electricity, gas and water supply | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Civil Construction | 17 | 18 | 17 | 17 | 17 | 19 | 19 | 19 |
| Wholesale and retail trade | 29 | 29 | 27 | 26 | 25 | 26 | 28 | 29 |
| Transports | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 13 |
| Communications | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Financial Institutions | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Personal services | 36 | 35 | 35 | 34 | 35 | 37 | 39 | 41 |
| Business services | 7 | 8 | 8 | 8 | 9 | 10 | 10 | 10 |
| Real estate | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Public Administration | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Private households with employed persons | 308 | 306 | 289 | 297 | 293 | 281 | 280 | 268 |
| Total | | | | | | | | |

Source: Research data.

The indirect jobs generated by an increase in the final demand of a given sector are presented in Tables 13 to 15.

The results indicate that the sectors of Food Industries, Wood and Furniture, Agriculture, Oil Refinery and Metallurgy/Nonferrous metal production are the ones that more generate jobs indirectly for each R\$ 1 million of production.

Table 13 – Indirect employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 49 | 43 | 35 | 35 | 33 | 32 | 33 | 29 |
| Metal Mining | 21 | 21 | 20 | 21 | 18 | 19 | 16 | 16 |
| Petroleum and gas mining | 17 | 16 | 16 | 14 | 13 | 19 | 9 | 6 |
| Nonmetallic mineral | 27 | 23 | 21 | 22 | 18 | 17 | 18 | 18 |
| Metallurgy / Nonferrous metal production | 43 | 38 | 35 | 35 | 32 | 34 | 31 | 30 |
| Industrial machinery manufacturing | 25 | 20 | 19 | 19 | 16 | 17 | 15 | 15 |
| Electrical equipment/ Electronic instrument | 29 | 25 | 21 | 21 | 21 | 21 | 21 | 21 |
| Autom/Trucks/Bus parts and other vehicles | 37 | 31 | 26 | 26 | 23 | 24 | 23 | 24 |
| Wood and furniture | 55 | 48 | 46 | 46 | 41 | 41 | 38 | 35 |
| Cellulose/Paper/Graphic | 35 | 32 | 27 | 28 | 26 | 27 | 24 | 21 |
| Plastics and rubber | 26 | 22 | 22 | 23 | 21 | 22 | 21 | 18 |
| Chemical industries | 13 | 8 | 9 | 10 | 10 | 10 | 9 | 8 |
| Oil Refinery | 45 | 94 | 33 | 33 | 32 | 33 | 26 | 26 |
| Pharmaceutical and medicine | 33 | 10 | 26 | 26 | 25 | 24 | 24 | 25 |
| Plastic articles | 16 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| Textile industry | 40 | 31 | 30 | 30 | 29 | 31 | 33 | 34 |
| Clothing industries | 35 | 30 | 26 | 27 | 23 | 24 | 25 | 43 |
| Footwear industries | 43 | 40 | 39 | 37 | 32 | 33 | 30 | 28 |
| Food Industries in General | 109 | 104 | 92 | 88 | 81 | 78 | 77 | 69 |
| Miscellaneous manufacturing | 25 | 21 | 22 | 21 | 19 | 20 | 20 | 19 |
| Electricity, gas and water supply | 16 | 11 | 7 | 7 | 7 | 7 | 7 | 8 |
| Civil Construction | 24 | 20 | 16 | 15 | 15 | 15 | 15 | 16 |
| Wholesale and retail trade | 14 | 12 | 10 | 12 | 12 | 12 | 12 | 12 |
| Transports | 15 | 14 | 13 | 15 | 15 | 15 | 16 | 16 |
| Communications | 9 | 9 | 6 | 7 | 7 | 7 | 7 | 13 |
| Financial Institutions | 4 | 4 | 9 | 11 | 11 | 12 | 12 | 10 |
| Personal services | 35 | 34 | 27 | 25 | 25 | 26 | 28 | 26 |
| Business services | 10 | 10 | 10 | 9 | 9 | 9 | 10 | 10 |
| Real estate | 3 | 4 | 2 | 2 | 1 | 1 | 2 | 2 |
| Public Administration | 18 | 19 | 17 | 15 | 15 | 15 | 15 | 14 |
| Private households with employed persons | 7 | 7 | 5 | 5 | 5 | 4 | 4 | 4 |
| Total | | | | | | | | |

Source: Research data.

The 5 sectors that more generate formal indirect jobs for each R\$ 1 million of production (Table 14) are Food Industries in General, Metallurgy / Nonferrous metal production, Automobiles/Trucks/Bus and other vehicles, Footwear industries, Wood and Furniture.

Tabela 14 – Formal indirect employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 15 | 13 | 10 | 10 | 10 | 9 | 10 | 9 |
| Metal Mining | 13 | 13 | 12 | 13 | 11 | 11 | 9 | 9 |
| Petroleum and gas mining | 11 | 11 | 10 | 9 | 8 | 12 | 6 | 4 |
| Nonmetallic mineral | 16 | 14 | 12 | 12 | 10 | 10 | 10 | 10 |
| Metallurgy / Nonferrous metal production | 29 | 26 | 23 | 23 | 20 | 21 | 18 | 19 |
| Industrial machinery manufacturing | 18 | 14 | 13 | 13 | 11 | 11 | 9 | 9 |
| Electrical equipment/ Electronic instrument | 20 | 17 | 14 | 14 | 13 | 14 | 13 | 13 |
| Autom/Trucks/Bus parts and other vehicles | 27 | 23 | 19 | 18 | 15 | 16 | 14 | 15 |
| Wood and furniture | 21 | 17 | 15 | 16 | 13 | 13 | 13 | 13 |
| Cellulose/Paper/Graphic | 20 | 18 | 15 | 15 | 14 | 14 | 13 | 11 |
| Plastics and rubber | 13 | 11 | 10 | 10 | 9 | 9 | 9 | 8 |
| Chemical industries | 9 | 5 | 6 | 6 | 6 | 6 | 5 | 5 |
| Oil Refinery | 17 | 35 | 13 | 13 | 12 | 12 | 10 | 10 |
| Pharmaceutical and medicine | 18 | 5 | 14 | 14 | 13 | 13 | 13 | 13 |
| Plastic articles | 10 | 7 | 7 | 7 | 6 | 7 | 7 | 6 |
| Textile industry | 20 | 16 | 14 | 14 | 13 | 14 | 14 | 15 |
| Clothing industries | 20 | 18 | 14 | 15 | 13 | 13 | 13 | 19 |
| Footwear industries | 24 | 22 | 21 | 21 | 18 | 18 | 16 | 16 |
| Food Industries in General | 33 | 31 | 26 | 26 | 23 | 21 | 22 | 21 |
| Miscellaneous manufacturing | 16 | 13 | 13 | 13 | 12 | 12 | 12 | 11 |
| Electricity, gas and water supply | 11 | 8 | 5 | 5 | 5 | 5 | 4 | 5 |
| Civil Construction | 15 | 12 | 9 | 9 | 9 | 9 | 9 | 9 |
| Wholesale and retail trade | 9 | 8 | 6 | 7 | 7 | 7 | 7 | 7 |
| Transports | 10 | 9 | 8 | 9 | 9 | 9 | 9 | 9 |
| Communications | 6 | 6 | 4 | 4 | 4 | 5 | 4 | 8 |
| Financial Institutions | 3 | 2 | 6 | 7 | 7 | 7 | 7 | 6 |
| Personal services | 18 | 17 | 13 | 12 | 12 | 12 | 13 | 12 |
| Business services | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Real estate | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Public Administration | 10 | 10 | 9 | 8 | 8 | 8 | 7 | 7 |
| Private households with employed persons | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| Total | | | | | | | | |

Source: Research data.

The sectors Clothing industries, Agriculture, Food Industries in general, Wood and furniture and Personal services are the main sector in terms of generating the greatest values of informal indirect employment (Table 15). The textile Industry and the Oil Refinery occupy the fifth and sixth position in the generation of informal indirect jobs, despite the fact that they are not among the activities that have the highest coefficients of direct informal job.

Table 15 – Informal indirect employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 34 | 31 | 25 | 25 | 23 | 23 | 24 | 20 |
| Metal Mining | 8 | 7 | 8 | 8 | 7 | 8 | 7 | 6 |
| Petroleum and gas mining | 5 | 5 | 5 | 5 | 4 | 7 | 4 | 2 |
| Nonmetallic mineral | 11 | 10 | 9 | 9 | 8 | 8 | 8 | 8 |
| Metallurgy / Nonferrous metal production | 14 | 12 | 12 | 13 | 12 | 13 | 13 | 12 |
| Industrial machinery manufacturing | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Electrical equipment/ Electronic instrument | 9 | 7 | 7 | 7 | 7 | 8 | 8 | 8 |
| Autom/Trucks/Bus parts and other vehicles | 10 | 8 | 8 | 8 | 8 | 8 | 8 | 9 |
| Wood and furniture | 34 | 31 | 31 | 31 | 27 | 27 | 25 | 22 |
| Cellulose/Paper/Graphic | 15 | 13 | 13 | 13 | 12 | 13 | 11 | 10 |
| Plastics and rubber | 13 | 11 | 12 | 12 | 12 | 13 | 12 | 10 |
| Chemical industries | 5 | 3 | 3 | 4 | 4 | 4 | 4 | 3 |
| Oil Refinery | 28 | 59 | 21 | 21 | 20 | 21 | 16 | 16 |
| Pharmaceutical and medicine | 15 | 4 | 13 | 12 | 12 | 12 | 12 | 12 |
| Plastic articles | 6 | 4 | 4 | 4 | 4 | 4 | 5 | 4 |
| Textile industry | 20 | 15 | 17 | 16 | 16 | 18 | 20 | 19 |
| Clothing industries | 14 | 12 | 12 | 11 | 10 | 11 | 12 | 25 |
| Footwear industries | 19 | 18 | 18 | 16 | 14 | 15 | 14 | 12 |
| Food Industries in General | 76 | 74 | 66 | 62 | 58 | 57 | 55 | 48 |
| Miscellaneous manufacturing | 9 | 8 | 9 | 8 | 7 | 8 | 8 | 8 |
| Electricity, gas and water supply | 5 | 3 | 2 | 2 | 2 | 2 | 2 | 3 |
| Civil Construction | 9 | 8 | 7 | 6 | 6 | 6 | 7 | 7 |
| Wholesale and retail trade | 5 | 4 | 4 | 5 | 5 | 5 | 5 | 5 |
| Transports | 6 | 5 | 5 | 6 | 6 | 6 | 7 | 7 |
| Communications | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 5 |
| Financial Institutions | 2 | 1 | 3 | 4 | 4 | 5 | 5 | 4 |
| Personal services | 18 | 18 | 15 | 13 | 14 | 14 | 15 | 14 |
| Business services | 4 | 4 | 3 | 3 | 3 | 3 | 4 | 4 |
| Real estate | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Public Administration | 8 | 9 | 8 | 7 | 7 | 7 | 7 | 7 |
| Private households with employed persons | 4 | 4 | 3 | 3 | 2 | 2 | 2 | 2 |
| Total | | | | | | | | |

Source: Research data.

Finally, with the proposed methodology it is possible to estimate the induced employment (Tables 16 to 18), also known as the income effect, i.e., it measures the impact on employment given by the expenditures of the newly employed persons.

The results for the total induced jobs (Table 16) as well as the ones for the formal induced (Table 17) and informal induced jobs (Table 18) show the same 5 sectors as being the most important ones: a) Public administration; b) Personal services; c) Business services; d) Wholesale and retail trade; and e) Clothing industries.

Table 16 – Induced employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 54 | 45 | 61 | 67 | 65 | 59 | 61 | 55 |
| Metal Mining | 64 | 58 | 68 | 74 | 67 | 64 | 59 | 57 |
| Petroleum and gas mining | 56 | 48 | 65 | 68 | 63 | 62 | 59 | 52 |
| Nonmetallic mineral | 61 | 52 | 64 | 70 | 62 | 58 | 58 | 52 |
| Metallurgy / Nonferrous metal production | 61 | 53 | 62 | 68 | 62 | 59 | 54 | 49 |
| Industrial machinery manufacturing | 65 | 53 | 65 | 72 | 66 | 63 | 61 | 57 |
| Electrical equipment/ Electronic instrument | 57 | 48 | 55 | 59 | 57 | 55 | 51 | 47 |
| Autom/Trucks/Bus parts and other vehicles | 74 | 53 | 59 | 63 | 57 | 55 | 51 | 46 |
| Wood and furniture | 71 | 61 | 72 | 77 | 71 | 69 | 66 | 62 |
| Cellulose/Paper/Graphic | 73 | 65 | 70 | 75 | 69 | 67 | 61 | 55 |
| Plastics and rubber | 53 | 42 | 54 | 59 | 55 | 52 | 48 | 45 |
| Chemical industries | 42 | 32 | 48 | 53 | 51 | 49 | 47 | 42 |
| Oil Refinery | 56 | 119 | 57 | 62 | 59 | 56 | 53 | 48 |
| Pharmaceutical and medicine | 56 | 17 | 60 | 64 | 63 | 60 | 57 | 53 |
| Plastic articles | 58 | 47 | 58 | 64 | 60 | 58 | 57 | 50 |
| Textile industry | 58 | 45 | 55 | 58 | 55 | 53 | 50 | 46 |
| Clothing industries | 81 | 73 | 75 | 78 | 72 | 69 | 67 | 61 |
| Footwear industries | 67 | 56 | 67 | 72 | 67 | 64 | 61 | 55 |
| Food Industries in General | 60 | 51 | 62 | 67 | 63 | 59 | 58 | 53 |
| Miscellaneous manufacturing | 67 | 57 | 71 | 74 | 68 | 64 | 60 | 53 |
| Electricity, gas and water supply | 70 | 73 | 73 | 75 | 75 | 67 | 64 | 57 |
| Civil Construction | 59 | 49 | 57 | 62 | 61 | 58 | 58 | 53 |
| Wholesale and retail trade | 85 | 74 | 81 | 86 | 82 | 80 | 76 | 68 |
| Transports | 72 | 66 | 71 | 79 | 78 | 76 | 69 | 62 |
| Communications | 73 | 62 | 71 | 73 | 70 | 67 | 67 | 56 |
| Financial Institutions | 67 | 57 | 86 | 93 | 89 | 83 | 82 | 73 |
| Personal services | 87 | 78 | 80 | 83 | 82 | 81 | 80 | 72 |
| Business services | 86 | 73 | 86 | 87 | 85 | 83 | 80 | 74 |
| Real estate | 38 | 30 | 52 | 59 | 58 | 53 | 57 | 53 |
| Public Administration | 114 | 107 | 104 | 107 | 103 | 99 | 99 | 93 |
| Private households with employed persons | 125 | 122 | 117 | 117 | 112 | 110 | 110 | 104 |
| Total | | | | | | | | |

Source: Research data.

Table 17 – Formal induced employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 24 | 20 | 26 | 29 | 28 | 25 | 26 | 24 |
| Metal Mining | 29 | 25 | 29 | 33 | 29 | 27 | 25 | 25 |
| Petroleum and gas mining | 25 | 21 | 27 | 30 | 27 | 27 | 25 | 23 |
| Nonmetallic mineral | 27 | 23 | 27 | 31 | 27 | 25 | 24 | 23 |
| Metallurgy / Nonferrous metal production | 28 | 23 | 26 | 30 | 27 | 25 | 23 | 22 |
| Industrial machinery manufacturing | 29 | 23 | 28 | 32 | 29 | 27 | 26 | 25 |
| Electrical equipment/ Electronic instrument | 25 | 21 | 23 | 26 | 25 | 24 | 22 | 21 |
| Autom/Trucks/Bus parts and other vehicles | 33 | 23 | 25 | 28 | 25 | 23 | 22 | 20 |
| Wood and furniture | 32 | 27 | 30 | 34 | 31 | 30 | 28 | 27 |
| Cellulose/Paper/Graphic | 33 | 28 | 30 | 33 | 30 | 29 | 26 | 24 |
| Plastics and rubber | 24 | 18 | 23 | 26 | 24 | 22 | 20 | 20 |
| Chemical industries | 19 | 14 | 20 | 23 | 22 | 21 | 20 | 19 |
| Oil Refinery | 25 | 52 | 24 | 27 | 26 | 24 | 22 | 21 |
| Pharmaceutical and medicine | 25 | 7 | 26 | 29 | 28 | 26 | 24 | 23 |
| Plastic articles | 26 | 21 | 25 | 29 | 26 | 25 | 24 | 22 |
| Textile industry | 26 | 20 | 24 | 26 | 24 | 23 | 21 | 21 |
| Clothing industries | 36 | 32 | 32 | 34 | 31 | 30 | 29 | 27 |
| Footwear industries | 30 | 25 | 29 | 32 | 29 | 28 | 26 | 24 |
| Food Industries in General | 27 | 22 | 26 | 30 | 27 | 25 | 24 | 23 |
| Miscellaneous manufacturing | 30 | 25 | 30 | 33 | 29 | 27 | 25 | 24 |
| Electricity, gas and water supply | 31 | 32 | 31 | 33 | 33 | 29 | 27 | 25 |
| Civil Construction | 26 | 21 | 24 | 28 | 27 | 25 | 24 | 23 |
| Wholesale and retail trade | 38 | 33 | 34 | 38 | 36 | 34 | 32 | 30 |
| Transports | 32 | 29 | 30 | 35 | 34 | 32 | 29 | 27 |
| Communications | 33 | 27 | 30 | 32 | 30 | 29 | 28 | 25 |
| Financial Institutions | 30 | 25 | 37 | 41 | 39 | 35 | 35 | 32 |
| Personal services | 39 | 34 | 34 | 37 | 36 | 35 | 34 | 32 |
| Business services | 38 | 32 | 36 | 39 | 37 | 36 | 34 | 33 |
| Real estate | 17 | 13 | 22 | 26 | 25 | 23 | 24 | 23 |
| Public Administration | 51 | 47 | 44 | 47 | 45 | 43 | 42 | 41 |
| Private households with employed persons | 56 | 54 | 50 | 52 | 49 | 47 | 46 | 46 |
| Total | | | | | | | | |

Source: Research data.

Table 18 – Informal induced employment generated by and increase of R\$ 1 million (2001 constant prices) in the final demand of a given sector – 1992 to 2001

| Sectors | 1992 | 1993 | 1995 | 1996 | 1997 | 1998 | 1999 | 2001 |
|---|------|------|------|------|------|------|------|------|
| Agriculture | 30 | 25 | 35 | 37 | 36 | 34 | 35 | 31 |
| Metal Mining | 35 | 32 | 39 | 41 | 38 | 36 | 34 | 32 |
| Petroleum and gas mining | 31 | 27 | 37 | 38 | 36 | 36 | 34 | 29 |
| Nonmetallic mineral | 34 | 29 | 37 | 39 | 35 | 33 | 33 | 29 |
| Metallurgy / Nonferrous metal production | 34 | 30 | 36 | 38 | 35 | 34 | 31 | 27 |
| Industrial machinery manufacturing | 36 | 30 | 38 | 40 | 37 | 36 | 35 | 32 |
| Electrical equipment/ Electronic instrument | 31 | 27 | 32 | 33 | 32 | 31 | 30 | 26 |
| Autom/Trucks/Bus parts and other vehicles | 41 | 30 | 34 | 35 | 32 | 31 | 29 | 25 |
| Wood and furniture | 39 | 34 | 41 | 43 | 40 | 39 | 38 | 34 |
| Cellulose/Paper/Graphic | 40 | 36 | 40 | 42 | 39 | 38 | 35 | 31 |
| Plastics and rubber | 29 | 24 | 31 | 33 | 31 | 30 | 28 | 25 |
| Chemical industries | 23 | 18 | 28 | 29 | 29 | 28 | 27 | 23 |
| Oil Refinery | 31 | 67 | 33 | 34 | 33 | 32 | 30 | 27 |
| Pharmaceutical and medicine | 31 | 9 | 35 | 36 | 36 | 34 | 33 | 29 |
| Plastic articles | 32 | 26 | 34 | 36 | 34 | 33 | 33 | 28 |
| Textile industry | 32 | 25 | 32 | 32 | 31 | 30 | 29 | 26 |
| Clothing industries | 45 | 41 | 43 | 43 | 40 | 40 | 39 | 34 |
| Footwear industries | 37 | 31 | 39 | 40 | 38 | 37 | 35 | 31 |
| Food Industries in General | 33 | 28 | 36 | 38 | 35 | 34 | 33 | 29 |
| Miscellaneous manufacturing | 37 | 32 | 41 | 41 | 38 | 37 | 35 | 30 |
| Electricity, gas and water supply | 39 | 41 | 42 | 42 | 42 | 38 | 37 | 32 |
| Civil Construction | 32 | 27 | 33 | 35 | 35 | 33 | 33 | 30 |
| Wholesale and retail trade | 47 | 42 | 47 | 48 | 47 | 46 | 44 | 38 |
| Transports | 40 | 37 | 41 | 44 | 44 | 43 | 40 | 34 |
| Communications | 41 | 35 | 41 | 41 | 39 | 38 | 39 | 31 |
| Financial Institutions | 37 | 32 | 50 | 52 | 50 | 47 | 47 | 41 |
| Personal services | 48 | 44 | 46 | 46 | 46 | 46 | 46 | 40 |
| Business services | 47 | 41 | 49 | 49 | 48 | 47 | 46 | 41 |
| Real estate | 21 | 17 | 30 | 33 | 33 | 30 | 33 | 29 |
| Public Administration | 63 | 60 | 60 | 60 | 58 | 57 | 57 | 52 |
| Private households with employed persons | 69 | 69 | 67 | 65 | 63 | 63 | 63 | 58 |
| Total | | | | | | | | |

Source: Research data.

5. FINAL CONSIDERATIONS

From the above, one has that the total number of employees in the economy, from 1992 to 2001, had grown by about 5 million. The sectors that have the greatest growth in the number of people employed were: a) Wholesale and retail trade; b) Personal Services; and c) Public Administration. The increase in the rate of unemployment found in the period analyzed shows that the economy has been incapable to absorb the population that enters every year in the work force.

The Agriculture, Textile Industry and Financial Institutions had decreased significantly their capacity to generate jobs, which was mainly due by the adjustments in their productive process as well as for changes in the economic environment. The Financial Institutions had an brusque fall in the share of its value added between the years 1993 and 1995, what can be explained by the impact that the Real Plan had in the inflationary process.

The share of the Agriculture in the total employment is the highest, followed by the sectors of Wholesale and retail trade, Services, Public Administration and Civil Construction. As it was observed above, despite the highest share of the Agriculture sector, it is a sector which has been showing a decrease in the number of people linked with its activity and at the same time it has a high share of informal jobs.

The share of the informal jobs throughout this period was superior to 50%, confirming the importance of the problem in the Brazilian economy. Of the newly 5 million generated jobs, about 3 million are related the employment created in the formal market job. As so, although the informality represents 50% of the total workers, the formal sector seems to be gaining force in the capacity to generate jobs. A possible explanation for this fact would be the increase of the enforcement of the labor laws and the new forms of act of contract, facilitating the formal act of contract of temporary workers.

The analyzed databases of the National Account Systems, the National Household Survey, and the input-output system, come to confirm the reduction in the capability of Brazilian sectors to generate employment in the decade of 1990, mainly due to changes in the productive structure which were related to changes in the national economic environment and in the continuous process of globalization.

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