# The Social Contribution (SC) module. Development and results of the IRAP-SC Italian model


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# The Social Contribution (SC) module

## *Development and results of the IRAP-SC Italian model*

Work Package No. 5: *Tax indicators construction and development: step 1 – Conceptual Framework and Development of the National Tax Base Modules*

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*Development of a System of Indicators on Competitiveness and Fiscal Impact on Enterprises Performance (DIECOFIS)*

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# 1. Introduction and summary

As already explained in previous documents, the University of Florence Unit focused its work on indirect taxes paid by firms and on their impact on the performance of the latter (within Work Package 5), while the Unit at the University of Tor Vergata deals with corporation tax (Work Package 6) . On the basis of a detailed analysis of all data available (survey and balance sheet data), we have ranked indirect taxes in order of 'modelling feasibility' as follows: 1)IRAP, 2)Social Security Contributions, 3) VAT, 4) Excise Taxes.

According to this agenda, IRAP and SSC modules has been built and validated, while the data unavailability[1] still prevent us from building VAT and Excise Taxes modules.

In this deliverable, we present a brief overview of the labour cost differences in EU, stressing on the heavy fiscal burden on Italian wages and salaries. Then, the basic principle of Social Security financing system in Italy is analysed and details on labour cost fiscal legislation and on specific tax rates are provided. In the fourth section the structure of the Social Security Contribution module is explained. The final section is devoted to the validation of the two modules, with a comparison between model estimation results and Official Revenue Data (Tax Authority and INPS). As an overall conclusion about our work at this stage, we may assert that the performance of the model in reproducing the working mechanism of these two indirect taxes –IRAP and Social Contributions – is very good. In fact, the average deviation from the official data by sector of activity, legal status of the firm and firm size is very low: the model underestimates Irap revenue at 1.3 per cent and overestimates the total contribution revenue at 4,2%. Considering the complexity of tax rules and the modelling assumptions due to data unavailability, we reckon that this is a good starting point for forecasting policy changes although there is some room for improvement whereas official fiscal microdata – from Tax Authority and INPS – should become available.

[1] This issue has been explained in our document "*Problems in the definition of a final dataset*", presented in the meeting on the "*Data needs for Indirect Taxes Modules: Integration Issues*" held in Florence, 13 June 2002.

## 2. Labour Costs Structure in EU

On average, labour costs account for about two thirds of all costs incurred in the production of goods and services and exercise a considerable influence on the choices of political, economic and social decision-makers. In Eurostat official statistics, the term labour cost is taken to mean the expenditure borne by employers in order to employ workers.[2] These costs can be subdivided into 'direct' and 'indirect' costs. Direct costs cover all earnings (direct remuneration, bonuses and ex gratia payments not paid at each pay period, payments for days not worked and severance pay) and benefits in kind (company products, staff housing, company cars, canteens and meal vouchers, staff shops, kindergartens and day nurseries, etc.). This aggregate is also indicated as 'wages & salaries'.[3] Indirect costs are largely accounted for by social contributions (statutory, collectively agreed, contractual and voluntary social contributions), direct social benefits, vocational training costs, other social expenditure and taxes relating to employment regarded as labour costs.[4] A summary of these costs, categorised by the main sectors of activity and by country is presented in the following Table.

**Table 1 – Labour Costs in EU 1998**

| | Manufacturing | | | | Construction | | | | Services | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Labour cost per hour | Direct cost (%) | Indirect cost (%) | Social contribu tions (%) | Labour cost per hour | Direct cost (%) | Indirect cost (%) | Social contribu tions (%) | Labour cost per hour | Direct cost (%) | Indirect cost (%) | Social contribu tions (%) |
| Countries | 17.9 | 65.0 | 35.0 | 32.8 | 16.7 | 65.0 | 35.0 | 33.2 | 21.1 | 66.4 | 33.6 | 32.5 |
| I | 25.8 | 67.4 | 32.6 | 30.8 | 22.6 | 62.9 | 37.1 | 35.8 | 23.9 | 69.5 | 30.5 | 28.7 |
| B | 23.9 | 67.7 | 32.3 | 29.7 | 21.9 | 69.1 | 30.9 | 29.3 | 23.9 | 68.0 | 32.0 | 29.2 |
| S | 22.5 | 66.9 | 33.1 | 29.2 | 19.6 | 68.2 | 31.8 | 28.9 | 22.2 | 37.4 | 32.6 | 28.0 |
| F | 22.5 | 66.9 | 33.1 | 29.2 | 19.6 | 38.2 | 31.8 | 28.9 | 22.2 | 67.4 | 32.6 | 28.0 |
| A | 24.6 | 70.4 | 29.6 | 25.3 | | | | | 29.4 | 70.8 | 29.2 | 24.7 |
| ES | 14.9 | 73.6 | 26.4 | 25.0 | 12.3 | 75.2 | 24.8 | 23.4 | 14.0 | 74.4 | 25.6 | 23.8 |
| D | 26.5 | 74.4 | 25.6 | 23.6 | 21.3 | 74.1 | 25.9 | 23.1 | 23.5 | 75.0 | 25.0 | 22.0 |
| EL | 9.6 | 76.0 | 24.0 | 22.9 | 8.2 | 76.5 | 23.5 | 23.1 | 9.2 | 75.3 | 24.7 | 23.9 |
| F | 19.7 | 75.1 | 24.9 | 22.7 | 18.1 | 76.0 | 24.0 | 22.6 | 19.0 | 75.9 | 24.1 | 21.6 |
| NL | 22.6 | 74.9 | 25.1 | 22.8 | 20.4 | 76.2 | 23.8 | 21.3 | 18.8 | 76.2 | 23.8 | 21.4 |
| P | 6.1 | 75.0 | 25.0 | 21.0 | 5.3 | 77.0 | 23.0 | 20.0 | 8.2 | 78.0 | 22.0 | 20.0 |
| L | 19.3 | 84.0 | 16.0 | 14.8 | 15.5 | 84.2 | 15.8 | 15.5 | 22.8 | 83.8 | 16.2 | 14.1 |
| IRL | 13.8 | 83.5 | 16.5 | 13.6 | 14.6 | 80.2 | 19.9 | 17.1 | 14.4 | 84.7 | 15.3 | 13.0 |
| DK | 23.0 | 92.0 | 8.1 | 6.1 | 23.2 | 90.6 | 9.4 | 5.1 | 25.2 | 88.9 | 31.1 | 6.7 |
| EU – 15 | 20.2 | 73.7 | 26.3 | 23.6 | 17.4 | 74.7 | 25.3 | 22.7 | 18.8 | 75.1 | 24.9 | 22.0 |

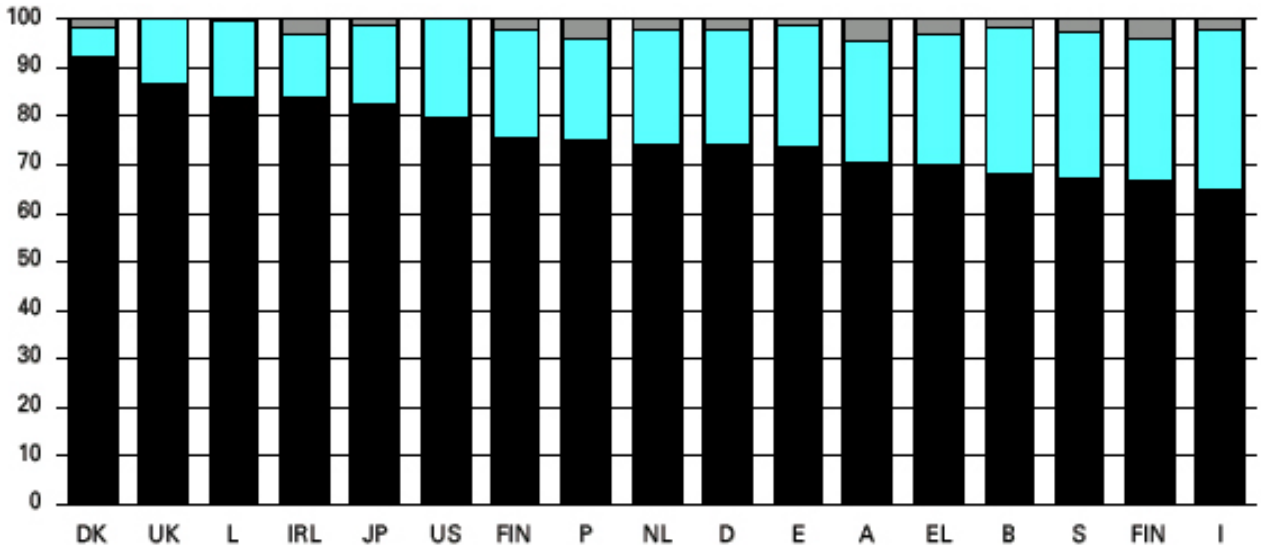
***Source*: Eurostat**

[2] In cooperation with the Member States, Eurostat organises a detailed collection of comparable statistics on labour costs in industry and services every four years. Surveys of labour costs have been carried out since 1966 and, at present, take place every four years, the latest being for 2000. See Eurostat, "Labour Costs Survey 2000", Statistics in Focus, Theme 3 – 7/2003.

[3] Total labour costs is the sum of 'compensation of employees' plus 'other labour costs'. Compensation of employees includes 'wages & salaries' plus 'employers' social contributions'.

Total labour costs can be broken down into their component parts, of which 'wages & salaries', 'employers' social contributions' and 'other labour costs' represent three distinct categories. The differences in the structure of costs between the Member States largely reflect differences in national policies (e.g. with respect to the statutory rates of social security contributions). Figure 1 presents total labour costs in the manufacturing industry broken down into the three components. As Figure 1 shows, the structure of total labour costs differs considerably between the Member States.

**Figure 1 - Structure of Labour Costs as % of total costs in industry, 1999**




Black: direct costs; colour: employers' social security contributions; grey: other costs.

*Source:*Eurostat (2002)

In relation to labour costs, the yield of employers' social contributions declined by around 1% of labour costs over the period 1994 to 1999. During the same period employees' contributions fell by just under 1%. In fact,, the number of States which use exemptions from social security contributions to support job retention and creation continues to grow. As a result, the reduction of labour costs by the selective reduction of social contributions and their total or partial transfer to the State budget has become a necessary element of employment policies among Member States..

In relation to the financing of social protection, there are marked difference across the Union in the way that social protection is funded. In general, countries can be divided between those which

[4] OECD. Glossary of Statistical Terms.

finance spending largely from social contributions and those in which general taxes play an equally important role or a far more important one. Belgium, Germany, Spain, France, the Netherlands and Austria (where around two thirds of revenue came from social contributions in 1999) are in the first group and all the other Members States are in the second group. In the Union as a whole contributions declined continuously in importance as a source of revenue over the 1990s, from 66% in 1990 to 60,5% in 1999, in part reflecting the growing objective to reduce taxes on labour in order to promote job creation. The fall was particularly marked in France (from just under 80% in 1990 to 67% in 1999) and Italy (from 70% to 58%). In general, the decline in the relative amount of revenue raised from contributions was concentrated on employers' contributions in the first half of the decade, but more on employees' contributions from 1994 onwards.

# 3. Social Security financing system in Italy

In Italy it is compulsory for employers to insure their dependent workers for the duration of their contract. Social contributions are applied to taxable income: in general firms pay two thirds of the total amount and the worker pays the rest. It is the employer's task to withdraw contributions from the employee taxable income and to pay the public institution. The law establishes a minimum wage for each category of workers so the institution must receive an amount that cannot be lower than a minimum value referred to as "minimale". This threshold is established every year with reference to the living cost variation. There is also a ceiling value called "massimale" above which social contributions are not due. Like the "minimale" its value is updated every year."
The Italian public institution in charge of social security is the INPS (Istituto Nazionale della Previdenza Sociale) together with other institutions such as INAIL(Istituto Nazionale per l'Assicurazione contro gli infortuni sul lavoro) for work accident insurance, ENPALS, INPDAI and INPGI.

## 3.1 Regular employees contribution provisions

Full time workers have to pay a certain social contributions. These have to be distinguished from those paid by workers with different contracts such as apprenticeship and work training contracts. Here follows a brief description of these contributions: Tables 1-6 present the detailed rates applied both to the employee and to the employer for each contribution type.

### 3.1.1 Pension Fund

The Pension Fund for dependent employees (FPLD) is financed by the general compulsory insurance (AGO, *assicurazione generale obbligatoria*) for invalidity, old-age and survivors (IVS, *invalidità, vecchiaia e superstiti*). In 1998, the legal rate of this contribution was 32.7% (of which 23.81% was charged to the employer and 8.89% to the employee.[5] The National Institute for Social Security (Istituto Nazionale della Previdenza Sociale, INPS) is responsible for the collection of contributions and the provision of benefits for the general scheme of the employees in the private

[5] In 1998, the total amount of this contribution was 149.365 billion lire of which 112.578 billion was from dependent workers of the private sector.

sector.[6] For certain special schemes (for journalists, artists and soccer players) ad hoc administrations have been established.[7]

### 3.1.2 Ordinary Earnings Supplement

The Ordinary Earnings Supplement (Cassa Integrazione Guadagni, **CIG**) is used to top up earnings in case of an interruption to the productive activity that could occur despite the efforts of workers and of the entrepreneur. It can be used to pay production workers, office staff , supervisors of industry and artisans of the building sector and the mining and quarrying sector (excluding apprentices). The rate differs depending on the sector of activity, the category of workers and the firm dimension. In 1998, CIG yielded approximately 294 million Euro. It is important to underline that there is another fund called CIGS (Cassa Integrazione Guadagni Straordinaria), extraordinary earnings supplement. The total rate is generally equal to 0.9% (0.3% of which is from the employee and 0.6% from the employer).

### 3.1.3 Employment injuries and occupational diseases

The collection of contributions and provision of benefits is carried out by the National Institute for Insurance against Employment Injuries (Istituto Nazionale contro gli infortuni sul lavoro, INAIL). This institution deals with work insurance for professional illness and occupational diseases and aims to guarantee the employee good sanitary and economic assistance. This insurance is compulsory for some categories of workers so it increases the labour cost as only the employer pays it. There are collective rates according to the degree of risk in the various occupational sectors. The rate is calculated on the basis of the total wage and, for the first two years of activity, it is fixed. In the following years, the rate changes depending on the type/amount rate of injuries, occupational

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[6] INPS is the most important Institution of Social Security; in fact it manages the insurance of most dependent workers of the private sector and independent workers (lavoratori autonomi) and some workers of the public sector. The Institution is financed mainly by the contributions paid by both employers and employees, depending on the sectors of economic activity and on the position of the worker inside the firm.

[7] The National Institute for Social Security of the Italian Journalists (Istituto Nazionale di Previdenza dei Giornalisti Italiani, INPGI) manages several contributions for journalists. The system has been private since 1995. The National Institute for Social Security of Show Business Workers (Ente nazionale per la previdenza e assistenza per i lavoratori dello spettacolo, ENPALS) manages the contribution scheme for artists and soccer players. Since January 2002 another special administration for the management in industrial enterprises (Istituto Nazionale di Previdenza per i Dirigenti di Aziende Industriali, INPDAI) was incorporated into INPS.

diseases and fatal accidents which occur in each insurance sector. For some categories of workers the compulsory insurance is managed by other ad hoc organisations.

### 3.1.4 Other contributions

Other minor contributions are listed and explained below. The acronyms associated with each of them are used in Tables 1-5 were the provisions for the year 1998 are summarized.

- ***Part-time Unemployment*** **(Disoccupazione,** DS): this contribution is compulsory for all workers. In 1998, the rate paid entirely by the employer was 1.61% while the construction sector had a supplement of 0.8%. The yield in 1998 was 3.128 million Euro (6.056 billion lira). This amount includes receipts from a special rate to finance the repatriation fund for extra-UE (non EU) workers.[8] Since 1.1.2000 this rate, which was at worker's expenses, has been removed.

- ***Tubercolosis*** **(**TBC): in 1998 the rate for all workers was 0.21%. These contributions generated receipts for nearly 458 million Euro (887 billion lira). It is important to underline that this rate has been removed with the introduction of a "carbon tax" to reduce the cost of labour as established by art. 3, c 1 law 448/1998.[9] At the same time, contributions for kinder-gardens and for the ENAOLI, an institution for orphans assistance, were also removed.

- ***Family Allowances*** **(**CUAF): this contribution finances a fund to support family income. CUAF rate was 2.48% for nearly all workers and it is paid by employers. This contribution yielded 3.871 million Euro. (7.500 billion lira.) The allowance is constrained by income limits which are annually established by law. All dependent workers, unemployed, and those laid off can benefit from this support. For active employees the allowance is paid directly by the employer who can ask for a refund from the INPS. INPS will pay directly the other benefits.

- ***Sickness and Maternity*** : These contributions differs depending on the sector of activity and the workers category. In 1998, the total yielded from sickness contributions was 2.309 million Euro and 951 million Euro from maternity.

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[8] The rate was 0.5% and yielded more than 1 million Euro (2 billion lira).
[9] In particular, since January 1999, the TBC rate was removed for Manufacturing and from the January 2000 for all other sectors**.**

- ***Fund of Guarantee for Severance Pay*** **(FGTFR)**: this fund is used in case the employer is unable to pay the severance pay. The contribution for this fund must be paid by the employer and from 1 January 1992, as D.Lgs. 80 27/1/1992, it must be paid as follows: 0.2% for nearly all workers, 0.4% for industrial managers (payable to INPDAI) and 0.2% for journalists (payable to INPGI). In 1998, these contributions amounted to 324,1 million Euro.

In Tables 2 and 3, social contributions rates for employees are presented for three categories of workers: manual workers, white collar workers and executives. The rates for pension funds (Table 1) change as income changes for each category: they range from 8.89% to 9.89%. Table 3 is for CIGS, extraordinary earnings: here the rate depends on the size of the firm. All workers of firms with up to 15 employees (50 for commerce) do not have to pay any contribution, while workers in firms with 16 or more employees (51 or more for commerce) have to pay the 0.3% of the taxable income. As total contribution for CIGS is 0.9%, the difference of 0.6% has to be paid by the employer. Executives do not have to pay any rate.
We can see that the total contribution for nearly all employees working in small companies amounts to 8.89% of taxable income and it increases to 9.19% for employees in larger firms.

**Table 2 - Pension Fund (IVS), Rates for Employee**

| | Manual Workers | | White-collars workers | | Executives | |
|---|---|---|---|---|---|---|
| ECONOMIC SECTOR | PENSION FUND (<64.126) | PENSION FUND (64.126<Y< 139.480) | PENSION FUND (<64.126) | PENSION FUND (64.126<Y< 139.480) | PENSION FUND (<64.126 | PENSION FUND (64.126<Y< 254.250 |
| Mining and Quarrying prod. | 8,89 | 9,89 | 8,89 | 9,89 | 8,89 | 9,89 |
| MANUFACTURING | 8,89 | 9,89 | 8,89 | 9,89 | 8,89 | 9,89 |
| CONSTRUCTION | 8,89 | 9,89 | 8,89 | 9,89 | 8,89 | 9,89 |
| COMMERCE | 8,89 | 9,89 | 8,89 | 9,89 | 8,89 | 9,89 |

**Table 3 - Extraordinary Earnings Supplement (CIGS), Rates for Employee**

| | Manual Workers | | | White-collars workers | | | Executives |
|---|---|---|---|---|---|---|---|
| ECONOMIC SECTOR | Less than 15 employees | Between 15-50 employees | More than 50 employees | Less than 15 employees | Between 15-50 employees | More than 50 employees | In all cases |
| Mining and Quarrying prod. | 0,00 | 0,30 | 0,30 | 0,00 | 0,30 | 0,30 | 0,00 |
| MANUFACTURING | 0,00 | 0,30 | 0,30 | 0,00 | 0,30 | 0,30 | 0,00 |
| CONSTRUCTION | 0,00 | 0,30 | 0,30 | 0,00 | 0,30 | 0,30 | 0,00 |
| COMMERCE | 0,00 | 0,30 | 0,30 | 0,00 | 0,30 | 0,30 | 0,00 |

Note: For commerce the division of companies is different and it is exactly: less than 50 employees, between 51-200 employees and over 200 employees.

The total contribution rate in Manufacturing is generally 44.09% most of which is charged to the employer. Details of social contributions rates for employers are shown in Tables 4-6 (excluding the rate for employment injuries and occupational diseases, Table 7).[10] It is important to stress that rates depend **o**n the sector of economic activity, the firm size and the worker category employees (manual workers, white collar workers and executives). Tables are compiled for these three different positions.

**Table 4 – Social Contributions rates for employers, 1998 (Manual Workers)**

| ECONOMIC SECTOR | IVS | TBC | ENAOLI | Kindergarten | DS | Cuaf | FGTFR | CIG up to 15 employees (*) | Cig,cigs +mob between 15-50 employees (*) | Cig,cigs +mob over-50 employees (*) | Gescal | Sickness | Maternity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mining and Quarrying products. | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,20 | 3.70 | 4.60 | 4.60 | 0,35 | 2,22 | 0,66 |
| MANUFACTURING | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,20 | 1,90 | 2,80 | 3,10 | 0,35 | 2,22 | 0,66 |
| CONSTRUCTION | 23,81 | 0,21 | 0,16 | 0,10 | 2,41 | 2,48 | 0,20 | 5,20 | 5,80 | 5,80 | 0,35 | 2,22 | 0,66 |
| COMMERCE | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,20 | 0,00 | 0,90 | 0,90 | 0,35 | 2,44 | 0,44 |

**(*) For commerce, firms classification is: less than 50 employees, between 51-200 employees and over 200 employees.**

[10] The social contribution rates used in the model are detailed for a larger number of sectors. See Annex 1.

**Table 5 – Social Contributions rates for employers, 1998 (White collar workers)**

| ECONOMIC SECTOR | IVS | TBC | ENAOLI | Kindergarten | DS | Cuaf | FGTFR | CIG up to 15 employees (* | Cig,cigs +mob between 15-50 employees (*) | Cig,cigs +mob over-50 employees (*) | Gescal | Sickness | Maternity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mining and Quarrying products. | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0,00 | 0,66 |
| MANUFACTURING | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0,00 | 0,00 |
| CONSTRUCTION | 23,81 | 0,21 | 0,16 | 0,1 | 2,41 | 2,48 | 0,2 | 1,9 | 2,5 | 2,8 | 0,35 | 0,00 | 0,00 |
| COMMERCE | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 |

**(*) For commerce, firms classification is: less than 50 employees, between 51-200 employees and over 200 employees.**

**Table 6 – Social Contributions rates for employers, 1998 (Executives)**

| ECONOMIC SECTOR | IVS | TBC | ENAOLI | Kindergarten | DS | Cuaf | FGTFR | CIG up to 15 employees (*) | Cig,cigs +mob between 15-50 employees (*) | Cig,cigs +mob over-50 employees (*) | Gescal | Sickness | Maternity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mining and Quarrying products. | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,0 | 0,3 | 0,3 | 0.00 | 0,0 | 0,0 |
| MANUFACTURING | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,0 | 0,3 | 0,3 | 0,00 | 0,0 | 0,0 |
| CONSTRUCTION | 23,81 | 0,21 | 0,16 | 0,0 | 1,61 | 2,48 | 0,0 | 0,0 | 0,0 | 0,0 | 0,00 | 0,0 | 0,0 |
| COMMERCE | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,3 | 0,3 | 0,35 | 0,0 | 0,0 |

**(*) For commerce, firms classification is: less than 50 employees, between 51-200 employees and over 200 employees.**

*IVS* is the rate concerning invalidity, old age and survivors, and it is the same for all workers and in all sectors as it is for TBC, ENAOLI, Kindergarten and CUAF. *DS* rates for unemployment are slightly different across sectors and worker categories: 1.61% for nearly all employees excluding the construction field with an additional rate of 0.80% for manual workers and white collar workers. The major differences may be found in the ordinary and extraordinary earnings supplements (*CIG* and *CIGS*). For simplicity's sake, we have summed up in one column both contributions including the rate for mobility. For instance in the 'Mining and Quarrying products' sector, we have a *CIG* rate of 3.70% for manual workers in firms with less than 15 employees. This rate increases to 4.60% for firms between 15 and 50 employees as there is 0.6% of *CIGS* and 0.3% rate for mobility. In the same sector, for white collars the rate for *CIG* is 1.9% (for firms with less than 15 employees) thus, even if the employer is charged with the same rate for *CIGS* (0.6%) and mobility (0.3%), this

labour cost component is lower than for manual workers. For firms with more than 50 employees, *CIG* rate increases to 2.2% so the total rate is 3.1%. [11]

It is important to highlight that since January 1998 the contribution to the National Health Care System (Sistema Sanitario Nazionale, SSN) has been removed in order to reduce the labour cost. Since 1993, its total rate was 10.60%. Nonetheless, in order to balance the finances of the system, the Regional Tax on Production Activity (IRAP) has been introduced (D. Lgs. 446/1997).

For the INAIL contribution (employment injuries and occupational diseases), there are no rates fixed by law as for other social contributions. These are insurance premiums and are average for each sector. In the following table we can see the large difference between the economic sectors as it depends on risk, diseases at work and the trend of injuries from the previous years .

**Table 7 – Insurance premiums by economic sectors, 1998**

| ECONOMIC SECTOR | % on average income | Insurance INAIL premium (million lire) |
|---|---|---|
| MINING AND QUARRYING PRODUCTS | 7,1 | 108.573 |
| MANUFACTURING | 3,5 | 4.770.587 |
| CONSTRUCTION | 10,2 | 2.114.623 |
| COMMERCE | 3,1 | 1.115.436 |

It is compulsory for every employer to pay the corresponding amount for each worker. In 1998 there were 16.794.805 insured workers and the contribution yield for this item was 7.023 million Euro.

The Public Authorities do not give benefits in kind or cash benefits for sickness and maternity, injuries sustained at work, or occupational diseases. For invalidity, a part of the total amount of pensions paid by the general system is financed by the state. Regarding old-age and survivors, the state completely covers expenditure for social pensions (assegno sociale), early retirement pensions (pensione di anzianità), topping-up pensions to minimum (complemento di pensione) and a part of the total amount of pensions paid by general system.[12] For family allowances, some of the benefits are financed by the State.

[11] For Commerce, the rate is only 0.9% ( 0.6% for CIGS and 0.3% for mobility).

[12]See http://europa.eu.int/comm/employment_social/missoc/index_en.html for further details and for a comparison with other countries.

## 3.2 Special Contracts

A particular scheme in terms of social contributions is applied to dependent workers as apprentices and trainees. Adding to other measures already in force, these provisions were adopted to promote employment especially for young people as the rates are generally lower and therefore the non-wage costs are reduced.

### 3.2.1 Apprentices

Apprentices are young people employed by firms of all sectors of economic activity. This kind of contract is aimed at giving the apprentice a qualification (skill) through professional instruction. The age of workers must be between 16 an 24 (up to 26 in case of handicapped people). In Southern Italy and in underdeveloped areas the maximum age goes to 26 (28 for handicapped). To be enrolled as apprentices individuals must have finished their obligatory studies according to the law. The duration of this contract cannot be less than 18 months or more than 4 years ( 5 years in manufacturing industry). Firms employing this category of workers must pay the INPS a very low weekly contribution which is composed of: pension plan, tuberculosis, family allowances, illness, maternity and injuries. Apprentices must pay a percentage contribution on their wage, which in recent years has not changed and is equal to 5.54%.

### 3.2.2 Work Training Contracts

This typology of contract (Contratto di Formazione Lavoro, CFL) has been designed to make young people's access to the market easier.13 The main characteristics of this contract are its limited duration and the impossibility of renewal. The advantages of using this contract are not only for the employer in terms of labour cost reduction, but also for the employee who has the opportunity to access the labour market and to complete his training in a professional context. Another advantage for the employer is to have the choice of either confirming or not the worker at the end of the contract. However, employers who have not confirmed at least 60% of CFL workers cannot continue to employ people using these kinds of contracts. It is important to highlight that the

[13] The possibility to introduce and details of this contract are explained in law 863/86 art 3 which has been modified by law 451/94 art 16 and law 197/97 art 15.

reduction of the contribution concerns only the employer, as the employee must pay the whole amount which is determined by his category.

According to the Italian law of November 1993 only people between 16 and 32 years old can be employed.[14] The work training contracts are divided in two categories:

a. TYPOLOGY A : Duration of 24 months and its related to the acquisition of medium and high professional skill

b. TYPOLOGY B : Duration of 12 months and its main purpose is to introduce young people to work through a professional experience.

The CFL cannot be renewed but it is possible to ask for an interruption in case other matters interfere with the vocational training of the worker such as illness, injuries, pregnancy and maternity or military service. The contract will be restored as soon as the worker can retake his activity.
The contributions relief ranges between 25% and 50% depending on the employer status and on the geographical location of his activity. If firms located in Southern Italy employ a CFL worker (Typology A), they can extend the contribution's reduction for another year. The reductions are listed in Table 8.

[14] The European Union has pronounced itself in G.U.C.E. of 15.2.2000 regarding the advantage of the contribution of CFL and established that this kind of contract can regard only
- Young people under 25 year old (30 if they have a superior degree)
- Unemployed for a t least one year
- Young people under 32 years old only if the transformation of their CFL to a proper contract means a net increase of occupation

At present, the controversy between the Italian Government and the UE has not been solved , thus the National Law is still applied.

**Table 8 – Social Contributions Relieves for Work Training Contracts**

| Employers located in Southern Italy | Contributions Scheme |
|---|---|
| Artisan firms | Weekly contribution as for apprentices |
| State-owned economic firms<br>Free-lancers<br>Society of firms (including artisan ones)<br>Professional, socio-cultural and sporting associations<br>State-owned societies of R&D | Reduction for the employer of 50% of Social security contribution current rates |
| **Employers located in Northern-Central Italy (artisans excluded)** | |
| Employers in general (firms, society of firms including artisan ones, State-owned economic companies, professional associations, sporting and socio-cultural associations, Public companies of R&D) | Reduction for the employer of 25% of Social Security contribution current rates |
| Commercial sector companies. Including restaurants, bars, seaside resorts, travel agencies with less than 15 employees at the moment of engagement (not counting apprentices and CFL). Excluding other companies of services. | Reduction for the employer of 40% of Social Security contribution current rates |
| Companies that engage refugees | Weekly contribution as per apprentices |

## 3.3 Severance Pay (TFR)

A peculiar provision of the Italian system is the Severance Pay (Trattamento di Fine Rapporto, **TFR**), regulated by article 2120 of Civil Code. In all cases of termination of employment, the employee has the right to severance pay. This payment is calculated by setting aside, at the end of each financial year, an amount equal to the salary due for that year, divided by 13.5 (7.41% of salary). The amounts set aside are revaluated at 31 December of each year by a fixed 1.5% plus 75% of the increase in the consumer price index calculated by Istat.

The revaluation formula is thus:

$$r = 0.015 + 0.75\ p$$

where p is the inflation rate of the previous year.

In practice, severance pay represents a form of forced saving towards retirement for workers and a form of self-financing for firms. It's worthwhile to note that only 6.91% contributes to internal funds of the firm, since 0,05% is temporarily paid to INPS.

The recent legislation on pension funds sees the takeoff of supplementary pensions which has depended on the use of the resources which were until now intended for severance pay. The intention, in fact, is for the bulk of the contributions to pension funds to come from the severance pay system:

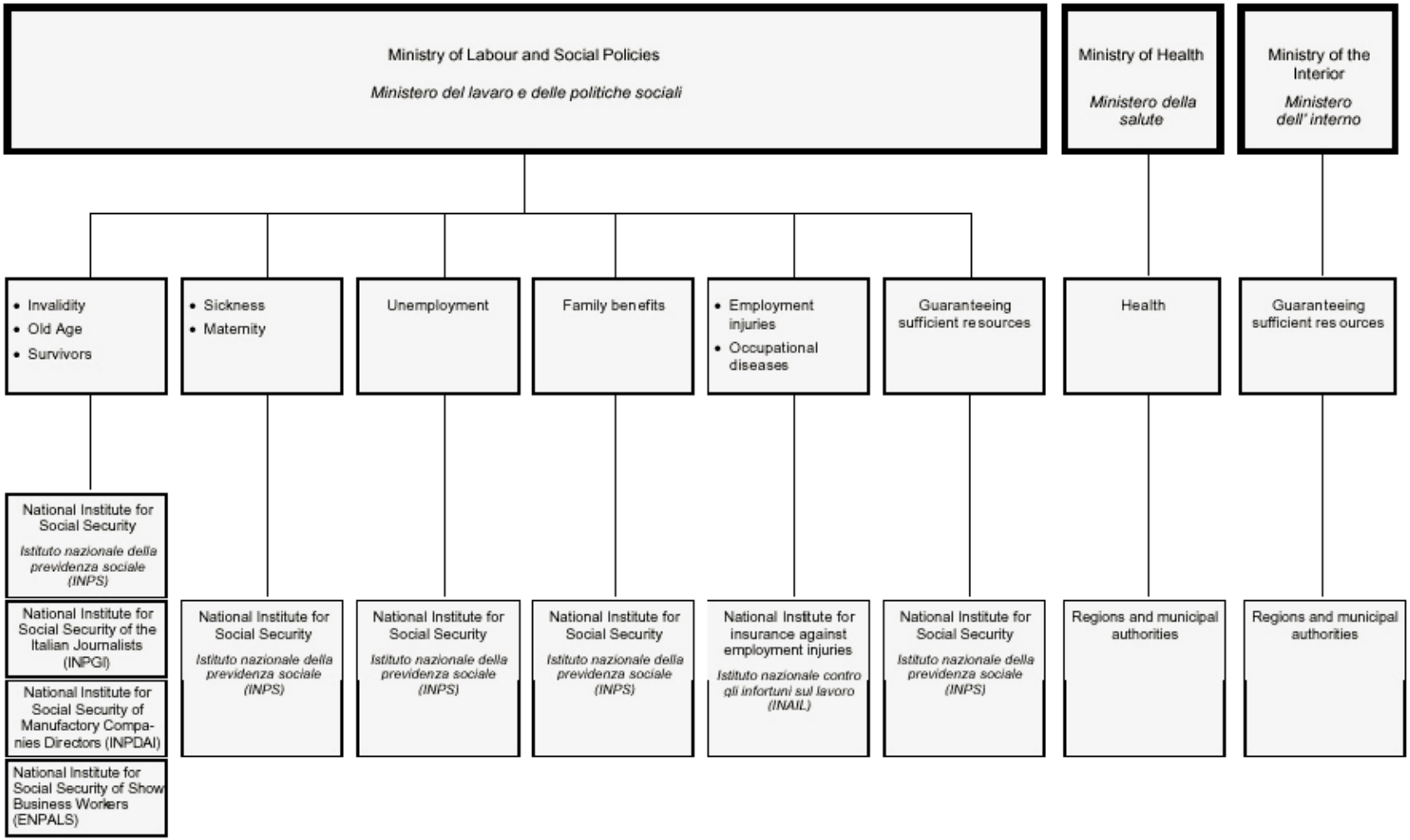
a) for workers starting their first job who sign up with a fund, the whole annual severance pay allocation

will have to be contributed to the fund;

b) for other workers, the use of severance pay resources will influence the overall contribution, since the employer's part will only be eligible for tax and social security contribution relief up to the amount of the severance pay allocation made over to pension funds.

A complete picture of the institutional framework of social protection in Italy is summarized in Figure 2.

**Figure 2 - Organisation of Social Protection in Italy**




*Source*: Mutual Information System on Social Protection in the EU Member States and the EEA. (http://europa.eu.int/comm/employment_social/missoc/index_en.html)

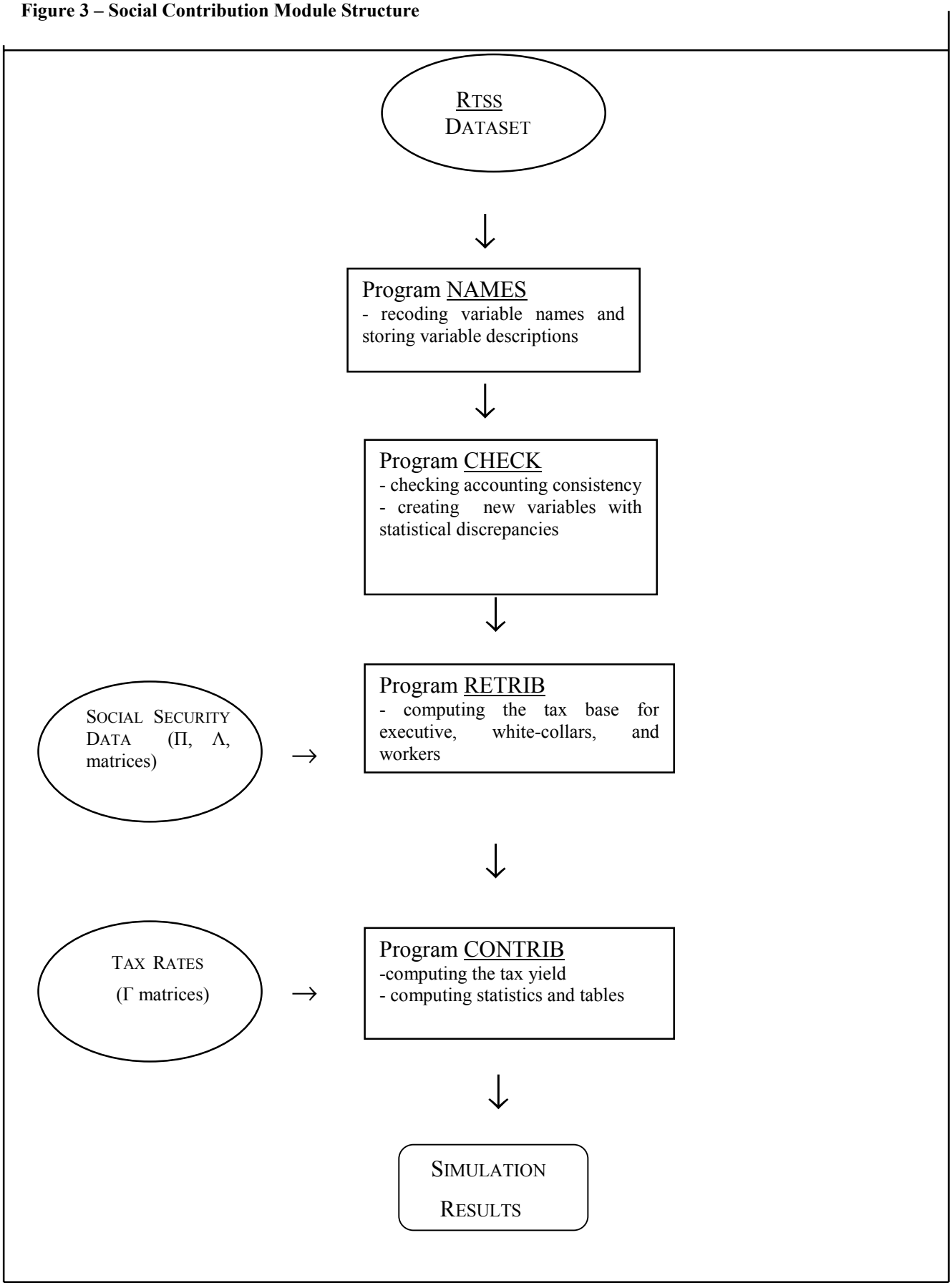
# 4.The microsimulation module for social contributions

## 4.1 The module structure

The model for **S**ocial **C**ontributions (**SC**) has been built using the same structure as the IRAP module. Firstly, the tax base has been computed, then the legal tax rates have been applied to compute the social contributions due from employers. The dataset used is the "**R**egional **T**ax and **S**ocial **S**ecurity" (RTSS) as for the IRAP module. A description of the dataset and of some preliminary procedures applied to this data for our microsimulation model can be found in our deliverable 5.2 *"The IRAP module"* .

At the end of this deliverable, as Code Appendix, the STATA code to run the SC module is presented. The basic structure of the model is presented in the following chart. Some of the procedures listed are common to the IRAP module (see Figure 1, Deliverable 5.2).

**Figure 3 – Social Contribution Module Structure**



At present, our analysis refers to social contributions paid by employers for dependent workers classified in our dataset as executives, white-collar workers, and workers.[15] For these categories, it has been possible, despite some difficulties, to reconstruct the tax base using the data on workers from firms available in the dataset with some additional information and assumptions, as described below. For the residual categories of trainees, home workers, and workers with short-term and part-time contracts, data on wages and salaries are either aggregate in a single figure or not available. Therefore, these groups deserve further inquires and data is required from additional sources which are not all available. In order to show the available information on wages and salaries and on workers available in the RTSS dataset, Table 9 is presented.

**Table 9 – Selected Variables in RTSS Dataset**

| Workers Categories | Number of workers | | Hours | | Wages and Salarie | | Social Contributions | | TFR | | Other personnel costs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SME | LE | SME | LE | SME | LE | SME | LE | SME | LE | SME | LE |
| | | | | | | | | | | | | |
| Entrepreneurs | | (*) | | | | | | | | | | |
| Family assistants | | (*) | | | | | | | | | | |
| Executives and White collars | | | | | | | | | | | | |
| Manual workers | | | | | | | | (*) | | (*) | | |
| Apprentices | | | | | | | | (*) | | (*) | | |
| Home workers | | | | | | | | (*) | | (*) | | |
| Short-term contracts | | | | | | | | (*) | | (*) | | |
| Part-time workers | | | | | | | | (*) | | (*) | | |
| Work training contracts | | | | | | | | (*) | | (*) | | |
| All dependent workers | | | | | | | | | | | | |

(*) These categories are joined in one single variable.

In this table, variables are distinguished between Small and Medium Enterprises (SME) and Large Enterprises (LE). Shaded cells indicate that data is available although sometimes the information is aggregated. When the survey data is not detailed for workers categories a total aggregate figure is available. At a quick glance, while data on the number of workers by category is satisfactory, those on the labour costs are largely incomplete or too aggregated. As contribution rates differ not only for workers categories but also for firm size, position and firm type should be available in order to compute the tax base wages and salaries for each professional. Therefore, we have turned to alternative sources to fill the information gap and estimate the missing variables.

[15] See Annex 1 for RTSS dataset descriptors.

First of all, the number of executives and white-collar workers is computed by firm by splitting the RTSS single figure for the employed of these two categories with weights by sector of activity resulting from the INPS aggregate data published for 1998.[16] This procedure is implemented in program RETRIB ( Figure 1). This program uses specific coefficients $\Pi_j$, calculated from INPS data on a sectoral *(j)* basis, applied to the survey data to obtain an estimation for those employed by the two categories for each firm *i*.

$$Executives_{ij} \ (White\text{-}collar\ workers_{ij}) = Survey\ data_{ij} * \Pi_j \quad (1)$$

As it turns out from Table xx, data on wages and salaries by workers' categories are too aggregate and therefore they are not very suitable for computing the contribution tax base. The INPS source has also been used for data on *average* wages and salaries by sector of activity to estimate the total earnings by firm for executives, white-collar workers, and manual workers. In program RETRIB, data on average wages by type of worker *(k)* and by activity *(j)* are stored in matrix $\Lambda$ and multiplied by the number of employed persons of each firm:

$$Total\ earnings_{ijk} = Workers_{ijk} * \Lambda_{ijk} \quad (2)$$

The variable resulting from this procedure has been checked with the survey data on the hours worked by firm compared with the average hours by sector of activity (see Table xx).
Through these steps we estimate the total earnings by group of workers for each firm to be used as tax base for social contributions.[17] All coefficients $\Pi$ and $\Lambda$ are stored in matrices read by the program. The matrices are filled with data from input files which can eventually be modified without interfering with the program code.

Given the tax base for SC, contribution rates are applied in order to compute the employers' social contributions. The rules for social contributions are fairly complex, as described in the previous Section, with specific rates for each sector of activity, firm size, type of contract and contribution.

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[16] The statistical archive of these data is the *Osservatorio sulle Imprese* available on the official INPS web site (http://www.inps.it/doc/sas_stat/main.html). At this stage of our work, microdata of INPS were not accessible to our unit although expected as anticipated in Deliverables 1.1 and 2.2. A potential improvement using these data would be to differentiate the average wage by geographical area and to distinguish not only by sector of activity by also by firm size. These characteristics – geographical area and firm dimension – are very significant in differentiating the earning by worker category.

[17] To some extent it has been possible to check the result of this procedure with actual data. For instance, comparing the estimated value for wages of workers in small and medium enterprises with the microdata available in our dataset for this category, the average deviation amounts to 4%.

The main rationale of our module has been to design a flexible procedure in order to implement the 1998 rules in detail and, at the same time, to make the introduction of changes for the following years quite straightforward. The procedure for estimating the employers' social contributions by firm is implemented in program CONTRIB of Figure 3. As anticipated, contribution rates by type of worker are stored in different matrices $\Gamma$ which are filled in outside the program and therefore may be easily updated. The SC yield due from employers for each *i-th* firm is computed as:

$$SC_{ik} = Total\ earnings_{ik} * \Gamma_{ik} \quad (3)$$

Where *k* denotes several types of social contributions as shown in Annex1 where 1998 SC rates for executives, white-collar workers, and other workers are presented. As described in paragraph 3.1.2, for modelling the Ordinary Earnings Supplement (CIG), each firm dimension has been considered in order to apply the specific rate.

Finally, the total employers' social contributions by firm are computed as

$$TSC_i = \sum_k SC_k \quad (4)$$

## 4.2 Interactions of SC module within the overall model

In this deliverable, the SC module is presented as an isolated component. However, we can foresee some interaction with the two existing modules: the IRAP and the Corporate Tax procedures. As for IRAP, we refer to the labour deductions as described in Deliverable 5.2.[18].

In 1998, among the deductible labour costs we listed the expenses for employment injuries and occupational diseases insurance (INAIL social contributions). There, we computed the deduction as an average incidence on IRAP tax base, with a sector and size correction. Now, this component is computed within the SC module and therefore the procedure just described can be skipped and this deduction is substituted by the INAIL social contributions estimate. Obviously, the SC module must be run before the IRAP procedure.

Moreover, social contributions are - as a component of labour cost - deductible from the corporation tax base. With all modules working together, an interaction between labour cost policy (specifically a change of social contribution rates) and Irpeg due from a firm can be estimated. Lastly it's important to recall that recent policy view on pension funds sees the takeoff of supplementary

pensions as depending on the use of the resources destined until now to severance pay. An exact estimation of the value of the severance pay (stock and flow ) could be crucial for the purpose of an analysis of self financing of SMEs.

[18] In particular, see paragraph 3.1.3 of Deliverable 5.2.

# 5. Estimation results of the SC-IRAP model

The two modules of the model (IRAP and SC) have been run on the complete RTSS dataset. Results shown in the tables below refer to the complete population as sample weights associated with the surveys have been used to go from the sample values to the population results. Moreover, results are shown at aggregate level and for SME and Le, for sector of activity and legal status.

## 5. 1 IRAP: validation and incidence analysis

Compared to the previous deliverable (Deliverable 5.2), we have improved the model by entering different fiscal corrections for small unincorporated firms. Then, the estimation of the Irap module has been tested within the complete RTSS dataset, thus results shown here are original and obviously overcome those presented in the previous deliverable which were obtained by testing the module over a subsample of firms.

### 5.1.1 Validation

The response in terms of government revenue is very satisfactory: the model underestimates Irap revenue at 1.3 per cent. Table 10 gives details of the difference between the model's estimation and the Tax Authority data for legal status. The table shows that the model has a good fit for corporations, entrepreneurship and partnership. In the residual legal status row, a big difference can be found which is probably due to a misrepresentation in the dataset of a very heterogeneous set of legal bodies.

**Table 10 – Comparison between Model estimation and Total revenue: breakdown by legal status.**
**(Thousands of Euros)**

| | N | Model Estimation | Irap revenue | Difference (%) |
|---|---|---|---|---|
| *Sole Entrepreneur* | *18.367* | *2.820.276* | *2.711.209* | *4,0* |
| *Partnership* | *12.069* | *2.460.530* | *2.306.975* | *6,7* |
| *Corporations* | *22.496* | *11.117.293* | *11.222.787* | *-0,9* |
| *Other* | *604* | *760.666* | *1.142.258* | *-33,4* |
| *Total* | *55.938* | *17.158.765* | *17.383.229* | *-1,3* |

***Source*: Authors' estimation and Tax Authority (2002)**

It's worthwhile to recall that not all economic sectors are included in the RTSS dataset, and consequently the Tax Authority data showed in Table 1 does not include agriculture, finance, almost all of the public sector activity and the "not allocated activity", a residual sector in which General Government Bodies are prevalent. As a consequence, the total revenue reported in the table (17.383 million euros) is smaller than the effective receipts for 1998 (24.000 million Euro, as described in paragraph 3.3 of deliverable5.2). The model's fit is adequate also in regard to the activity breakdown. Table 11 shows government revenue and the model's estimation for the most representative sectors.

**Table 11 – Comparison between Model estimation and Total revenue: breakdown by sector of activity.**
*(millions of Euros)*

| | Irap revenue | Model Estimation | Difference (%) |
|---|---|---|---|
| *Extraction* | *88* | *78* | *-11,1* |
| *Food, Textile, Luggage..* | *1.947* | *2.089* | *7,3* |
| *Coke, Chemicals..* | *1.263* | *1.252* | *-0,9* |
| *Metals product , motor vehicles..* | *3.206* | *3.367* | *5,0* |
| *Electricity, gas, steam and hot* | *563* | *532* | *-5,4* |
| *Construction* | *1.366* | *1.182* | *-13,5* |
| *Trade, Hotels and Restaurants* | *3.353* | *3.573* | *6,5* |
| *Transport* | *1.412* | *1.789* | *26,7* |
| *Real estate, renting and research activities* | *2.117* | *2.149* | *1,5* |
| *Other service sectors* | *1.912* | *1.148* | *-40,0* |
| *Total* | *17.383* | *17.159* | *-1,3* |

*Source*: Authors' estimation and Tax Authority (2002)

### 5.1.2 The choice of Tax indicators

The choice of tax indicators is crucial for the conceptualisation and the empirical verification of the real incidence of tax systems. Tax burdens may indeed be calculated with different tools and for different aims.

The first rather obvious measure to consider is the statutory tax rate (STR), which gives a general idea of national tax policies. STR is widely used in international comparisons, however it does not give a reliable measure of the actual tax burden, especially in international, dimensional and intersectoral contexts, as the actual tax burden closely depends on the definition of the tax base which is far from being standardized.

For this reason, STR are often replaced by the *effective tax rate* (ETR), i.e. tax indicators that take into account how the tax base is determined and whether tax laws provide for tax incentives. Within ETR it is then possible to distinguish between ex-post ETR (backward looking) and ex ante ETR (forward looking). The first group, henceforth *ex post implicit tax rates* (EPITR), includes all those indicators calculated as the ratio between taxes actually paid and a reference economic aggregate (e.g. profits, capital, value added, etc.).[19] Using taxes actually paid allows the analyst to summarize the specific rules underlying the determination of the tax base and the specific choice of the firms. Average tax rates so obtained measure the size of the potential retained profits that is subtracted from the firm**.** In this perspective, they are useful when the aim of the analysis is to examine the income effects of taxation and compare the taxation levels of different groups of firms.

The second group, ex ante marginal tax rates (EAMTR), has a forward looking nature. It measures a theoretical incidence starting from tax laws applicable to a specific investment project at the margin, i.e. not producing extra-profits.[20] This kind of measurement is useful to understand how tax systems affect firms' decisions and to understand also the biases (non-neutralities) of tax systems among different alternative investments. For this reason, the indicator is usually expressed as a ratio with the difference between gross and net return at the numerator and the gross return at the denominator. EAMTR are calculated for different types of investment (for example, machinery, intangible assets, etc.) and different financial sources (self-financing, debt issues, etc.)[21].

Conceptual differences among indicators imply differences in results. The implicit tax rate (calculated by using a proxy for gross profits at the denominator) is indeed usually lower but not very far from the statutory rate, yet the quality of the indicator strongly depends on the quality of the denominator. Marginal tax rates, instead, may be very far from statutory and average tax rates and it is possible for them to be negative.

For example, the STR in Italy is one of the highest in developed countries since the beginning of Nineties and still is, even after various reforms. Looking at the marginal tax rates, however, the Italian situation is one of the most appealing in Europe. A recent contribution by the European Commission (2001) indicates Italy as one of the countries where the cost of capital for a foreign subsidiary would be lower (about 5 per cent instead of an average of 6 per cent).

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[19] The implicit average tax rate can be calculated either on national accounts data or on the microeconomic data of individual firms.

[20] These indicators have been built following King and Fullerton (1984). Without going into details, it is worth stressing that the use of this methodology involves quite restrictive assumptions, among which perfect competition and the absence of extra-profits are the most striking. For a more detailed explanation, see Martinez and Mongay (2000).

[21] Devereux e Griffith (1998) has developed this approach, by building a methodology to calculate theoretical tax rates for infra-marginal investments, the so-called effective average marginal tax rates (EAVMTR). The "average" derives from the fact that these indicators are obtained as the average of taxes due on hypothetical investments with different profitability levels.

In this Deliverable, EPITR has been computed in order to determine whether there are significant differences in the tax burden of companies of different characteristics. With EPITR we look for evidence of discriminations at domestic level between firms operating in different sectors or having different sizes.

It's worthwhile to stress that the choice of the specific indicator is critical: it should summarize all the information and, at the same time, minimize any possible systematic correlation with a particular sector or a particular size. The ratio computed with gross profit as denominator does not seem very informative because it could be very similar to the STR; the drawback of the use of turnover in the denominator is that it implicitly assumes that the true profit margins are constant across sectors and sizes[22].

### 5.1.3 Implicit Tax rates

For the reasons illustrated in the previous paragraph, EPITR has mainly been computed with value added as the denominator. In the case of Irap, however, the incidence of the tax on the specific components of the tax base (labour cost, interest and profit) has been analysed.

**Table 12**
**Ex Post Implicit tax Rates (EPITR): breakdown for legal status (*)**

| | Sole Entrepreneur | Partnership | Corporations | Total |
|---|---|---|---|---|
| Income taxes/Value added (*) | 17,6 | 15,3 | 8,5 | 10,8 |
| IRAP/Value Added | 3,1 | 2,3 | 3,0 | 3,0 |
| *IRAP/Labour Cost* | *15,0* | *6,4* | *6,5* | *7,2* |
| *IRAP/Interest* | *72,5* | *17,7* | *32,6* | *33,6* |
| *IRAP/Profit* | *5,06* | *5,0* | *19,2* | *11,3* |

(*) Income taxes: total value as recorded in the balance sheet; Irap: model's estimation

*Source:* Authors' estimation

Entrepreneurship results in higher implicit tax rates in terms of total income taxes and Irap. Moreover, the incidence of Irap on Labour cost and Interest appears to be twice as much as the average for all firms considered in the dataset. It's worthwhile to recall that firms are subjected to different tax on profit, in accordance with their legal status: Irpeg for corporations and Irpef for unincorporated firms, with different statutory tax rates. On the contrary, the Irap statutory tax rate and tax base provisions are as a general rule the same.

**Table 13**
**Ex Post Implicit tax Rates (EPITR): breakdown for firm size (*)**

| | Medium/Large Ent. | Small/Medium Ent. | Total |
|---|---|---|---|
| Income taxes/Value added | 7,1 | 13,4 | 10,8 |
| IRAP/Value Added | 2,6 | 3,2 | 3,0 |
| *IRAP/Labour Cost* | *5,6* | *8,7* | *7,2* |
| *Irap/Interests* | *37,4* | *31,7* | *33,6* |
| *IRAP/Profit* | *19,2* | *9,1* | *11,3* |

(*) Income taxes: total value as recorded in the balance sheet; Irap: model's estimation

*Source:* Authors' estimation

In Table 13 the breakdown of implicit tax rates for firm size is presented. The table shows a higher incidence for small and medium enterprises, both for Irap and total income taxes. This result is consistent with tax rates estimated by Nicodeme (2002), who found differences of treatment across enterprises operating in the same country but in different sectors or of different sizes: "*we conclude that there is some evidence of effective corporate tax differences across sectors and sizes. In other words, even when controlling for the structure of the financial statements, tax burdens are shown to be more favourable for large companies and for specific sectors….Hence, the results suggest that large companies might be in a better position to reduce their effective tax burden, possibly through profit shifting, tax planning, fiscal engineering, and/or rulings, as they may have more opportunities and resources at hand*"[23].

Evidence of differential tax incidence has been investigated with regard to other firm typologies. Table 14 shows implicit tax rates for exporters and investing firms and gives some evidence of a higher incidence for "less dynamic" firms.

**Table 14**
**Ex Post Implicit tax Rates (EPITR): breakdown for investing and exporting firms (*)**

| | **No exporters** | **Exporters** | **Noninvesting** | **Investing** | **Total** |
|---|---|---|---|---|---|
| Income taxes/Value added | 10,57 | 10,98 | 16,62 | 9,81 | 10,76 |
| IRAP/Value Added | 3,08 | 2,80 | 3,18 | 2,92 | 2,95 |
| *IRAP/Labour Cost* | *8,10* | *6,26* | *12,12* | *6,71* | *7,19* |
| *Irap/Interests* | *34,60* | *32,37* | *33,66* | *33,59* | *33,60* |
| *IRAP/Profit* | *9,65* | *14,75* | *7,22* | *12,60* | *11,34* |

**(*) Income taxes: total value as recorded in the balance sheet; Irap: model's estimation**

***Source*: Authors' estimation**

[22] See on the topic Nicodeme (2002) and Collins & Shackelford (1995) .
[23] Nicodeme (2002), p.21

## 5.2 Social contributions

The social contributions module gives an estimation of contributions due from firms for "regular" employees. The basic principles and field of application of social security contributions has been described in section 3 .

Given the large number of social contributions types considered, for the purpose of readability of results and model estimation the contributions have been aggregated into four groups:

a) IVS - Old-Age, survivors pension scheme (IVS- INPS and INPDAI contributions);
b) Miscellaneous (Sickness, Maternity, Family benefits, Ordinary unemployment benefit..)
c) CIG Part time unemployment: Ordinary earnings complement (CIGO- *Cassa integrazione guadagni ordinaria*) and Extraordinary earnings complement (CIGS- *Cassa integrazione guadagni straordinaria*).
d) INAIL Employment injuries and occupational diseases (INAIL contributions).

In the case of "regular" employees, as opposed to apprenticeships, the social contributions due by firms for a) b) and c) cases could be computed multiplying statutory tax rate (described in paragraph 3) and annual wage paid. In the case of group d) (Employment injuries and occupational diseases), the model uses *sectoral* average implicit tax rates (see Table 8 of deliverable 5.2).

The social contribution module has been tested within the complete RTSS dataset. The model's fit can be considered very satisfactory in term of total contribution receipts. Table 15 summarizes the main component of Social Security Contributions received by General government.

**Table 15 - Total social contributions revenue (Billions)**

| | Liras | Euros |
|---|---|---|
| **Total** | **259.473** | **134,01** |
| **Employers** | **180.565** | **93,25** |
| *-Paid by General Government* | *58.132* | *30,02* |
| **Employee** | **55.379** | **28,60** |
| **Self-employed** | **23.529** | **12,15** |

***Source:*** **Oecd (2000)**

The SC module reproduces only contributions due from private employers for regular employees. According to the previous table, the total revenue to be considered in the model is consequently around 63 billion Euro for 1998, but it's worthwhile to stress that this figure includes sectors not included in the model (e.g. financial and insurance services), so the total reference amount to be considered is smaller.

Table 16 gives details of difference between contribution receipts and the model estimation.

**Table 16 – Comparison between Model estimation and Social Contribution(*) Receipts: breakdown by category.**
**(Millions of Euros)**

| | Receipts | Model | Difference (%) |
|---|---|---|---|
| IVS | 41.058 | 42.001 | 2,3 |
| Miscellaneous | 11.892 | 13.267 | 11,6 |
| CIG | 2.516 | 2.942 | 16,9 |
| INAIL | 6.454 | 6.325 | -2,0 |
| **Total** | **61.921** | **64.535** | **4,2** |

(*)Social Contributions paid by employers

***Source*: Istat and Authors' calculation.**

The table shows that the model over estimates the total contribution revenue at 4,2, with a higher difference for CIG and Miscellaneous items. It does however have a very fitting assessment for IVS and INAIL contributions.

The next table gives information on the social contributions payment of SME as opposed to medium and large enterprises: social contributions paid by SME are 58 of the total paid by firms included in the model, but this share changes for different worker types.

**Table 17 - Social contribution paid by employers: breakdown by size and employee categories**
**(Thousands of Euros)**

| **Total social contributions** | | **(%)** |
|---|---|---|
| ***-Total*** | ***64.535.037*** | ***100*** |
| **Medium/Large Enterprise** | **27.186.331** | **42** |
| **Small/Medium Enterprise** | **37.348.706** | **58** |
| *-Executives* | | |
| *Medium/Large Enterprise* | *1.420.732* | *54* |
| *Small/Medium Enterprise* | *1.190.383* | *46* |
| *-White collars* | | |

| | | |
|---|---|---|
| *Medium/Large Enterprise* | *12.983.233* | *52* |
| *Small/Medium Enterprise* | *11.999.403* | *48* |
| *-Manual Workers* | | |
| *Medium/Large Enterprise* | *12.782.366* | *35* |
| *Small/Medium Enterprise* | *24.158.920* | *65* |

*Source*: Authors' calculation

Table 18 shows that SMEs contribute more to all contributions, except CIG where, as illustrated in paragraph 3.1.2, rates are linked to worker category, sector of activity and firm size. SMEs pay 63 of total INAIL contributions as a consequence of the higher risk of work accidents.

**Table 18 - Social contributions paid by employers: breakdown by size and type of contribution**
**(Thousands of Euros)**

| **Total social contributions** | | (%) |
|---|---|---|
| **Medium/Large Enterprise** | **27.186.331** | **42** |
| **Small/Medium Enterprise** | **37.348.706** | **58** |
| **Total** | **64.535.037** | **100** |
| *IVS* | | |
| *Medium/Large Enterprise* | *17.859.562* | *43* |
| *Small/Medium Enterprise* | *24.141.379* | *57* |
| *Total* | *42.000.941* | 100 |
| *Miscellaneous* | | |
| *Medium/Large Enterprise* | *5.490.548* | *41* |
| *Small/Medium Enterprise* | *7.776.579* | *59* |
| *Total* | *13.267.127* | 100 |
| *CIG* | | |
| *Medium/Large Enterprise* | *1.520.906* | *52* |
| *Small/Medium Enterprise* | *1.421.541* | *48* |
| *Total* | *2.942.447* | 100 |
| *INAIL* | | |
| *Medium/Large Enterprise* | *2.315.316* | *37* |
| *Small/Medium Enterprise* | *4.009.207* | *63* |
| *Total* | *6.324.522* | 100 |

*Source:* Authors' calculation

The legal status breakdown (table 19) shows that corporations (12 of total production units) pay 68 of total contribution due from employers, while sole entrepreneurships - representing over 66 of total firms in 1998 – have a share of 10.

**Table 19 - Social contribution paid by employers: breakdown by legal status (Thousands of Euros)**

| | | (%) |
|---|---|---|
| Sole Entrepreneurship | 6.277.689 | 10 |
| Partnership | 9.659.863 | 15 |
| Corporations | 43.744.845 | 68 |
| Others | 4.852.640 | 8 |
| Total | 64.535.037 | 100 |

*Source:* Authors' calculation

Finally Table 20 gives a distribution of social contributions paid by employers for each sector of activity.

Over 9 per cent of total contribution is paid by employers in the construction sector: this is to be linked to the very high risk of work accidents in this sector that has a share of 20 of INAIL contributions.

**Table 20 - Social contribution paid by employers: breakdown by sector of activity**
(Thousands of Euros)

| | | (%) |
|---|---|---|
| Mining of coal and lignite; extr | 7.515 | 0,0 |
| Extraction of crude petroleum an | 83.005 | 0,1 |
| Mining of metal ores | 5.176 | 0,0 |
| Other mining and quarrying | 212.142 | 0,3 |
| Manufacture of food products and | 2.305.359 | 3,6 |
| Manufacture of tobacco products | 95.118 | 0,1 |
| Manufacture of textiles | 1.699.099 | 2,6 |
| Manufacture of wearing apparel | 1.261.908 | 2,0 |
| Manufacture of luggage, handbags | 940.962 | 1,5 |
| Manufacture of wood, except furn | 686.730 | 1,1 |
| Manufacture of pulp, paper and p | 543.831 | 0,8 |
| Publishing, printing and reprod. | 924.977 | 1,4 |
| Manufacture of coke, refined pet | 284.910 | 0,4 |
| Manufacture of chemicals and che | 1.941.046 | 3,0 |
| Manufacture of rubber and plastic | 1.247.495 | 1,9 |
| Manufacture of other non-metal. | 1.674.029 | 2,6 |
| Manufacture of basic metals | 1.247.514 | 1,9 |
| Manufacture of fabricated metal | 3.547.608 | 5,5 |
| Manufacture of machinery and equip. | 3.980.967 | 6,2 |
| Manufacture of office machinery | 236.369 | 0,4 |
| Manufacture of electrical machin. | 1.361.130 | 2,1 |
| Manufacture of radio, television | 707.289 | 1,1 |
| Manufacture of medical, precision | 686.891 | 1,1 |
| Manufacture of motor vehicles, t | 1.520.715 | 2,4 |
| Manufacture of other transport e | 833.260 | 1,3 |
| Manufacture of furniture; | 1.431.268 | 2,2 |
| Recycling | 53.187 | 0,1 |
| Electricity, gas, steam and hot | 1.454.811 | 2,3 |
| Collection, purification and dis | 139.333 | 0,2 |
| Construction | 5.916.457 | 9,2 |
| Sale and repair of motor vehicle | 1.436.672 | 2,2 |
| Wholesale trade and commission t | 3.465.569 | 5,4 |
| Retail trade; repair of personal | 3.405.788 | 5,3 |
| Hotels and restaurants | 2.217.849 | 3,4 |
| Land transport; | 3.035.442 | 4,7 |
| Water transport | 166.833 | 0,3 |
| Air transport | 272.104 | 0,4 |
| Supporting and auxiliary transpo | 1.577.571 | 2,4 |
| Post and telecommunications | 3.051.031 | 4,7 |
| Real estate activities | 298.136 | 0,5 |
| Renting of machinery, equipment, | 73.367 | 0,1 |
| Computer and related activities | 1.132.029 | 1,8 |
| Research and development | 75.294 | 0,1 |
| Other business activities | 3.943.328 | 6,1 |
| Education | 174.746 | 0,3 |
| Health and social work | 1.454.357 | 2,3 |
| Sewage and refuse disposal, | 333.677 | 0,5 |
| Activities of membership organiz | 5.707 | 0,0 |
| Recreational, cultural and sport | 676.833 | 1,0 |
| Other service activities | 438.765 | 0,7 |
| Total | 64.535.033 | 100,0 |

***Source:*** **Authors' calculation**

# 6. Conclusions and Roadmap for future work

At this stage of our planned work – building a microsimulation model for indirect taxes paid by firms – we have completed the module for IRAP and Social Contributions. The most important conclusion from the work done is that the model shows a good performance so far and therefore could be tested for implementing some policy simulations. The major future steps can be listed as follows:

- As for the SC module, some work should be done for modelling social contributions for workers enrolled with special contracts – such as apprentices and trainees – where the lack of data is severe. As the use of this contracts by firms is spreading, the implementation of this part of the module is required to be able to respond to future provisions aimed to increase employment. Some additional checks on the consistency between the SC module results by firms and the variables included in the RTSS dataset (see Table 9 in section 4) should be accomplished.

- The modules should be run together to fully exploit the potential interactions as described in paragraph 4.2 of this deliverable.

- As for both modules, the tax rules of the years after 1998 should be implemented and a routine to run the model for the period 1998 – 2002 should be devised.

- The modules for indirect taxes should be linked with the corporate tax module designed by the Unit at the University of Tor Vergata. As we have shown, some interactions between these components exist. Moreover, this step is necessary in order to estimate the overall tax burden borne by each firm.

- Some policy changes are undergoing and could be estimated with the model in order to test its reliability for this task.

- Some preliminary work for the remaining two types of indirect taxes – Value Added Tax and Excises – can be done in order to lay out some requirements to build the dataset and schemes for building the specific modules whenever the dataset will be available.

## References

Collins J., Shackelford D. Corporate Domicile and Average Effective Tax Rates: The Cases of Canada, Japan, the United Kingdom, and the United States. *International Tax and Public Finance* . 1995; 2:55-83.

Deliverable 5.2 of Diecofis Project, (2002), The Irap Module, (written by) Bardazzi R., Gastaldi F., Pazienza M.G., University of Florence

Devereux M. Griffith R. (1998), *Taxes and the location of production: evidence from a panel of US multinationals*, in Journal of Public Economics, 68

European Commission . *Company Taxation in the Internal Market*, "Towards an Internal Market without tax obstacles: a strategy for providing companies with a consolidated corporate tax base for their EU-wide activities. *COM(2001)582*2001.

Eurostat (2002), Eurostat Yearbook 2002, Bruxelles.

Eurostat (2003), "Labour Costs Survey 2000", Statistics in Focus, Theme 3 – 7/2003, Bruxelles.

King M., Fullerton D. (1984), The taxation of income from capital, University of Chicago Press, 1984.

Martinez-Mongay, Carlos (2000), "The ECFIN Effective Tax Rates. Properties and Comparisons with other tax indicators", Economic Paper, European Commission, October 2000.

Nicodème G.(2002), Sector and size effects on effective corporate taxation . EUROPEAN ECONOMY. ECONOMIC PAPERS. No. **175**

Oecd (2000), Revenue Statistics, Oecd, Paris

**ANNEX 1**

# Employers' Social Contributions Rates - 1998

| | Employers Social Contribution Rates | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Manual Workers** | Fondo pensioni | TBC | ENAOLI | Asili Nido | DS | Cuaf | FGTFR | Cig+mob FINO A 15 ADDETTI | Cig+mob tra 15-50 addetti | Cig+mob oltre 50 addetti | Gescal | Malat | Maternità | INAIL |
| 10 | Mining of coal and lignite; extraction of peat | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 7,1 |
| 11 | Extraction of crude petroleum and natural gas | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 7,1 |
| 12 | Mining of uranium and thorium ores | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 7,1 |
| 13 | Mining of metal ores | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 7,1 |
| 14 | Other mining and quarrying | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 7,1 |
| 15 | Manufacture of food products and beverages | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 3,7 |
| 16 | Manufacture of tobacco products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 3,7 |
| 17 | Manufacture of textiles | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 2,0 |
| 18 | Manufacture of wearing apparel; dressing and dyeing of fur | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 2,0 |
| 19 | Tanning and dressing of leather; manufacture of luggage, handbags and footwear | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 2,3 |
| 20 | Manufacture of wood and of products of wood and cork, straw except furniture | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 9,7 |
| 21 | Manufacture of pulp, paper and paper products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 2,2 |
| 22 | Publishing, printing and reproduction of recorded media | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 2,2 |
| 23 | Manufacture of coke, refined petroleum products and nuclear fuel | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 1,9 |
| 24 | Manufacture of chemicals and chemical products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 1,8 |
| 25 | Manufacture of rubber and plastic products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 3,2 |
| 26 | Manufacture of other non-metallic mineral products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 7,1 |
| 27 | Manufacture of basic metals | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 5,5 |
| 28 | Manufacture of fabricated metal products, except machinery and equipment | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 5,5 |
| 29 | Manufacture of machinery and equipment n.e.c. | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 3,1 |
| 30 | Manufacture of office machinery and computers | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 4,5 |
| 31 | Manufacture of electrical machinery and apparatus n.e.c. | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 1,9 |
| 32 | Manufacture of radio, television and communication equipment and apparatus | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 4,5 |
| 33 | Manufacture of medical, precision and optical instruments, watches and clocks | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 4,5 |
| 34 | Manufacture of motor vehicles, trailers and semi-trailers | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 3,1 |
| 35 | Manufacture of other transport equipment | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 3,1 |
| 36 | Manufacture of furniture; manufacturing n.e.c. | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 4,5 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | Recycling | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 4,5 |
| 40 | Electricity, gas, steam and hot water supply | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 1,9 |
| 41 | Collection, purification and distribution of water | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 2,22 | 0,66 | 1,9 |
| 45 | Construction | 23,81 | 0,21 | 0,16 | 0,10 | 2,41 | 2,48 | 0,2 | 5,2 | 5,8 | 5,8 | 0,35 | 2,22 | 0,66 | 10,2 |
| | | **Fondo pensioni** | **TBC** | **ENAOLI** | **Asili Nido** | **DS** | **Cuaf** | **FGTFR** | **Cig+mob FINO A 50 ADDETTI** | **Cig+mob tra 51 e 200 addetti** | **Cig+mob oltre 200 addetti** | **Gescal** | **Malat** | **Maternità** | INAIL |
| 50 | Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 4,2 |
| 51 | Wholesale trade and commission trade, except of motor vehicles and motorcycles | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 52 | Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 1,7 |
| 55 | Hotels and restaurants | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,0 |
| 60 | Land transport; transport via pipelines | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 3,3 |
| 61 | Water transport | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 3,3 |
| 62 | Air transport | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 3,3 |
| 63 | Supporting and auxiliary transport activities; activities of travel agencies | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 3,3 |
| 64 | Post and telecommunications | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 65 | Financial intermediation, except insurance and pension funding | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,00 | 0,00 | 0,35 | 2,55 | 0,33 | 0,5 |
| 66 | Insurance and pension funding, except compulsory social security | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,00 | 0,00 | 0,35 | 2,55 | 0,33 | 0,5 |
| 67 | Activities auxiliary to financial intermediation | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,00 | 0,00 | 0,35 | 2,55 | 0,33 | 0,5 |
| 70 | Real estate activities | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 1,4 |
| 71 | Renting of machinery and equipment without operator and of personal and household goods | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 72 | Computer and related activities | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 73 | Research and development | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 74 | Other business activities | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 75 | Public administration and defence; compulsory social security | 20,59 | 0,21 | 0,16 | 0,10 | 1,61 | 0,00 | 0,2 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,44 | 1,4 |
| 80 | Education | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 0,9 |
| 85 | Health and social work | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 1,4 |
| 90 | Sewage and refuse disposal, sanitation and similar activities | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,2 |
| 91 | Activities of membership organizations n.e.c. | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |
| 92 | Recreational, cultural and sporting activities | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |
| 93 | Other service activities | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |
| 95 | Activities of households as employers of domestic staff | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |
| 99 | Extra-territorial organizations and bodies | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |

| | Employers Social Contribution Rates | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **White Collar Workers** | Fondo pensioni | TBC | ENAOLI | Asili Nido | DS | Cuaf | FGTFR | Cig+mob meno di 15 addetti | Cig+mob 15-50 addetti | Cig+mob oltre 50 addetti | Gescal | Malat | Maternità | INAIL |
| 10 | Mining of coal and lignite; extraction of peat | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 7,1 |
| 11 | Extraction of crude petroleum and natural gas | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 7,1 |
| 12 | Mining of uranium and thorium ores | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 7,1 |
| 13 | Mining of metal ores | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 7,1 |
| 14 | Other mining and quarrying | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 7,1 |
| 15 | Manufacture of food products and beverages | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 3,7 |
| 16 | Manufacture of tobacco products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 3,7 |
| 17 | Manufacture of textiles | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 2,0 |
| 18 | Manufacture of wearing apparel; dressing and dyeing of fur | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 2,0 |
| 19 | Tanning and dressing of leather; manufacture of luggage, handbags and footwear | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 2,3 |
| 20 | Manufacture of wood and of products of wood and cork, straw except furniture | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 9,7 |
| 21 | Manufacture of pulp, paper and paper products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 2,2 |
| 22 | Publishing, printing and reproduction of recorded media | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 2,2 |
| 23 | Manufacture of coke, refined petroleum products and nuclear fuel | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 1,9 |
| 24 | Manufacture of chemicals and chemical products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 1,8 |
| 25 | Manufacture of rubber and plastic products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 3,2 |
| 26 | Manufacture of other non-metallic mineral products | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 7,1 |
| 27 | Manufacture of basic metals | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 5,5 |
| 28 | Manufacture of fabricated metal products, except machinery and equipment | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 5,5 |
| 29 | Manufacture of machinery and equipment n.e.c. | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 3,1 |
| 30 | Manufacture of office machinery and computers | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 4,5 |
| 31 | Manufacture of electrical machinery and apparatus n.e.c. | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 1,9 |
| 32 | Manufacture of radio, television and communication equipment and apparatus | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 4,5 |
| 33 | Manufacture of medical, precision and optical instruments, watches and clocks | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 4,5 |
| 34 | Manufacture of motor vehicles, trailers and semi-trailers | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 3,1 |
| 35 | Manufacture of other transport equipment | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 3,1 |
| 36 | Manufacture of furniture; manufacturing n.e.c. | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 4,5 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | Recycling | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 4,5 |
| 40 | Electricity, gas, steam and hot water supply | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 1,9 |
| 41 | Collection, purification and distribution of water | 23,81 | 0,21 | 0,16 | 0,10 | 1,61 | 2,48 | 0,2 | 1,9 | 2,8 | 3,1 | 0,35 | 0 | 0,66 | 1,9 |
| 45 | Construction | 23,81 | 0,21 | 0,16 | 0,10 | 2,41 | 2,48 | 0,2 | 1,9 | 2,5 | 2,8 | 0,35 | 0 | 0,66 | 10,2 |
| | | **Fondo pensioni** | **TBC** | **ENAOLI** | **Asili Nido** | **DS** | **Cuaf** | **FGTFR** | **Cig+mob FINO A 50 ADDETTI** | **Cig+mob tra 51 e 200 addetti** | **Cig+mob oltre 200 addetti** | **Gescal** | **Malat** | **Maternità** | INAIL |
| 50 | Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 4,2 |
| 51 | Wholesale trade and commission trade, except of motor vehicles and motorcycles | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 52 | Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 1,7 |
| 55 | Hotels and restaurants | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,0 |
| 60 | Land transport; transport via pipelines | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 3,3 |
| 61 | Water transport | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 3,3 |
| 62 | Air transport | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 3,3 |
| 63 | Supporting and auxiliary transport activities; activities of travel agencies | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 3,3 |
| 64 | Post and telecommunications | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 65 | Financial intermediation, except insurance and pension funding | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,00 | 0,00 | 0,35 | 0,00 | 0,33 | 0,5 |
| 66 | Insurance and pension funding, except compulsory social security | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,00 | 0,00 | 0,35 | 0,00 | 0,33 | 0,5 |
| 67 | Activities auxiliary to financial intermediation | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,00 | 0,00 | 0,35 | 0,00 | 0,33 | 0,5 |
| 70 | Real estate activities | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 1,4 |
| 71 | Renting of machinery and equipment without operator and of personal and household goods | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 72 | Computer and related activities | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 73 | Research and development | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 74 | Other business activities | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,1 |
| 75 | Public administration and defence; compulsory social security | 20,59 | 0,21 | 0,16 | 0,1 | 1,61 | | 0,2 | 0,0 | | | | | 0,44 | 1,4 |
| 80 | Education | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 0,9 |
| 85 | Health and social work | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 1,4 |
| 90 | Sewage and refuse disposal, sanitation and similar activities | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 2,2 |
| 91 | Activities of membership organizations n.e.c. | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |
| 92 | Recreational, cultural and sporting activities | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |
| 93 | Other service activities | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |
| 95 | Activities of households as employers of domestic staff | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |
| 99 | Extra-territorial organizations and bodies | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,0 | 0,9 | 0,9 | 0,35 | 2,44 | 0,44 | 8,8 |

| Employers Social Contribution Rates | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Executives** | **Fondo pensioni** | **TBC** | **ENAOLI** | **Asili Nido** | **DS** | **Cuaf** | **FGTFR** | **Cig+mob meno di 15 addetti** | **Cig+mob 15-50 addetti** | **Cig+mob oltre 50 addetti** | **Gescal** | **Malat** | **Maternità** | INAIL |
| 10 | Mining of coal and lignite; extraction of peat | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 7,1 |
| 11 | Extraction of crude petroleum and natural gas | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 7,1 |
| 12 | Mining of uranium and thorium ores | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 7,1 |
| 13 | Mining of metal ores | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 7,1 |
| 14 | Other mining and quarrying | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 7,1 |
| 15 | Manufacture of food products and beverages | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,7 |
| 16 | Manufacture of tobacco products | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,7 |
| 17 | Manufacture of textiles | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,0 |
| 18 | Manufacture of wearing apparel; dressing and dyeing of fur | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,0 |
| 19 | Tanning and dressing of leather; manufacture of luggage, handbags and footwear | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,3 |
| 20 | Manufacture of wood and of products of wood and cork, straw except furniture | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 9,7 |
| 21 | Manufacture of pulp, paper and paper products | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,2 |
| 22 | Publishing, printing and reproduction of recorded media | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,2 |
| 23 | Manufacture of coke, refined petroleum products and nuclear fuel | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 1,9 |
| 24 | Manufacture of chemicals and chemical products | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 1,8 |
| 25 | Manufacture of rubber and plastic products | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,2 |
| 26 | Manufacture of other non-metallic mineral products | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 7,1 |
| 27 | Manufacture of basic metals | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 5,5 |
| 28 | Manufacture of fabricated metal products, except machinery and equipment | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 5,5 |
| 29 | Manufacture of machinery and equipment n.e.c. | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,1 |
| 30 | Manufacture of office machinery and computers | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 4,5 |
| 31 | Manufacture of electrical machinery and apparatus n.e.c. | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 1,9 |
| 32 | Manufacture of radio, television and communication equipment and apparatus | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 4,5 |
| 33 | Manufacture of medical, precision and optical instruments, watches and clocks | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 4,5 |
| 34 | Manufacture of motor vehicles, trailers and semi-trailers | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,1 |
| 35 | Manufacture of other transport equipment | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,1 |
| 36 | Manufacture of furniture; manufacturing n.e.c. | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 4,5 |
| 37 | Recycling | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 4,5 |
| 40 | Electricity, gas, steam and hot water supply | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 1,9 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41 | Collection, purification and distribution of water | 23,81 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,4 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 1,9 |
| 45 | Construction | 23,81 | 0,21 | 0,16 | 0,00 | 1,61 | 2,48 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 10,2 |
| | | **Fondo pensioni** | **TBC** | **ENAOLI** | **Asili Nido** | **DS** | **Cuaf** | **FGTFR** | **Cig+mob FINO A 50 ADDETTI** | **Cig+mob tra 51 e 200 addetti** | **Cig+mob oltre 200 addetti** | **Gescal** | **Malat** | **Maternità** | INAIL |
| 50 | Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 4,2 |
| 51 | Wholesale trade and commission trade, except of motor vehicles and motorcycles | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,1 |
| 52 | Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 1,7 |
| 55 | Hotels and restaurants | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,0 |
| 60 | Land transport; transport via pipelines | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,3 |
| 61 | Water transport | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,3 |
| 62 | Air transport | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,3 |
| 63 | Supporting and auxiliary transport activities; activities of travel agencies | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 3,3 |
| 64 | Post and telecommunications | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,1 |
| 65 | Financial intermediation, except insurance and pension funding | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,00 | 0,00 | 0,35 | 0,00 | 0,00 | 0,5 |
| 66 | Insurance and pension funding, except compulsory social security | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,00 | 0,00 | 0,35 | 0,00 | 0,00 | 0,5 |
| 67 | Activities auxiliary to financial intermediation | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,00 | 0,00 | 0,35 | 0,00 | 0,00 | 0,5 |
| 70 | Real estate activities | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 1,4 |
| 71 | Renting of machinery and equipment without operator and of personal and household goods | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,1 |
| 72 | Computer and related activities | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,1 |
| 73 | Research and development | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,1 |
| 74 | Other business activities | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,1 |
| 75 | Public administration and defence; compulsory social security | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 1,4 |
| 80 | Education | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 0,9 |
| 85 | Health and social work | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 1,4 |
| 90 | Sewage and refuse disposal, sanitation and similar activities | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 2,2 |
| 91 | Activities of membership organizations n.e.c. | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 8,8 |
| 92 | Recreational, cultural and sporting activities | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 8,8 |
| 93 | Other service activities | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 8,8 |
| 95 | Activities of households as employers of domestic staff | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 8,8 |
| 99 | Extra-territorial organizations and bodies | 23,74 | 0,21 | 0,16 | 0,1 | 1,61 | 2,48 | 0,2 | 0,00 | 0,3 | 0,3 | 0,35 | 0,00 | 0,00 | 8,8 |

# CODE APPENDIX

In the pages that follow, the program used to construct the prototype module of Social Contributions (SC) from ISTAT data is presented. These programs are included in the deliverable to provide "templates" for other countries' users, rather than a set of programs that can be immediately executed as such to estimate a similar tax in a given country. Each survey is at least slightly different from the other, so that the code that follows would, at a minimum, have to be modified for each country to take into account differences in structure of the questionnaire as well as to give due consideration to each country's unique circumstances and institutions, types of data collected in the survey, etc. An attempt has been made to add enough comments to the code to make it broadly comprehensible and to aid those who wish to translate it into languages other than STATA. The code given here is the code that was actually used to produce the results presented in this deliverable.

The programs are written in STATA version 8 Special Edition.

Routines displayed in the following pages represent the original part of the Social Contributions procedure. As to the complete procedure shown in Figure 1, the routines NAMES.DO and CHECK.DO are the same as those included in the Code Appendix of Deliverable 5.2.

```
/***************
 *   RETRIB    *
 ***************
initial program to estimate wages and salaries for social contributions base */

/* reading parameters from file */
use dirimp, clear

/* setting the parameters in matrix Pesi */
mkmat ateco2d imp_perc dir_perc retm*, matrix(Pesi)


/*reading the Regional (checked) dataset */
use c:\diecofis\programmi\dati98_ch, clear

/* generating total workers and workers hours for LARGE ENTERPRISES  */
gen  occ_optot_sci  =  occ_opap_tot  -  occ_optot_pmi  -  occ_aptot_pmi  if  sci==1  &
occ_opap_tot>0
gen  occ_opore_sci  =  occ_opap_ore  -  occ_opore_pmi  -  occ_apore_pmi  if  sci==1  &
occ_opap_ore>0

/* data verification */
assert occ_optot_sci >0
assert occ_opore_sci >0

/* substituting missing values with zeros */
quietly mvencode occ_optot_sci occ_opore_sci, mv(0)override

label variable occ_optot_sci "Workers: Total (SCI)"
```

```
label variable occ_opore_sci "Workers: Hours (SCI)"


local N = _N
gen occ_dir_tot = 0

/* ncoef is the number of rows in matrix Pesi
   nc is the column number of ateco categories
   nc1 is the column number of parameters used in the loop */

local ncoef = rowsof(Pesi)
local nc = colnumb(Pesi,"ateco2d")
local nc1 = colnumb(Pesi,"dir_perc")
      /* for debugging
      display "The number of rows is `ncoef'"
      display "The sector is column`nc'"
      display "The column number of parameters is `nc1'"
      */

/* separating executives and white-collars using sectoral rates */
forvalues m=1/`ncoef' {
                  quietly replace occ_dir_tot=occ_dirimp_tot*Pesi[`m',`nc1']/*
                  */ if ateco2==Pesi[`m',`nc']
                  }

gen occ_imp_tot = occ_dirimp_tot - occ_dir_tot

format %9.0fc  occ_dir_tot occ_imp_tot occ_optot_sci occ_opore_sci

/********** estimating wages and salaries using INPS average Data************/
local nc2 = colnumb(Pesi,"retm_dir")
local nc3 = colnumb(Pesi,"retm_imp")
local nc4 = colnumb(Pesi,"retm_op")
local nc5 = colnumb(Pesi,"retm_app")

gen ret_dir=0
gen ret_imp=0
gen ret_op=0
gen ret_app=0

label variable ret_dir "wages and salaries: executives"
label variable ret_imp " wages and salaries: white-collars "
label variable ret_op " wages and salaries: workers "
label variable ret_app " wages and salaries: apprentices "



/* wages and salaries for executives, white-collars, workers, apprentices */
forvalues m=1/`ncoef' {
            quietly replace ret_dir=occ_dir_tot*Pesi[`m',`nc2']/*
            */ if ateco2==Pesi[`m',`nc']
            quietly replace ret_imp=occ_imp_tot*Pesi[`m',`nc3']/*
            */ if ateco2==Pesi[`m',`nc']
            quietly replace ret_op=occ_optot_pmi*Pesi[`m',`nc4']/*
            */ if ateco2==Pesi[`m',`nc'] & pmi==1
            quietly replace ret_op=occ_optot_sci*Pesi[`m',`nc4']/*
            */ if ateco2==Pesi[`m',`nc'] & sci==1
            quietly replace ret_app=occ_aptot_pmi*Pesi[`m',`nc5']/*
            */ if ateco2==Pesi[`m',`nc'] & pmi==1
            quietly replace ret_app=occ_aptot_sci*Pesi[`m',`nc5']/*
            */ if ateco2==Pesi[`m',`nc'] & sci==1
            }

format %10.0fc ret_*

matrix drop Pesi

save retrib98, replace
```

```
/***************
 *   CONTRIB    *
 ***************
do-file to estimate social contributions */

capture log close
log using out.log, replace
set linesize 255

program drop _all

**************************************
program mkmatal
*program to store tax rates in matrices (one for each professional category)
       /* reading parameters from file */
       use ali`1', clear
       format %3.0g ateco2d
       set dp comma

       /* eventual policy changes of rates go here*/

       egen ali_subsum =rsum(ali2-ali7 ali11-ali13)

       /* setting the parameters in the matrix */
       mkmat ateco2d ali_subsum ali1 ali8 ali9 ali10 ali14 flag, matrix(`2')
       matrix list `2', format(%5.3f)
       pause
       drop _all
end
**************************************

/* runnning the program MKMATAL*/
mkmatal operai Aliop
mkmatal dirig Alidir
mkmatal imp Aliimp

/*reading the dataset */
use retrib98, clear

**************************************
program contget
/* program to compute the social contribution revenue (with several subtotals)*/
       local N = _N

/* contri1 is for a sum of various contributions
contri2 is for IVS
contri3 is for CIG
contri4 is for INAIL
*/
       gen contri1_`1' = 0
       gen contri2_`1' = 0
       gen contri3_`1' = 0
       gen contri4_`1' = 0

       /* ncoef is the number of rows in matrix Ali`1'
        nc is the column number of ateco categories
        nc1 is the column number of parameters used in the loop */

       local nsec = rowsof(Ali`1')
       local nc = colnumb(Ali`1',"ateco2d")
       local nc1 = colnumb(Ali`1',"ali_subsum")
       local nc2 = colnumb(Ali`1',"ali1")
       local nc3 = colnumb(Ali`1',"ali8")
       local nc4 = colnumb(Ali`1',"ali9")
       local nc5 = colnumb(Ali`1',"ali10")
       local nc6 = colnumb(Ali`1',"ali14")
       local nc7 = colnumb(Ali`1',"flag")

              /* for debugging
              display "The number of rows is `nsec'"
```

```
            display "The sector is column `nc'"
            display "The column number of parameters is `nc1'"
            display "The column number of parameters is `nc2'"
            */

      forvalues m=1/`nsec' {
                  quietly replace contri1_`1' =ret_`1' *Ali`1'[`m',`nc1']/*
                        */ if ateco2==Ali`1'[`m',`nc']
                  quietly replace contri2_`1' =ret_`1' *Ali`1'[`m',`nc2']/*
                        */ if ateco2==Ali`1'[`m',`nc']
                  quietly replace contri4_`1' =ret_`1' *Ali`1'[`m',`nc6']/*
                        */ if ateco2==Ali`1'[`m',`nc']
                        }

      forvalues m=1/`nsec' {
                  if Ali`1'[`m',`nc6'] ==1 {
                  quietly replace contri3_`1' = ret_`1' * Ali`1'[`m',`nc3']/*
                  */ if ateco2==Ali`1'[`m',`nc'] & occ_tot <= 15
                  quietly replace contri3_`1' = ret_`1' * Ali`1'[`m',`nc4']/*
                  */ if ateco2==Ali`1'[`m',`nc'] & occ_tot >15 & occ_tot <= 50
                  quietly replace contri3_`1' = ret_`1' * Ali`1'[`m',`nc5']/*
                  */ if ateco2==Ali`1'[`m',`nc'] & occ_tot >50
                              }
                  else {
                  quietly replace contri3_`1' = ret_`1' * Ali`1'[`m',`nc3']/*
                  */ if ateco2==Ali`1'[`m',`nc'] & occ_tot <= 50
                  quietly replace contri3_`1' = ret_`1' * Ali`1'[`m',`nc4']/*
                  */ if ateco2==Ali`1'[`m',`nc'] & occ_tot >50 & occ_tot <= 200
                  quietly replace contri3_`1' = ret_`1' * Ali`1'[`m',`nc5']/*
                  */ if ateco2==Ali`1'[`m',`nc'] & occ_tot >200
                  }
                  }
      gen contri_`1'_tot=contri1_`1'+contri2_`1'+contri3_`1'+contri4_`1'
end
*************************************

/* runnning the program CONTGET*/
contget op
contget dir
contget imp

*labels in English
label variable contri1_op "Various Social Contributions (sickness, maternity, etc.):
workers"
label variable contri1_dir "Various Social Contributions (sickness, maternity, etc.):
executives"
label variable contri1_imp "Various Social Contributions (sickness, maternity, etc.):
white-collars"

label variable contri2_op "Old-age social contributions (IVS): workers"
label variable contri2_dir "Old-age social contributions (IVS): executives"
label variable contri2_imp "Old-age social contributions (IVS): white-collars"

label variable contri3_op "Occupational Disease (CIG): workers"
label variable contri3_dir "Occupational Disease (CIG): executives"
label variable contri3_imp "Occupational Disease (CIG): white-collars"

label variable contri4_op "Invalidity contributions (INAIL): workers"
label variable contri4_dir "Invalidity contributions (INAIL) executives"
label variable contri4_imp "Invalidity contributions (INAIL): white-collars"

label variable contri_op_tot "Total Social Contributions: workers"
label variable contri_dir_tot "Total Social Contributions: executives"
label variable contri_imp_tot "Total Social Contributions: white-collars"

*converting ***SELECTED VARIABLES*** to thousands of euros and WEIGHTING these variables

forvalues i=1(1)4{
      gen Pcontri`i'_op = (contri`i'_op /1000)* peso
      gen Pcontri`i'_dir = (contri`i'_dir /1000) * peso
```

```
       gen Pcontri`i'_imp = (contri`i'_imp /1000) * peso
       }
gen Pcontri_op_tot = (contri_op_tot /1000) * peso
gen Pcontri_dir_tot = (contri_dir_tot /1000) * peso
gen Pcontri_imp_tot = (contri_imp_tot /1000) * peso

* aggregating by contributions types
forvalues i=1(1)4{
       gen Pcontri`i'_tot = Pcontri`i'_op + Pcontri`i'_dir + Pcontri`i'_imp
       }

/*making tables for social contributions revenues by categories */
forvalues i=1(1)4{
       tabstat    Pcontri`i'_op,    by(pmi)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(50)varwidth(15)
       tabstat    Pcontri`i'_op,    by(fgcat)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(50) varwidth(15)
       tabstat    Pcontri`i'_op,    by(ateco2)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(150) varwidth(15)
       tabstat    Pcontri`i'_imp,    by(pmi)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(50) varwidth(15)
       tabstat    Pcontri`i'_imp,    by(fgcat)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(50) varwidth(15)
       tabstat    Pcontri`i'_imp,    by(ateco2)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(150)varwidth(15)
       tabstat    Pcontri`i'_dir,    by(pmi)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(50) varwidth(15)
       tabstat    Pcontri`i'_dir,    by(fgcat)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(50) varwidth(15)
       tabstat    Pcontri`i'_dir,    by(ateco2)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(150)varwidth(15)
       tabstat    Pcontri`i'_tot,    by(pmi)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(50) varwidth(15)
       tabstat    Pcontri`i'_tot,    by(ateco2)    stats(n    sum)col(stat)    format(%12.0f)
labelwidth(150)varwidth(15)
       }


tabstat  Pcontri_op_tot,  by(pmi)  stats(n  sum)col(stat)  format(%12.0f)  labelwidth(50)
varwidth(15)
tabstat  Pcontri_op_tot,  by(fgcat)  stats(n  sum)col(stat)  format(%12.0f)  labelwidth(50)
varwidth(15)
tabstat  Pcontri_op_tot,  by(ateco2)  stats(n  sum)col(stat)  format(%12.0f)  labelwidth(150)
varwidth(15)
tabstat  Pcontri_imp_tot,  by(pmi)  stats(n  sum)col(stat)  format(%12.0f)  labelwidth(50)
varwidth(15)
tabstat  Pcontri_imp_tot,  by(fgcat)  stats(n  sum)col(stat)  format(%12.0f)  labelwidth(50)
varwidth(15)
tabstat  Pcontri_imp_tot,  by(ateco2)  stats(n  sum)col(stat)  format(%12.0f)  labelwidth(150)
varwidth(15)
tabstat  Pcontri_dir_tot,  by(pmi)  stats(n  sum)col(stat)  format(%12.0f)  labelwidth(50)
varwidth(15)
tabstat  Pcontri_dir_tot,  by(fgcat)  stats(n  sum)col(stat)  format(%12.0f)  labelwidth(50)
varwidth(15)
tabstat  Pcontri_dir_tot,  by(ateco2)  stats(n  sum)col(stat)  format(%12.0f)  labelwidth(150)
varwidth(15)

*saving variables
save results, replace
log close
```