Industry-Related Price Indices for Brazil, 1986-2002

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This report describes the construction of price indices for various industry-related variables. The price indices are available as files

- `general-defl.csv`,
- `gov-utn-ufir.csv`,
- `output-defl-di.csv`, `output-defl-ipa.csv`,
- `input-defl-di.csv`, `input-defl-ipa.csv`,
- `capform-defl-di.csv`, and `capform-defl-ipa.csv`

at URL `http://econ.ucsd.edu/muendler/brazil`.

The present description of price index series for the period 1986-2002 is divided in five parts, discussing five groups of price indices in turn: (1) General Price Indices, (2) Governmentally Imposed Price Indices, (3) Price Indices for Industry Output, (4) Price Indices for Intermediate Inputs, (5) Price Indices for Gross Investment Flows (Capital Goods).

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1 General Price Indices

Several industry-wide and economy-wide price indices are available for Brazil. A selection of indices closely related to industrial production is assembled below.

1.1 Use

Industry-wide and economy-wide price indices seem most adequate for general economic flow variables such as salaries, rental rates, etc. Industry-wide and economy-wide price indices can also be of use when sector-specific or regional indices would be likely to eliminate important relative price differences. In addition, aggregate real exchange rates depend on the evolution of economy-wide price levels.

1.2 Period Covered

The series cover the period 1986-2002.

1.3 Data Sources

Included industry-wide price indices are

- *IPA-OG* (*Índice de Preços por Atacado–Oferta Global*, wholesale price index covering the entire economy including imports; produced by *Fundação Getuúlio Vargas FGV*, Rio de Janeiro),
- *IPA-INDTOT* (*Índice de Preços por Atacado–Total da Indústria*, covering all industrial sectors; by *FGV*),
- *IPA-TRANSF* (*Índice de Preços por Atacado–Transformação*, covering manufacturing sectors; by *FGV*),
- *IGP-DI* (*Índice Geral de Preços–Disponibilidade Interna*, consumer price index for domestically produced commodities and services; by *FGV*).

Included economy-wide price indices are

- *INPC* (*Índice Nacional de Preços ao Consumidor*, national consumer price index; produced by *Fundação Instituto Brasileiro de Geografia e Estatística IBGE*, Rio de Janeiro), and

- *INPC-REAL* (*Índice Nacional de Preços ao Consumidor, Real*, national consumer price index; by *IBGE*. Different index construction due to *Plano Real*, 1994).

Alongside, U.S. price indices by the U.S. Bureau of the Census are included

- *CPI* (consumer price index),
- *INTLPI* (international price index accounting for imports), and
- *PRODPI* (producer price index).

1.4 File Contents

The file `general-defl.csv` contains the above-mentioned economy-wide and industry-wide monthly price indices for the years 1986 through 2002. The series are re-based to a value of 100 in January 1990.

general-defl.csv (9 obs.)

	Variable	Description
1.	`defltype`	Deflator[a]
2.	`inddefl`	Number of Deflator
3.	`jan86`	Jan-1986
4.	`feb86`	Feb-1986
...		
206.	`dec102`	Dec-2002

[a]Observations are: *igp-di*, *inpc*, *inpc-real*, *ipa-indtot*, *ipa-og*, *ipa-transf*, *usd-cpiai*, *usd-intlpi*, and *usd-prodpi*.

2 Governmentally Imposed Price Indices

Brazil's *Legislação Societária* (*Lei n. 6404 de 15-12-76*) mandates that firms correct the values of their assets in the balance sheet according to an official price index.

2.1 Use

Brazil's governmentally imposed price indices tended to under-represent true inflation. Therefore, the series of official price indices is an important source of information for the reconstruction of real asset values and liabilities on firms' balance sheets (alongside adequate price indices that do not tend to under-represent inflation such as the general price indices described in section 1). Moreover, firms record their asset sales with the remaining book values at the time of the asset sale. So, series of asset sales can also be readjusted using the official price indices.

2.2 Period Covered

The series cover the period 1986-2003.

2.3 Data Sources

The official price indices between 1986 and 2003 are:

- *ORTN* (*Obrigação Reajustável do Tesouro Nacional*) in force from October 1964 through January 1989, renamed to *OTN* (*Obrigação do Tesouro Nacional*) in 1986 (*Decreto-lei n. 2284/86*). There are two series for the year 1986, one applicable to assets (frozen between March 1986 and February 1987) and the other applicable to asset sales (continuously adjusted every month).

- *BTN* (*Bônus do Tesouro Nacional*) in force from February 1989 through January 1991 (*Lei n. 7777/89*).

- *FAP* (*Fator de Atualização Patrimonial*) in force for the months February until December 1991 (*Decreto n. 332 de 4-11-91* retroactively).

- *UFIR* (*Unidade Fiscal de Referência*) in force since January 1992. For the period January 1992 through August 1994, daily values were provided (*UFIR Diária*, *Lei n. 8383/91*). In general, beginning-of-month values were to be used for deflating monthly figures. For the period September through December 1994, monthly values were provided (*UFIR mensal*, *lei 9069/95* retroactively). Quarterly values of *UFIR* were calculated from January 1995 on, half-year values from January 1996 on. Annual values (*lei 9069/95*) are in use since January 1997.

2.4 Construction

These official price indices can be combined to two consistent monthly series of governmentally imposed price indices. Due to a different treatment in 1986, one series has to be applied to assets (`govdefl-asset`), and another series to asset sales (`govdefl-decap`). The proper links over time are documented in IOB (2000), for instance.

2.5 File Contents

The file contains two series that connect the official price indices between January 1986 and December 2003. The series are re-based to a value of 100 in January 1990.

gov-otn-ufir.csv (2 obs.)

	Variable	Description
1.	`defltype`	Governmental Deflator[a]
2.	`inddefl`	Number of Deflator
3.	`jan86`	Jan-1986
4.	`feb86`	Feb-1986
...		
218.	`dec03`	Dec-2003

[a]Observations are: *govdefl-asset* and *govdefl-decap*

3 Price Indices for Final Goodst

For the period 1986-2001, Brazil does not dispose of producer price indices, whereas several sector-specific wholesale price indices are available. Two important wholesale price index series are *IPA* and *IPA-DI*.

3.1 Use

As producer price indices lack for the period 1986-2001, wholesale price indices seem to be the most appropriate choice for deflating sector-specific output variables–such as sales, resales, and changes in final goods stocks. However, these price indices seem less appropriate for general economic variables such as salaries (see section 1), for inputs of intermediate goods and value added (see section 4), or investment flows (see section 5 for gross investment, section 2 for asset sales).

3.2 Period Covered

The series for *IPA* cover the period 1986-2001. The series for *IPA-DI* cover the period 1986-1999.

3.3 Data Sources

For the present series, the sector-specific wholesale price indices *IPA* (*Índice de Preços por Atacado*) and *IPA-DI* (*Índice de Preços por Atacado–Disponibilidade Interna*) are applied. Both series are produced by *Fundação Getúlio Vargas (FGV)*, Rio de Janeiro.

3.4 A Note on Brazilian Sector Classifications

The sector definitions of the price indices *IPA* and *IPA-DI* do not coincide with the two most common industry classifications in Brazil: *nível 100* (*nível 80*) and *CNAE*. *Nível 100* and *nível 80* were implemented by the census bureau *Fundação Instituto Brasileiro de Geografia e Estatística* (*IBGE*), Rio de Janeiro. While *nível 80* is applied to the national accounting system, *nível 100* was used for firm or plant level data during most of the eighties and the early nineties (*Pesquisa Industrial Mensal* and *Pesquisa Industrial Anual*, for instance). Over the course of the nineties, the new classification system *CNAE*

(*Classificação Nacional de Atividades Empresariais*) has been adopted more widely. It is internationally more comparable (now also used in *Pesquisa Industrial Mensal* and *Pesquisa Industrial Anual*, for instance).

3.5 Construction

The sector-specific price index series in the files `output-defl-di.csv` and `output-defl-ipa.csv` are based on ***nível 100*** following the classifications in appendix B. There are mainly three reasons for this choice. *Nível 100* comes close to sector definitions used in *IPA* and *IPA-DI*. *Nível 100* is applied to many Brazilian firm and plant level data between 1986 and 2000. Finally, the finer definitions of *CNAE* are easily adapted to *nível 100* (see appendix A), and the first two digits of *nível 100* and *nível 80* coincide (at *nível 50*, see appendix C), permitting their conversion.

3.6 File Contents

The file `output-defl-ipa.csv` contains the monthly sector-specific price indices *IPA* for the years 1986 through 2001. The file `output-defl-di.csv` contains the monthly sector-specific price indices *IPA-DI* for the years 1986 through 1999. They are adapted to a sector classification at *nível 100* and re-based to a value of 100 in January 1990.

output-defl-ipa.csv (62 obs.)

	Variable	Description
1.	`niv100`	Sector at *Nível 100*[a]
2.	`jan86`	Jan-1986
3.	`feb86`	Feb-1986
...		
193.	`dec101`	Dec-2001

[a]Observations are: 62 sectors at *nível 100*. See appendix B

output-defl-di.csv (62 obs.)

	Variable	Description
1.	`niv100`	Sector at *Nível 100*[a]
2.	`jan86`	Jan-86
3.	`feb86`	Feb-86
...		
169.	`dec99`	Dec-99

[a]Observations are: 62 sectors at *nível 100*. See appendix B

4 Price Indices for Intermediate Inputs

The price changes of intermediate inputs in industry may deviate from respective output prices in general and especially in periods of high or volatile inflation. This section documents a construction method for input price indices.

4.1 Use

Prices at the input side and at the output side of firms are likely to behave differently in periods of high or volatile inflation. Input price indices are not available as ready series. However, sector-specific input price indices can be constructed using the national input-output matrices to derive the typical "input basket" of a firm in a given sector. This approach is taken here. The resulting index series are most appropriate for intermediate inputs. They are also important for the construction of value added series. Since input-output matrices are only available on an annual, and not a monthly, basis there may be structural breaks in the constructed input price indices at the end of the years. This suggests that the present input price indices may be more adequate for annual than for monthly variables.

4.2 Period Covered

The series for *IPA* cover the period 1986-2001. The series for *IPA-DI* cover the period 1986-1998.

4.3 Data Sources

The sector-specific wholesale price indices *IPA* (*Índice de Preços por Atacado*) and *IPA-DI* (*Índice de Preços por Atacado–Disponibilidade Interna*) underly the present series (see section 3 above). Both *IPA* and *IPA-DI* are produced by *Fundação Getúlio Vargas (FGV)*, Rio de Janeiro. The initial series are transformed using the input-output matrices for 1985, and 1990 through 1998 as produced by *Fundação Instituto Brasileiro de Geografia e Estatística*, to arrive at input price series.

4.4 Construction

Construction of the input price indices is based on annual input-output matrices and output price indices.

4.4.1 Input-Output Matrices

The national accounting division at *IBGE* provides annual input-output matrices. Due to the change in the national accounts in 1990, time-consistent matrices are only available for the years 1990 to 1998, and for 1985 as an earlier reference year. In order to obtain input-output matrices for the entire period 1986-1998, the matrices for 1986 through 1989 can be constructed from the matrices 1985 and 1990 by linear interpolation.

Brazilian input-output matrices since 1990 are 80×43. The 80 rows represent the sectors at *nível 80* from where inputs came, and the 43 columns represent the sectors according to *nível 50* to which the inputs went.[1] For the purpose of deflating variables in *PIA*, not quite as many rows and columns (sectors) are needed. Among the 80 rows at *nível 80*, only 52 correspond to industrial sectors. Similarly, among the 43 columns at *nível 50*, only 30 correspond to industrial sectors. The reduced 52 by 30 matrix is used for the following calculations.[2]

For the construction of sector-specific input price indices, only relative weights for the input-absorbing sectors are needed. The columns of the input-output matrices provide these weights. Take the input-output matrix $\mathbf{X}$ and call the entry in row i and column j x_{ij}. Then the matrix of weights $\mathbf{A}$ results by placing the entry $a_{ij} = x_{ij}/(\sum_i x_{ij})$ in cell (ij). The missing input-output matrices between 1986 and 1989 can now be constructed linearly. Calling every entry in the weights matrix in 1985 a_{ij}^{85} and every entry in the 1990 weights matrix a_{ij}^{90}, the intermediate weights for the years $t = 86, 87, 88, 89$ result as

$$a_{ij}^{t} = a_{ij}^{85} + (t - 85) \cdot \frac{a_{ij}^{90} - a_{ij}^{85}}{5}.$$

This procedure yields proper weights matrices for 1986 through 1989. Their columns sum to 1 (since $\sum_i (a_{ij}^{90} - a_{ij}^{85}) = 0$ and $\sum_i a_{ij}^{90} = 1$) and their values

[1] *Nível 50* coincides with the first two digits of both *nível 80* and *nível 100*. See appendices B and C.

[2] This reduction disregards non-industrial inputs which are a very small fraction of total inputs in manufacturing.

reflect linear changes in the input-output structure over the five-year period.[3]

4.4.2 Input Price Indices

Calling the vector of output price indices for month m in year t $\pi_{output}^{m,t}$, the vector of sector-specific input price indices results as

$$\pi_{input}^{m,t} = (\mathbf{A}^t)' \pi_{output}^{m,t}.$$

When departing from the sector-specific wholesale price indices *IPA* and *IPA-DI* as constructed in section 3, the vectors $\pi_{output}^{m,t}$ represent the 62 industrial sectors at *nível 100*. To make these 62 sectors conform to the 52 industrial sectors at *nível 80*, the price indices were averaged at *nível 50*, and $\pi_{output}^{m,t}$ was accordingly reduced to 52 rows. The weights matrix $\mathbf{A}^t$ has dimensions 52×30. So, the resulting input price vector $\pi_{input}^{m,t}$ has 30 rows—representing the 30 industrial sectors at *nível 50*.

4.5 File Contents

The files `input-defl-ipa.csv` and `input-defl-di.csv` contain the according intermediate goods price series for the wholesale price indices *IPA* and *IPA-DI*, respectively, as described in section 3. The file `input-defl-ipa.csv` covers the years 1986 through 2001, the file `input-defl-di.csv` only 1986 through 1998. Both files provide sector-specific input price series at *nível 50*. The series are re-based to a value of 100 in January 1990.

[3] The construction of a geometrically evolving series of input-output matrices proves infeasible with common micro-computer capacity. The RAM of a typical personal computer does not suffice to take the fifth root of the (30×30) square matrix $(\mathbf{A}^{85\prime}\mathbf{A}^{85})^{-1}\mathbf{A}^{85\prime}\mathbf{A}^{90}$.

input-defl-ipa.csv (64 obs.)

	Variable	Description
1.	`ativ80`	Activity 80 (*Nível 50*)[a]
2.	`niv100`	Sector at *Nível 100*[b]
3.	`jan86`	Jan-1986
4.	`feb86`	Feb-1986
...		
194.	`dec101`	Dec-2001

[a]Observations are: 30 activities at *nível 50*. See appendix C
[b]Observations are: 64 sectors at *nível 100*. See appendix B. Price index series are duplicated for respective sectors at *nível 100*

input-defl-di.csv (64 obs.)

	Variable	Description
1.	`ativ80`	Activity 80 (*Nível 50*)[a]
2.	`niv100`	Sector at *Nível 100*[b]
3.	`jan86`	Jan-86
4.	`feb86`	Feb-86
...		
158.	`dec98`	Dec-98

[a]Observations are: 30 activities at *nível 50*. See appendix C
[b]Observations are: 64 sectors at *nível 100*. See appendix B. Price index series are duplicated for respective sectors at *nível 100*

5 Price Indices for Gross Investment Flows

Gross investment flows, or asset and capital stock acquisitions, may be best deflated using a selection of sector-specific wholesale price indices.

5.1 Use

There are five main types of investment flows:

1. machinery,
2. vehicles,
3. computers,
4. miscellaneous investment goods, and
5. total investment flows.

Price indices for these types of gross investment flows can be constructed using the mean of adequate sector-specific (wholesale) price indices. Asset sales may need to be treated differently if they are valued at remaining book values (see section 2 above). Similarly, net investment flows may need to be constructed from differently deflated asset acquisition and asset sales series.

5.2 Period Covered

The series for *IPA* cover the period 1986-2001. The series for *IPA-DI* cover the period 1986-1999.

5.3 Data Sources

The sector-specific wholesale price indices *IPA* (*Índice de Preços por Atacado*) and *IPA-DI* (*Índice de Preços por Atacado–Disponibilidade Interna*) underly the present series (see section 3 above). Both *IPA* and *IPA-DI* are produced by *Fundação Getúlio Vargas (FGV)*, Rio de Janeiro. The initial series are partly transformed using the capital formation vectors for 1985, and 1990 through 1998 as produced by *Fundação Instituto Brasileiro de Geografia e Estatística*, to arrive at price indices for investment.

Table 1: Price Indices for Types of Gross Investment Flows

Type	Name	Sectors (*nível 80*)[a]
1	machinery	801, 1001
2	vehicles	802, 1201, 1301
3	computers	1101
4	miscellaneous	1401, 3201
5	total	(capital formation weights)

[a]For a list of sectors at *nível 80*, see appendix C.

5.4 Construction

Table 1 lists the sectors over which the according wholesale price indices are averaged to obtain gross investment price indices. Appendix C shows the according sector definitions at *nível 80*.[4] The weights for the averages are obtained from the national capital formation vector for Brazil, as explained below.

5.4.1 Specific Investment Flows (Types 1 through 4)

Unweighted means of the according sector-specific indices (column 3 of table 1) are taken.

5.4.2 Total Investment Flows (Type 5)

Brazil does not dispose of sector-specific capital formation statistics. So, no sector-specific price indices can be constructed to deflate investment flows. However, the census bureau *IBGE* provides a "capital formation vector" for the economy as a whole. It is based on the industry classification at *nível 80* and lists the sector-specific output used in capital formation. The normalized entries in this capital formation vector serve as weights for a price index to deflate total gross investment. Capital formation vectors between 1986 and 1989 are missing. They can be constructed through linear interpolation. Calling an entry in the capital formation vector in 1985 a_{ij}^{85} and an entry in the 1990

[4]For that purpose, the finest possible mapping between *nível 80* and *nível 100* is derived through algorithms. Sectors 801 and 802, for instance, can be separated and correspond one-to-one to 810 and 820, respectively.

vector a_{ij}^{90}, the intermediate entries for the years $t = 86, 87, 88, 89$ result as

$$a_{ij}^{t} = a_{ij}^{85} + (t - 85) \cdot \frac{a_{ij}^{90} - a_{ij}^{85}}{5}.$$

This procedure yields proper weights for 1986 through 1989, and their values reflect linear changes in the capital formation structure over the five-year period.

Calling the vector of output price indices for month m in year t $\pi_{output}^{m,t}$ and calling the vector of weights, derived from the capital formation vector, $\mathbf{a}^t$, the economy-wide gross investment flow price index results as

$$\pi_{investment}^{m,t} = (\mathbf{a}^t)' \pi_{output}^{m,t},$$

a scalar.

When departing from the sector-specific wholesale price indices *IPA* and *IPA-DI* as constructed in section 3, the vectors $\pi_{output}^{m,t}$ represent the 62 industrial sectors at *nível 100*. To make these 62 sectors conform to the 52 industrial sectors at *nível 80*, the price indices were averaged at *nível 50*, and $\pi_{output}^{m,t}$ was accordingly reduced to 52 rows. The weights vector $\mathbf{a}^t$ has 52 rows.

5.5 File Contents

The files `capform-defl-ipa.csv` and `capform-defl-di.csv` contain the according price index series for the five groups of gross investment flows in table 1. They are based on the wholesale price indices *IPA* and *IPA-DI*, respectively, as described in section 3. File `capform-defl-ipa.csv` covers the years 1986 through 2001, `capform-defl-di.csv` covers the years 1986 through 1999. The indices are re-based to 100 in January 1990.

capform-defl-ipa.csv (5 obs.)

	Variable	Description
1.	`captype`	Type of Capital[a]
2.	`jan86`	Jan-1986
3.	`feb86`	Feb-1986
...		
193.	`dec101`	Dec-2001

[a]Observations are: *computers*, *machinery*, *vehicles*, *other*, and *total*.

capform-defl-di.csv (5 obs.)

	Variable	Description
1.	`captype`	Type of Capital[a]
2.	`jan86`	Jan-86
3.	`feb86`	Feb-86
...		
169.	`dec99`	Dec-99

[a]Observations are: *computers*, *machinery*, *vehicles*, *other*, and *total*.

Appendix: Sectors of Industry

The definition of sectors of industry according to *nível 100* would roughly correspond to a three-digit *SIC* level in the US. Before gradually being substituted by *CNAE* (*Classificação Nacional de Atividades Empresariais*) during the nineties, *nível 100* was used to classify Brazilian economic activity at the micro-level. However, the national accounting system uses a classification system called *nível 80* which aggregates several manufacturing sectors in a slightly different way. Both *nível 100* and *nível 80* use a number system with four digits. The first two digits are identical in both systems (usually called *atividade 80*, *atividade 100*, or *nível 50*) and provide the simplest manner to move from *nível 100* to *nível 80*, and vice versa.

A Compatibility between *Nível 100* and *CNAE*

In recent years, Brazilian production has mostly been classified according to *CNAE* (*Classificação Nacional de Atividades Empresariais*) which comes closer to the international U.N. classification. The following list shows how *CNAE* can be transformed into *nível 100* according to an internal recommendation at *IBGE*.

Nív.100	*CNAE*
210	1310, 1321, 1322, 1323, 1324, 1325, 1329
220	1410, 1421, 1429
310	1110, 1120
320	1000
410	2620
420	2630
430	2611, 2612, 2619
440	2641, 2642, 2649, 2691, 2692, 2699
510	2711, 2712, 2721, 2722, 2729
610	2741, 2742, 2749, 2752, 2832
710	2751, 2831
720	2731, 2739, 2811, 2812, 2833, 2834, 2839, 2841, 2842, 2843, 2891, 2892, 2893, 2899

Nív.100	*CNAE*
810	2813, 2821, 2822, 2911, 2912, 2913, 2914, 2915, 2921, 2922, 2923, 2924, 2925, 2929, 2931, 2940, 2951, 2952, 2961, 2962, 2963, 2964, 2965, 2969, 2971, 2972
820	2932, 2953, 2954
1010	3111, 3112, 3113, 3121, 3122
1020	3130, 3141, 3151, 3152, 3191
1030	2981, 2989, 3011, 3199
1110	3012, 3021, 3022, 3192, 3210, 3221, 3222, 3330
1120	3230
1210	3410, 3420, 3431, 3432, 3439
1310	3142, 3160, 3441, 3442, 3443, 3444, 3449, 3450
1320	3511, 3512
1330	3521, 3522, 3523
1340	3531, 3532, 3591, 3592, 3599
1410	2010, 2021, 2022, 2023, 2029
1420	3611, 3612, 3613, 3614
1510	2110
1520	2121, 2122, 2131, 2132, 2141, 2142, 2149
1530	2211, 2212, 2213, 2214, 2219, 2221, 2222, 2229, 2231, 2232 2233, 2234
1610	2511, 2512, 2519
1710	2411, 2414, 2419, 2429
1720	2340
1810	2320
1820	2421, 2422
1830	2431, 2432, 2433, 2441, 2442
1910	2412, 2413
1920	2461, 2462, 2463, 2469, 2472, 2481, 2482, 2483, 2491, 2492, 2493, 2494, 2496, 2499, 2310, 2330
2010	2451, 2452, 2453, 2454
2020	2471, 2473
2110	2521
2120	2522, 2529
2210	1711, 1719, 1721, 1722, 1731, 1732
2220	1723, 1733
2230	1724, 1741, 1749, 1750, 1761, 1762, 1763, 1764, 1769, 1771 1772, 1779

Nív.100	*CNAE*
2310	1811, 1812, 1813, 1821, 1822
2410	1910, 1921, 1929
2420	1931, 1932, 1933, 1939
2510	1571, 1572
2610	1551
2620	1552
2630	1521, 1522, 1523, 1585
2640	1553, 1554, 1555, 1559, 1583
2650	1600
2710	1511, 1513
2720	1512
2810	1541, 1542
2910	1561, 1562
3010	1531
3020	1532, 1533
3110	1556
3120	1422, 1514, 1543, 1581, 1582, 1584, 1586, 1589
3130	1591, 1592, 1593, 1594, 1595
3210	2495, 3310, 3320, 3340, 3350, 3691, 3692, 3693, 3694, 3695, 3696, 3697, 3699, 3710, 3720

B Compatibility between *Nível 100*, *IPA*, and *IPA-DI*

The following list below shows how the classification system of *nível 100* can be made compatible with the respective classifications in the price index series *IPA-DI* and *IPA*. The list is joint work with Adriana Schor at Fundação Getúlio Vargas, São Paulo.

Nív.100	*50*	Portuguese Description of Sector	*IPA-DI*	*IPA*
210	2	Extração de minerais metálicos	mpr	28
220	2	Extração de minerais nao-metálicos	mpr	28
310	3	Extração de petróleo e gas natural	mpr	28
320	3	Extração de carvão mineral	mpr	28
410	4	Cimento e clínquer	constr	30
420	4	Peças e estruturas de concreto	constr	30

Nív.100	*50*	Portuguese Description of Sector	*IPA-DI*	*IPA*
430	4	Vidro e artigos de vidro	mpr	30
440	4	Outros minerais não-metálicos	mpr	30
510	5	Siderurgia	mpr	32
610	6	Metalurgia dos não-ferrosos	mpr	33
710	7	Fundidos e forjados de aço	mpr	32
720	7	Outros produtos metalúrgicos	mpr	31
810	8	Máquinas, equipamentos e instalações	maq	36
820	8	Tratores e máquinas rodoviárias	maq	35
1010	10	Equipamentos para energia elétrica	maq	40
1020	10	Condutores e outros materiais elétricos	mpr	41
1030	10	Aparelhos e equipamentos elétricos	bcd-ud	39
1110	11	Aparelhos eletrônicos e de comunicação	bcd	38
1120	11	TV, radio, e equipamentos de som	bcd-ud	41
1210	12	Automóveis utilitários	bcd-ud	43
1310	13	Motores e peças para veículos	compveic	41
1320	13	Indústria naval	trans	44
1330	13	Indústria ferroviária	trans	44
1340	13	Fabricação de outros veículos	trans	43
1410	14	Indústria da madeira	mpr	45
1420	14	Indústria do mobiliário	bcd-ud	46
1510	15	Celulose e pasta mecânica	mpr	50
1520	15	Papel, papelão e artefatos de papel	mpr	50
1610	16	Indústria da borracha	mpr	51
1710	17	Elementos químicos não petroquímicos	mpr	58
1720	17	Destilação de álcool	mpr	54
1810	18	Refino de petróleo	mpr	54
1820	18	Petroquímica	mpr	58
1830	18	Resinas, fibras e elastomeros	mpr	56
1910	19	Adubos e fertilizantes	mpr	57
1920	19	Produtos químicos diversos	mpr	53
2010	20	Indústria farmac eutica	bcnd	81
2020	20	Indústria de perfumaria, sabões e velas	bcnd	82
2110	21	Laminados plásticos	mpr	83
2120	21	Artigos de material plástico	bcnd	83
2210	22	Beneficiamento de fibras naturais	mpr	60
2220	22	Fiação de fibras artificiais	mpr	61
2230	22	Outras indústrias téxteis	mpr	65

Nív.100	*50*	Portuguese Description of Sector	*IPA-DI*	*IPA*
2310	23	Artigos do vestuario e acessórios	bcnd	63
2410	24	Indústria de couros e peles	mpr	52
2420	24	Calçados	bcnd	64
2510	25	Indústria do café	bcnd-alim	75
2610	26	Beneficiamento do arroz	bcnd-alim	76
2620	26	Moagem de trigo	mpr	72
2630	26	Conservação de frutas e legumes	bcnd-alim	76
2640	26	Outros produtos vegetais	bcnd-alim	76
2650	26	Indústria do fumo	bcnd	69
2710	27	Preparação de carnes	bcnd-alim	78
2720	27	Preparação de aves	bcnd-alim	78
2810	28	Preparação do leite e laticínios	bcnd-alim	79
2910	29	Indústria do açucar	bcnd-alim	73
3010	30	Óleos vegetais em bruto	mpr	74
3020	30	Refino de óleos vegetais	bcnd-alim	74
3110	31	Alimentos para animais	mpr	80
3120	31	Outras indústrias alimentícias	bcnd-alim	80
3130	31	Indústria de bebidas	bcnd-alim	66
3210	32	Outras indústrias	ipadi	29

C English Descriptions of Sectors at *Nível 80*

A list of *IBGE*'s English descriptions of sectors at *nível 80* follows below.

Nív.80	*Nív.50*	English Description of Sector
201	2	Iron ore mining
202	2	Mining of other metals
301	3	Oil and gas production
302	3	Coal and other mining
401	4	Non-metallic mineral products
501	5	Basic metallic products
502	5	Rolled steel
601	6	Non-ferrous metallic products
701	7	Other metallic products

Niv.80	*Niv.50*	English Description of Sector
801	8	Manufacturing and maintenance of machinery and equipment
802	8	Tractors and embankment machinery
1001	10	Electrical equipment
1101	11	Electronic equipment
1201	12	Automobiles, trucks, and buses
1301	13	Other vehicles and parts
1401	14	Wood and furniture
1501	15	Paper, pulp, and cardboard
1601	16	Rubber products
1701	17	Non-petrochemical chemical elements
1702	17	Alcohol
1801	18	Motor gasoline
1802	18	Fuel oil
1803	18	Other refinery products
1804	18	Basic petrochemical products
1805	18	Resins and fibers
1806	18	Alcoholic fuel
1901	19	Chemical fertilizers
1902	19	Paints, varnishes, and lacquers
1903	19	Other chemical products
2001	20	Pharmaceutical and perfumery products
2101	21	Plastics
2201	22	Natural textile fibers
2202	22	Natural textiles
2203	22	Artificial textile fibers
2204	22	Artificial textiles
2205	22	Other textile products
2301	23	Apparel
2401	24	Leather products and footwear
2501	25	Coffee products
2601	26	Processed rice
2602	26	Wheat flour
2603	26	Other processed edible products
2701	27	Meat
2702	27	Poultry

Niv.80	*Niv.50*	English Description of Sector
2801	28	Processed milk
2802	28	Other dairy products
2901	29	Sugar
3001	30	Raw vegetable oil
3002	30	Processed vegetable oil
3101	31	Animal food and other food products
3102	31	Beverages
3201	32	Miscellaneous

References

IOB (2000): "Price Index Tables," in *Calendário Objetivo de Obrigações e Tabelas Práticas*, vol. December 2000, pp. 85–89. IOB (Informações Objetivas), Brasília