



STATE UNIVERSITY OF CAMPINAS – UNICAMP

Institute of Economics

Center for Industrial and Technology Economics

**Project: Bulletin of Industrial Conjuncture, Sector
Monitoring, Industry Overview, and Industrial
Policy Analysis**

Bulletin of Industrial Conjuncture

December 2010

Presentation

The Brazilian Agency for Industrial Development (ABDI), an organization under the Ministry of Development, Industry and Foreign Trade (MDIC), was established in December 2004 with the aim to promote the implementation of the Industrial Policy in Brazil, in line with the policies of Foreign Trade and Science and Technology (Act 11.080/2004).

The main focus of ABDI is on programs and projects established by the Brazilian industrial policy, the current Production Development Policy (PDP). The agency, alongside the Ministry of Finance, Science and Technology and the Brazilian National Bank of Economic and Social Development, is the Executive Branch of the PDP.

In order to monitor the progress of the Brazilian industry, the ABDI develops a set of studies and research on industrial intelligence to guide its work and assist the Government in defining and developing activities within the PDP.

These studies and research include the Bulletin of Industrial Conjuncture, which provides information and analysis on the evolution of Brazilian industry, highlighting the main problems to be faced and opportunities to accelerate development.

The Bulletin of Industrial Conjuncture, released on a quarterly basis, is devised in partnership with the Center for Industrial and Technology Economics (NEIT) of the Institute of Economics at the University of Campinas (UNICAMP).

On this issue, the Bulletin highlights the slowdown in economic growth observed in the third quarter of 2010. The data indicate a movement of accommodation regarding the recovery of industrial production in the post-crisis period, after a first half of fairly rapid growth.

The increase in imports represents a factor of concern for the Brazilian industry, as it may signify a trend of substitution of local production, tending to be accentuated if currency appreciation persists, as well as the adverse conditions in international markets. Nevertheless, the increase in imports does not seem to affect investment decisions of economic agents, since the Gross Fixed Capital Formation (GFCF) rose above the growth of the Gross Domestic Product (GDP). Over 12 months, until the third quarter of 2010, there was a growth of about 20%, while GDP grew by 7.5%.

In addition to the analysis of the economic and industrial conjuncture, the Bulletin also provides some elements for discussion on the subject of “deindustrialization”. So far, we cannot affirm that there is a process of loss of the Brazilian industry systemic importance, since there are several conflicting signals. If, on the one hand, there is a significant increase in imports, there is, on the other hand, a substantial increase in the volume of investments announced, coupled with significant hiring of manpower for the industry. Currency appreciation and excessive increase in imports are a cause for concern, but may become critical as they start to adversely affect investment decisions.

Industry Conjuncture in the Third Quarter of 2010

The Brazilian economy and industry experienced a deceleration of growth in the third quarter of 2010, following the pattern of domestic demand. However, the recovery of the investment rate was maintained. The behavior of the Brazilian foreign trade is still sending signals of concern due to continued strong expansion of imports and the shrinking trade surplus. Prospects for the Brazilian economy and industry are for continuing slowdown in growth in the last quarter of 2010, yet the expansion rate is expected to be resumed in 2011.

Data from the System of National Accounts (SCN/IBGE) confirmed the deceleration in the growth of Brazilian economy during the third quarter of 2010. One major highlight was the slight increase of Gross Domestic Product (GDP) at market prices in the third quarter compared to second quarter of 2010 (0.5%), seasonally adjusted. There is clearly a deceleration when comparing the expansion observed in the second (1.8%) and first (2.3%) quarters in relation to immediately previous quarters (Table 1). The performance of the Brazilian economy has also remained positive in the third quarter of 2010 over the same quarter of 2009 (6.7%), confirming the expansion seen in the previous two quarters. We should note, in this case, the existence of a significant statistical effect arising from consideration of a depreciated basis for comparison, influenced by the global crisis negative effects concentrated in 2009. On the other hand, the growth of the GDP at market prices reached a level of 7.5% over the past 12 months ending in September 2010, the highest quarterly rate of cumulative growth of the 2000s.

**Table 1 – GDP Variation Rate by Activity and Demand Components
(2Q/2010 and 3Q/2010) (in %)**

	Quarterly rate against same quarter of previous year		Quarterly rate against immediately previous quarter (*)	
	2Q/2010	3Q/2010	2Q/2010	3Q/2010
Agriculture and cattle raising	10.4	7.0	2.1	(1.5)
Industry	14.1	8.3	2.0	(1.3)
Mining	16.6	16.6	-	-
Manufacturing	14.1	7.1	-	-
Civil Construction	16.6	9.6	-	-
Electricity, gas, and water	10.0	8.0	-	-
Services	6.0	4.9	1.2	1.0
GDP at basic price	8.5	5.9	1.7	0.3
GDP at market price	9.2	6.7	1.8	0.5
Household consumption expenditure	6.4	5.9	0.9	1.6
Public administration consumption expenditure	5.6	4.1	1.9	0.0
Gross fixed capital formation	28.1	21.2	4.3	3.9
Exports of goods and services	7.2	11.3	0.1	2.4
Imports of goods and services (-)	38.9	40.9	5.8	7.4

(*) Seasonally adjusted.

Note: The data encompass the review of the historical series conceived and published by the IBGE. There may thus exist differences compared to the data analyzed in previous industry conjuncture bulletins. Data from the 3rd quarter of 2010 are preliminary.

Source: NEIT/IE/UNICAMP based on data from the System of National Accounts (SCN)/IBGE.

The slowdown in the expansion of major components of domestic demand marked the third quarter of 2010, directly affecting the Brazilian economy during the period. There was stagnation of consumption expenditure by the public administration and reduction of growth of the gross fixed capital formation (to 3.9%) compared with the

second quarter of 2010, taking into account the seasonal adjustment (Table 1). On the other hand, there was an increase in imports (7.4%), which unequivocally surpassed the increase in consumption expenditure of households (1.6%).

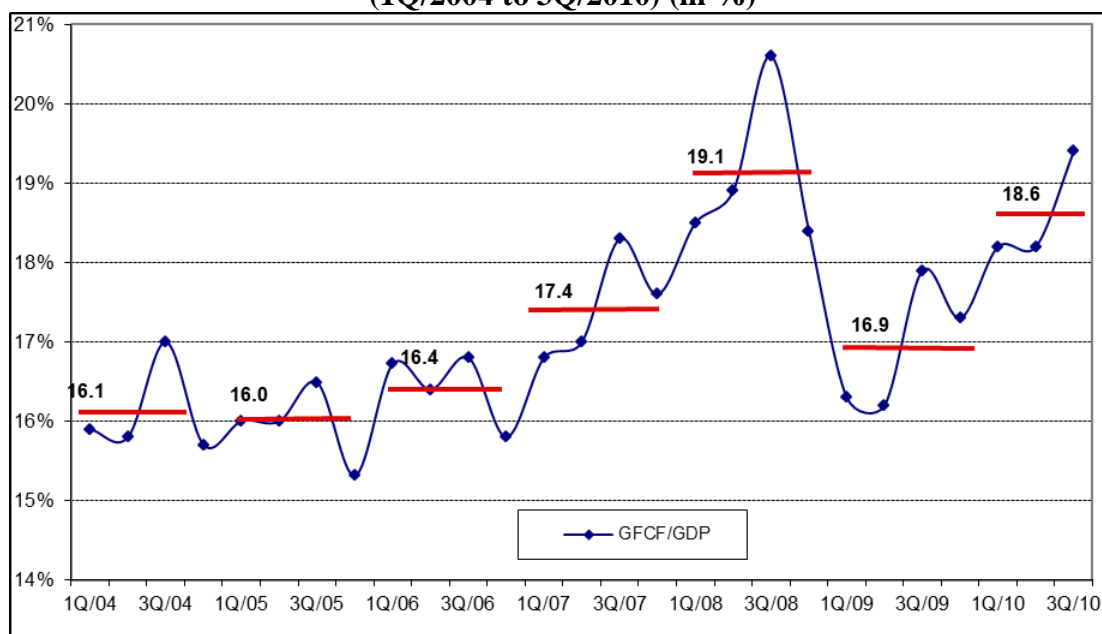
When comparing data from the third quarter of 2010 with the same period of 2009, we also observe a reduction in growth for much of the components of domestic demand, with the exception of imports. Even keeping quarterly rates of growth still quite high in relation to clearly impaired values observed in 2009, gross fixed capital formation showed a loss of dynamism of its growth over the first three quarters of 2010. We also observed the slowing growth of household consumption in comparison to the same quarters of 2009: 6.4% in the second quarter to 5.9% in the third quarter of 2010. Public administration consumption also suffered a reduction in its expansion from 5.6% in the second quarter to 4.1% in the third quarter compared to the same periods of 2009. The main highlight comprised imports, which maintained fairly high levels of growth in the first three quarters of 2010, surpassing the 40% expansion in the third quarter of 2010.

At the end of the 12-month period ending in September 2010, imports and gross fixed capital formation stood out among the main components of demand, with growth rates of 29.4% and 20.2%, respectively (SNA/IBGE).

External demand, represented by the behavior of exports, has maintained a positive contribution to the growth of Brazilian economy in 2010. We observed a small acceleration of export growth by comparing the second and third quarters with the immediately previous quarters, considering the seasonal adjustment (from 0.1% to 2.4%). We noticed the same behavior when collating data from the second and third quarters of 2010 with the same periods in 2009 (from 7.2% to 11.3%). We confirmed, however, the urgency for a special attention to the behavior of Brazilian exports, which have maintained a growth rate much lower than imports, driven by buoyant domestic demand and currency appreciation.

With respect to the investment rate (GFCF/GDP), we noticed an increase in the third quarter of 2010 to the level of 19.4% after reaching 18.2% in the first and second quarters (Chart 1). The average investment rate for the first three quarters of 2010 (18.6%) exceeded the average calculated for all years of period 2004-2007. The level attained by the investment rate in the fourth quarter analyzed exceeded the average of 19.1% achieved by the year of fastest growth prior to the crisis (2008). It becomes evident that the investment rate has been recovering gradually over the year. Its course has been primarily influenced by the behavior of gross fixed capital formation, which succeeded in growing well above the GDP in the first three quarters of 2010 compared to same period in 2009. Therefore, the prospect of growth remains in coming quarters, following the virtuous behavior of domestic consumption and investment efforts by the public and private sectors.

**Chart 1 – Evolution in Investment Rate
(1Q/2004 to 3Q/2010) (in %)**



Source: NEIT/IE/UNICAMP based on data from the SCN/IBGE.

From the standpoint of supply, agriculture and industry showed a marginal downward behavior, although at reduced levels, following the gradual deceleration of growth in the first two quarters. The recovery of agricultural and industrial activities in the post-crisis period seems to have been temporarily interrupted. We also noted the slowing growth of services in the third quarter, compared to the second quarter of the year (to 1.0%).

By comparing data from different economic activities in the second and third quarters of 2010 with the same periods of 2009, we notice a widespread slowdown in growth, especially in the manufacturing and civil construction industries, which showed a significant contraction in their growth rates from the second to the third quarter of 2010 compared to same period of 2009 (Table 1). The mining industry certainly stood out in the third quarter of 2010, maintaining growth of 16.6% over the same period in 2009. As a result, the Brazilian industry also witnessed a slowdown of growth in the third quarter of the year (to 8.3%), clearly influenced by the behavior of the manufacturing industry in the same period. It is worth noting, however, that the Brazilian industry has maintained a significant growth over the 12 months ended in September 2010 (10.2%).

The slowdown in Brazilian industrial growth was confirmed in the third quarter of 2010 in terms of physical production. Based on data from the Monthly Industrial Survey – Physical Production (PIM-PF/IBGE), we observed an increase in output in manufacturing, mining and, therefore, the general industry in the third quarter of 2010 in comparison to the same quarter in 2009 (Table 2).

**Table 2 – Variation Rate in Brazilian Industrial Production
(1Q/2009 to 3Q/2010) (in %)**

Activities	1Q 2009	2Q 2009	3Q 2009	4Q 2009	1Q 2010	2Q 2010	3Q 2010
Quarterly variation rate over the same quarter of the previous year							
General Industry	(14.6)	(12.3)	(8.2)	5.9	18.2	14.3	7.9
Mining	(15.8)	(11.7)	(9.9)	3.0	18.9	14.0	11.4
Manufacturing	(14.5)	(12.3)	(8.1)	6.0	18.2	14.3	7.7
Quarterly variation rate over the previous quarter (seasonally adjusted)							
General Industry	(6.7)	4.0	5.2	4.1	3.0	1.2	(0.4)
Mining	(8.2)	5.3	4.6	2.6	4.1	2.1	2.4
Manufacturing	(5.9)	3.3	4.9	4.4	3.4	0.7	(0.9)
Variation rate accumulated over the last four quarters							
General Industry	(1.9)	(6.5)	(10.2)	(7.4)	(0.3)	6.5	11.2
Mining	(1.8)	(6.2)	(10.9)	(8.8)	(1.1)	5.4	11.6
Manufacturing	(1.9)	(6.5)	(10.2)	(7.3)	(0.2)	6.5	11.2

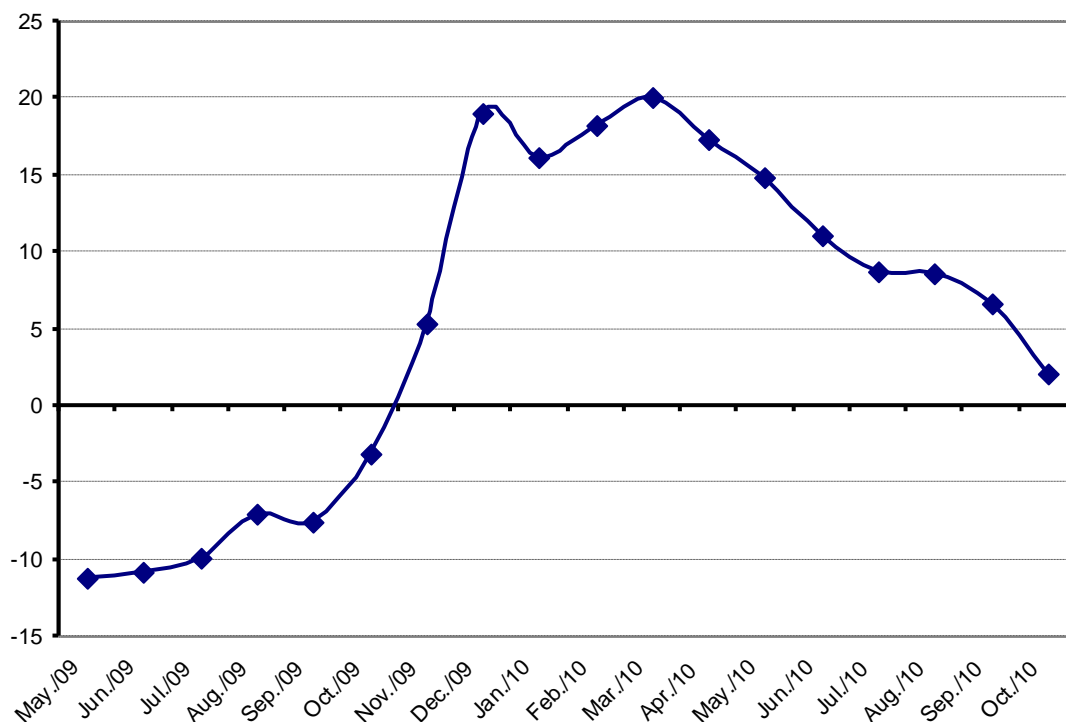
Note: The data encompass the review of the historical series conceived and published by the IBGE. There may thus exist differences compared to the data analyzed in previous bulletins of industrial conjuncture.

Source: NEIT/IE/UNICAMP based on data from the Monthly Industrial Survey – Physical Production (PIM-PF)/IBGE.

Furthermore, we notice a reversal of the positive performance of the production of the manufacturing and general industry in the third quarter of 2010 compared to the previous quarter, seasonally adjusted: manufacturing production dropped 0.9% and the general industry, 0.4%, while only the mining industry was able to expand its production in the same period (Table 2). At the end of the 12-month period finishing in September 2010, the rates of change of industrial production showed positive values and high levels: 11.2% for the manufacturing and the general industries and 11.6% for the mining industry (Table 2).

By detailing the monthly performance of Brazilian industrial output during the post-crisis period, in comparison with the same months in previous years, we see a clear tendency of smoothing reduction as from May 2009 (Chart 2). Consecutive positive monthly variation rates can be observed as from November 2009, with growth peaks in December 2009 (19.0%), and in March 2010 (20.1%). The depreciated basis for comparison of late 2008 and early 2009, marked by the concentration of the negative effects of the global crisis on the Brazilian industry, has helped to inflate the high growth rates of industrial production observed in the months mentioned. However, we should not fail to note the importance of recovery in industrial production during the first months of 2010, which lost momentum in the initial months of the second half of the year. The recent movement has been a continuous deceleration of the monthly growth of industrial production as from April, reaching a variation rate rather weak in October 2010 over the same month in 2009 (2.1%). Therefore, monthly data, corroborated by the latest data available from October, allow us to detail the reported loss of dynamism in industrial production, especially in the early months of the second half of 2010.

Chart 2 – Monthly Variation Rate of Brazilian Industrial Production
 (compared to the same month of the previous year – may/2009 to oct/2010)
 (in %)

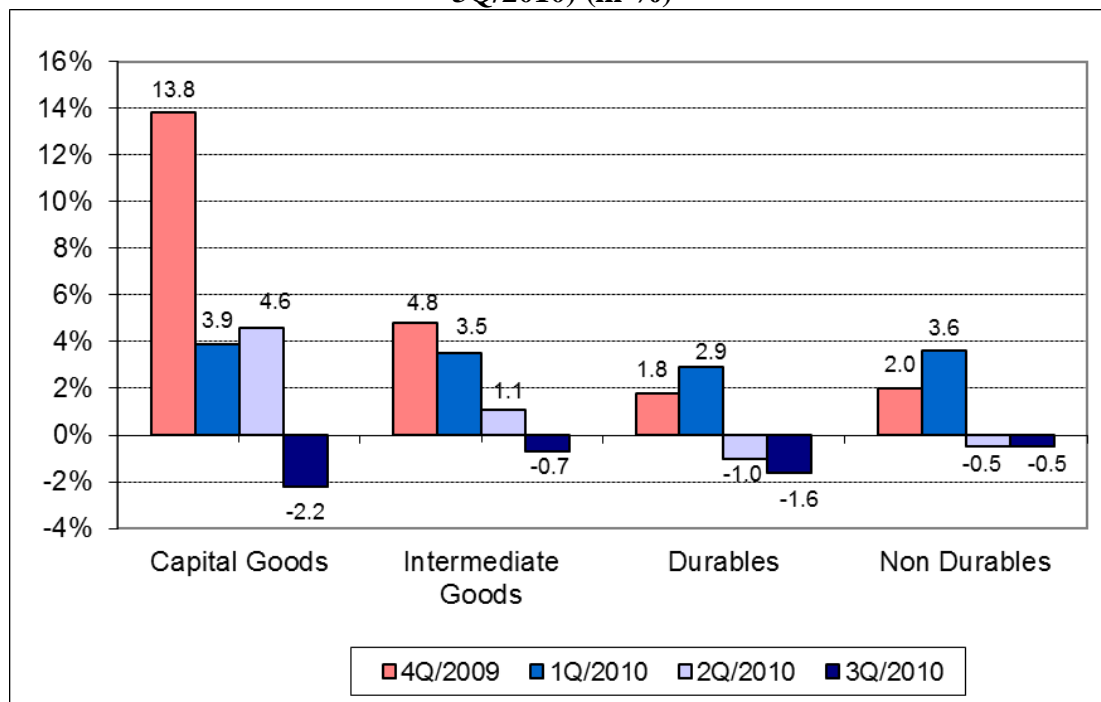


Source: NEIT/IE/UNICAMP based on data from the PIM-PF/IBGE.

The analysis of industrial production data by categories of use reveals the generalization of reduction in the third quarter compared to second quarter of 2010 (Chart 3).

The capital goods industry was the most affected by the decline in industrial production in the third quarter compared to second quarter of 2010 (-2.2%). One major highlight was the strong increase in the production of capital goods in the fourth quarter compared to the third quarter of 2009 (13.8%), followed by slower growth in the first (3.9%) and second (4.6 %) quarters of 2010 compared to the immediately previous quarter, seasonally adjusted. This recovery movement has reversed in the third quarter, when capital goods most starkly felt the loss of dynamism in the Brazilian industry. It should be noted, however, that capital goods have managed to maintain high rates of monthly growth of its production, compared to the same months in previous years, since December 2009, confirming its strong recovery after the global crisis – average monthly increase of 26.4% from December 2009 to September 2010. In October, we can see a significant slowdown in the increase of production of capital goods compared to the same month of 2009 (to 6.0%).

**Chart 3 –Evolution in Industrial Production by Categories of Use
(quarterly variation rate compared to the previous quarter – 4Q/2009 to
3Q/2010) (in %)**



Note: The data encompass the review of the historical series conceived and published by the IBGE. There may thus exist differences compared to the data analyzed in previous bulletins of industrial conjuncture.
Source: NEIT/IE/UNICAMP based on data from the PIM-PF/IBGE.

The growth of production of intermediate goods showed a tendency to decelerate in since the first quarter of 2010. Growth rates in the first two quarters of 2010 compared to the immediately previous quarter, seasonally adjusted, were 3.5% and 1.1%, respectively. The reversal of this positive behavior can also be observed in the physical production of intermediate goods in the third quarter compared with the second quarter of 2010, seasonally adjusted (-0.7%). As observed for capital goods, intermediate goods had positive monthly rates of production growth since December 2009, compared to the same months in previous years, and also suffered a slowdown in growth in October 2010 with respect to October 2009 (to 3.2%). It should be noted that the Brazilian production of intermediate goods, with significant external insertion, provided evidence for the sharp drop in global demand in the period immediately following the outbreak of the crisis, yet it took advantage of the resumption of Chinese demand for basic inputs and commodities, which contributed to slow the reduction in external demand in recent times. In addition, it felt the effects of the recovery of demanding sectors of intermediate goods in the domestic market, especially the durable goods sector. Recently, production of intermediate goods has also reflected the slowdown in the recovery of the Brazilian industry.

Durable consumer goods experienced a decline in their physical production in the second and third quarters of 2010 with respect to the immediately previous quarters, considering the seasonal adjustment (Chart 3). This decline in the production of durable goods replaced the period of its recovery under the tax relief policy adopted by the Brazilian government to stimulate the production of the automotive and household appliance sectors. Physical production of durable goods had witnessed very significant expansion in the second (11.7%) and third quarters (9.9%) of 2009

compared to the immediately previous quarters, seasonally adjusted. However, it went through a period of slower growth in the last quarter of 2009 (1.8%) with low rise in the first quarter 2010 (2.9%), finally experiencing reduction in the second (-1.0%) and the third (-1.6%) quarters of 2010 compared to the immediately previous quarters, seasonally adjusted. The process of gradual reduction and the end of release from the Manufactured Goods Tax (IPI) for the automotive and household appliance goods sector contributed to the behavior analyzed. What certainly distinguished the performance of the physical production of durable consumer goods, compared to other categories of use, was the precocity of the contraction that began in the second quarter of 2010. The monthly rate of change of production of durable goods in October 2010 compared to the same month of 2009 (-4.9%) confirms the trend of contraction examined for the third quarter.

The semidurable and nondurable goods sectors, considering its limited dependence on consumer credit, did not suffer the effects of the global crisis as severely as the other categories of use. They maintained positive rates of growth of production, even at lower levels, since the second quarter of 2009, compared with the immediately previous quarter, seasonally adjusted. We note a slight contraction in the production of durable and nondurable goods in the second (-0.5%) and third (-0.5%) quarters in relation to previous quarters, following the trend of loss of dynamism of the physical production observed, in general, for other industrial sectors in Brazil (Chart 3).

Performance analysis of physical production by industrial activity in the third quarter of 2010 over the same period of 2009 confirms the maintenance of its growth, albeit with obvious slowdown. This is because the growth rates of production were positive for 22 of the 27 sectors included in the IBGE survey (PIM-PF), although they were lower than those observed in the second quarter of 2010 compared to the same period of 2009 (with the exception of only two industrial sectors). Some industrial activities stood out for their significant growth rates in the third quarter of 2010, such as medical and hospital instrumentation equipment (32.8%), motor vehicles (24.5%), wood (20.8%), machinery and equipment (16.2%), metal products (except machinery and equipment) (15.1%), and metallurgy (11.0%). Among the leading sectors mentioned, only medical and hospital instrumentation equipment was able to provide an acceleration of growth in the third quarter of 2010.

Considering the accumulated growth rate in the four quarters ending in September 2010, we may notice the continued recovery of some industrial sectors such as motor vehicles (28.9%), machinery and equipment (24.3%), metal products (except machinery and equipment) (21.3%), and metallurgy (18.3%), and rubber and plastics (16.4%). In the composition of the growth rate of the Brazilian industry during the period January-September 2010 (13.1%), the noticeable highlights were motor vehicles (2.8%), machinery and equipment (2.0%), and metallurgy (1.2%). As stressed in previous bulletins, some of these sectors, members of the categories of capital goods or durable consumer goods, have regained their leading position in industrial growth during the post-crisis recovery.

Monthly figures for October 2010 compared to October 2009 show contraction or slowdown in the growth of physical production in most industrial activities (in 22 of the 27 sectors included in PIM-PF/IBGE). This confirms the marginal deterioration of the behavior of Brazilian industrial production noted earlier.

The slowdown in physical production has been accompanied by stabilization in rates of employment in the industry. Data from the PIMES/IBGE show that the proportion

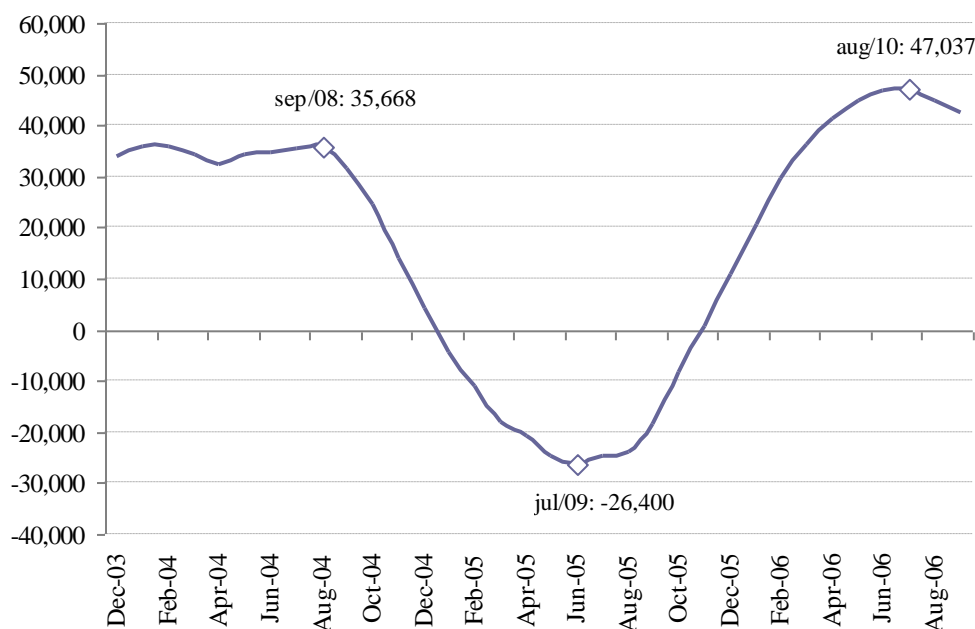
of employed persons with seasonal adjustment has been virtually stationary since July 2010 after a major recovery that began in April 2009.

Also according to data from the General Register of Employed and Unemployed Persons of the Ministry of Labor and Employment (CAGED/MTE), the growth of formal employment in the industry is slowing. The data show, however, that employment remains at a very high level. Analysis of the moving average of 12 months of net hires from January 2008 to October 2010 shows that the upward trend of employment began in July 2009 and persisted until August 2010 when the average net hires reached 47,000 thousand people per month compared to the level of about 35,000 recorded in the pre-crisis period (Chart 4).

The reversal of the high level of employment recorded during September and October 2010 still occurs at very high levels and may result from a simple accommodation of the economy. In fact, the crisis and the fiscal and monetary policies that limited their impact on the local economy, which have been gradually removed, were clashes that broke with the previous composition of demand and, thus, with their own seasonal pattern of employment generation.

Commonly, the employment peak of the industry occurs in every month of September, when it begins to subside, gradually recovering the following year. In 2008, employment followed this trajectory, but the crisis escalated layoffs in October. Positive net hires only returned in April 2009. The first half of 2010, in turn, began with very intense hirings and it is reasonable to expect an accommodation at the end of 2010 and early 2011. In other words, seasonality has been interrupted and should recover only in 2011, when the numbers of both crisis and recovery should materialize.

**Chart 4 – Moving Average of the Industrial Net Employment
(Jan 2008 to Oct 2010) (in thousands)**

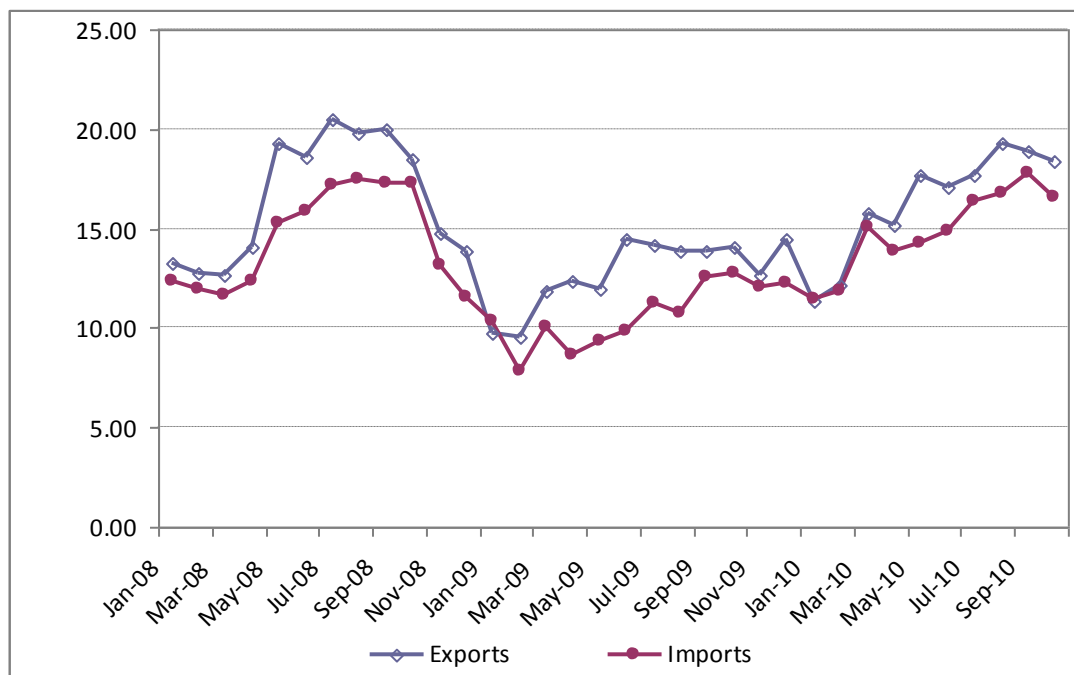


Source: NEIT/IE/UNICAMP based on data from the CAGED/MTE.

As for foreign trade data, a first important observation is that exports have returned to present a path of significant growth, particularly in the period from February to

August 2010 (Chart 5). Nevertheless, data for September and October again showed a tendency to stagnation, which, however, may be simply a temporary interruption in the wider movement of recovery. Given the quarterly data, the third quarter registered an increase of 11.6% compared to second quarter of 2010 and 33.3% over the same period in 2009. In the period ending in October, the result of 2010 was 19.4% higher than 2009 but still 3.6% lower than the same period of 2008 (Table 3).

**Chart 5 – Monthly Exports and Imports
(Jan 2008 to Oct 2010) (in \$ billion)**



Source: NEIT/IE/UNICAMP based on data from the SECEX.

Imports, in turn, have shown a trend of almost continuous increase since early 2009 – with growth far higher than exports in 2010. In the period ending in October, the growth rate of imports was 44% over the same period in 2009. For 2008, the imports value was almost the same. The growth rate of imports was 18.4% in the third quarter compared to the second quarter of 2010.

It is important to note that, while export growth has been influenced mainly by the recovery in prices of exports, imports have risen substantially by increasing the imported quantum. The quantum index of imports has shown an upward trend much more vigorous than that seen for exports (Chart 6).

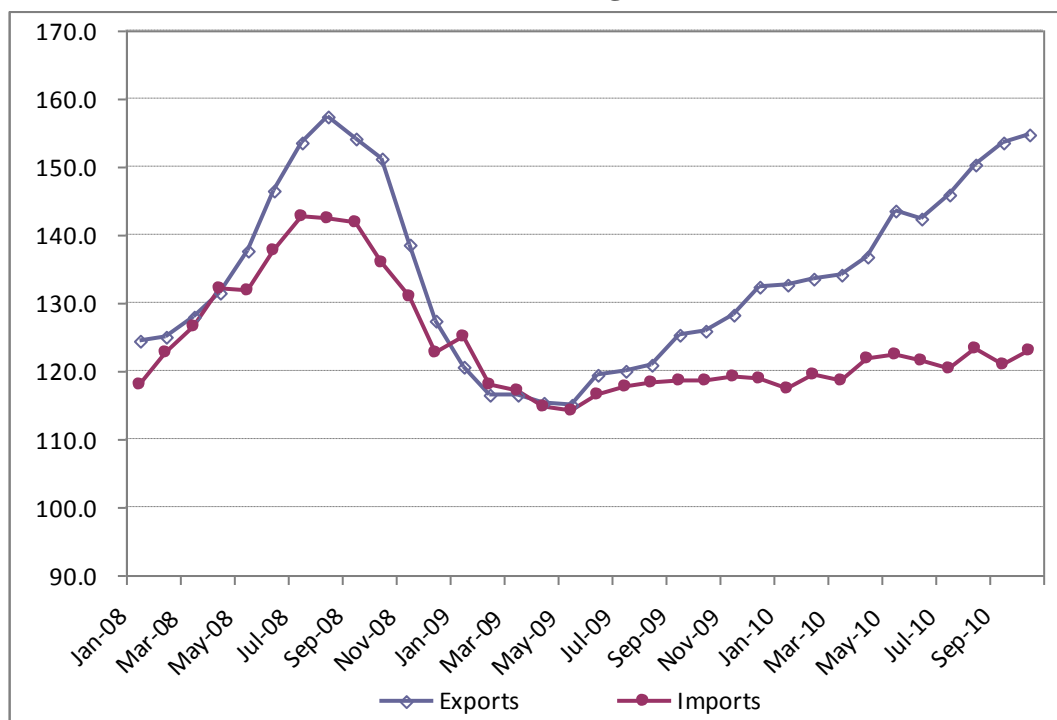
**Chart 6 – Quantum Indices of Exports and Imports
(Jan 2008 to Oct 2010) (average basis 2006 = 100)**



Source: NEIT/IE/UNICAMP based on data from the-Funcex.

On the other hand, price indices of imports, after the collapse that followed the global crisis, have shown a sluggish growth, and were maintained well below the levels seen before the global crisis (Chart 7). The price index of exports, in turn, had a strong recovery, quickly approaching the pre-crisis levels.

**Chart 7 – Price Indices of Exports and Imports
(Jan 2008 to Oct 2010) (average basis 2006 = 100)**



Source: NEIT/IE/UNICAMP based on data from the Funcex.

For exports, this behavior was influenced by the rapid recovery of commodities and semi-manufactured goods prices and exported quantum, driven by the strong recovery in Chinese demand. In the period ending in October, exports of commodities had a 26.2% increase over the same period in 2009 (Table 3). Even compared to 2008, the total exports in 2010 were 15.6% higher. Semi-manufactured products had an increase of 30.8% compared to 2009 but still are at a level 3.9% lower than in 2008. Manufactured goods experienced an 8.9% increase over 2009 but still are down 17.7% over the same period in 2008. The marginal increase indicates a more similar trend among the three groups, as shown by the comparison of rates between the third and second quarters of 2010 (Table 3).

For imports, the categories most directly linked to final domestic demand had a significant growth, even when compared to 2008. Capital goods grew by 36.5% over the same period in 2009 and 15.7% over 2008. This fact can be considered a positive element, since it indicates that the resumption of investment has been showing continuity. However, the increase in consumer goods stands out. The volume of imports of durable consumer goods accumulated in 2010 was 56.4% higher than the same period in 2009. In relation to 2008, the increase was 40.7%. In the case of nondurable goods, those numbers point to 32.4% and 27.4% respectively. In addition to the rate of exchange factor, these data reflect the tough conditions of international competition in post-crisis period, causing part of the production, which was previously absorbed by the core countries, to be “pushed” to countries that still keep demand relatively warm. Most of the time, this rearrangement movement of flowing global production from countries of stagnant demand to countries with growing demand occurs through intra-firm trade agreements.

Intermediate goods and fuels, in turn, despite showing a high growth rate compared to 2009, are still below the levels observed in 2008, following more closely the internal pace of industrial production.

Table 3 – Growth Rates of Exports by Added Factor and Imports by Category of Use (in %)

Flow	Category	III-2010/ II-2010	III-2010/ III-2009	Jan-Oct 2010/ Jan-Oct 2009	Jan-Oct 2010/ Jan-Oct 2008
Exports	Total	11.6	33.3	19.4	-3.6
	Basic	12.2	44.8	26.2	15.6
	Semi-manufactured	10.4	37.1	30.8	-3.9
	Manufactured	11.1	20.5	8.9	-17.7
Imports	Total	18.4	47.3	44.0	0.1
	Capital goods	33.0	66.1	36.5	15.7
	Intermediate	17.8	42.6	42.5	-3.0
	Durable consumer	16.1	50.6	56.4	40.7
	Nondurable consumer	15.8	40.2	32.4	27.4
	Fuels	6.8	46.5	64.6	-20.7

Source: NEIT/IE/UNICAMP based on data from the Secex.

In summary, the data of industrial production and employment in the third quarter of 2010 showed a slowdown in the growth of Brazilian industry. This movement indicates a slower recovery of Brazilian industrial production in post-crisis period, after a first half of fairly rapid growth. The increase of the pace of imports, especially consumer goods, is a worrying factor, as it may mean a tendency to substitute local production, with a propensity to grow if currency appreciation and the adverse scenario in the international market remain. However, at least for now, the increase in imports does not seem to affect investment decisions of agents, since this variable is still showing signs of robust growth. In the coming months is crucial to continue to monitor the evolution of this variable, as it can give important clues about the future scenario of growth of the Brazilian economy.

Notes on the evidence of deindustrialization in Brazil in the recent period

The discussion on the existence and depth of a process of deindustrialization in the Brazilian economy, previously restricted to academic circles, is gaining increasing space in the media in recent months. The views, interests, and motivations in this discussion have various tones.

At one end are those who argue for a more streamlined and specialized production structure, identifying in greater exposure to external competition and mobility of production and financial capital factors that are necessary and sufficient for setting up a production structure with competitive sectors. In this case, a pattern of specialization and integration of trade in sectors intensive in natural resources could reflect a more efficient allocation of production factors and the comparative advantages of the Brazilian productive structure.

At the other end are those who identify in the industrial development a major factor of economic growth in developing countries, considering that the industrial activity has greater ability to generate dynamic economies of scale and produce linkages and externalities on other sectors of the economy. This differential could be present even within the industry itself, as sectors that are most intensive in knowledge and technology have greater potential to bring positive impacts than others. Thus, deindustrialization would be a negative factor, identified not only as the loss of relative importance of the industry in the GDP and in total employment, but also from changes in export structure and production within the industry, particularly through increased participation of sectors more intensive in natural resources, with less capacity of production and technology linkages vis-à-vis sectors that are more intensive in capital, knowledge, and technology.

In the most recent period, the persistent appreciation of domestic currency and favorable conditions of demand and prices for the production and export of agricultural, metal and minerals commodities, plus the existing competitive advantages, might be aggravating deindustrialization. The high competitiveness of these sectors would allow for the generation of significant trade surpluses, which, combined with the input of capital flows in financial accounts, increase the appreciation of the domestic currency, exposing less competitive industries to foreign competition.

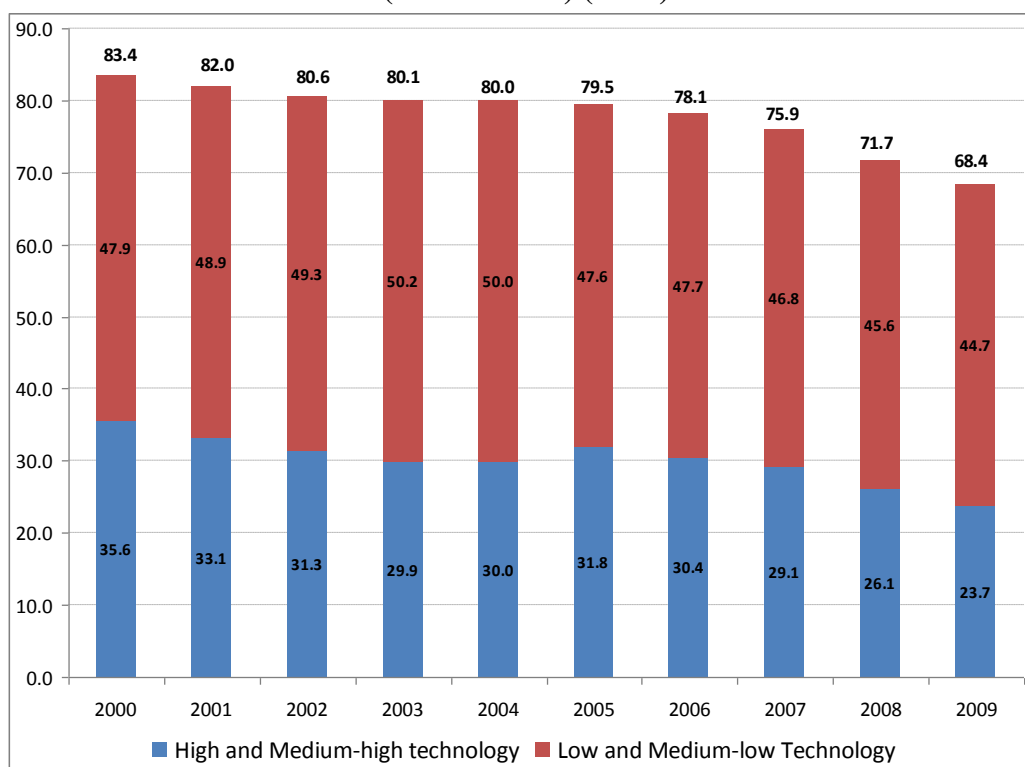
This paper aims to discuss this debate, arguing that, for the most part, the polarization on the existence and depth of a process of deindustrialization in the Brazilian economy in recent years is related to the mixed signals observed in the more traditional indicators used to analyze this issue.

Noting, first, trade data, and considering the classification by aggregate factor, the increase in the participation of non-manufactured goods in the Brazilian exports is quite noticeable. In 2000, manufactured goods represented 59.0% of the total exports in Brazil, compared to 22.8% for primary products and to 15.4% for semi-manufactured goods. In 2008, the share of primary commodities had increased to 36.9% of the total, while semi-manufactured goods had reached 13.7%, and manufactured goods, 46.8%. In 2009, with the effects of the global crisis affecting

more directly the core countries and with the rapid recovery in Chinese demand for primary products, they reached 40.5% of the total, compared to 13.4% of semi-manufactured goods and 44% of manufactured goods.

Using the classification by technological intensity of the OECD, we can also note the loss of relative importance of products classified as industrial products in total exports, as well as, in industrial products, the loss of relative importance of high and medium-high technological intensity products. This trend is more pronounced as from the mid-decade, when the quantities and international prices of commodities began to reflect more effectively the Chinese demand (Chart 1).

Chart 1 – Evolution in the Share of High and Medium-High and Low and Medium-Low Technology Products in Total Brazilian Exports (2000 to 2009) (in %)

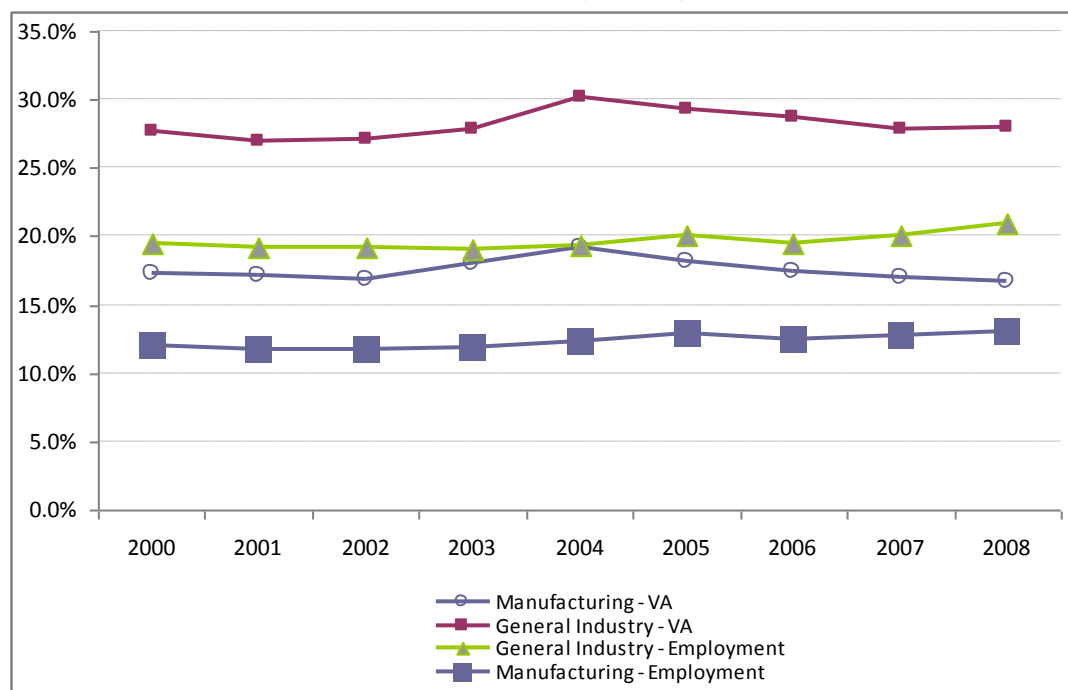


Source: NEIT/IE/UNICAMP based on data from the Secex.

However, perhaps it is more appropriate to analyze the data of the relative share of the industry, not only in exports but also in the production structure. Considering both the general industry (including public utilities, civil construction, and mining) and the manufacturing industry, we see a distinct trend according to the variable used. If using the relative share in Value Added (at basic prices), we observe an increasing trend until 2004, followed by a decrease, when considering both the general industry and the manufacturing industry (Chart 2). This decrease is more pronounced in the manufacturing industry, with a reduction of 19.2% in 2004 to 16.6% in 2008.

But when we attempt to measure the process of deindustrialization from the participation of industry in total employment, we observe that, particularly since 2004, there has been an increase in the relative share of both the general industry and the manufacturing industry.

Chart 2 – Evolution in the Share of General Industry and Manufacturing Industry in Value Added and Employment (2000 to 2008) (in %)



Source: NEIT/IE/UNICAMP based on data from the SCN/IBGE.

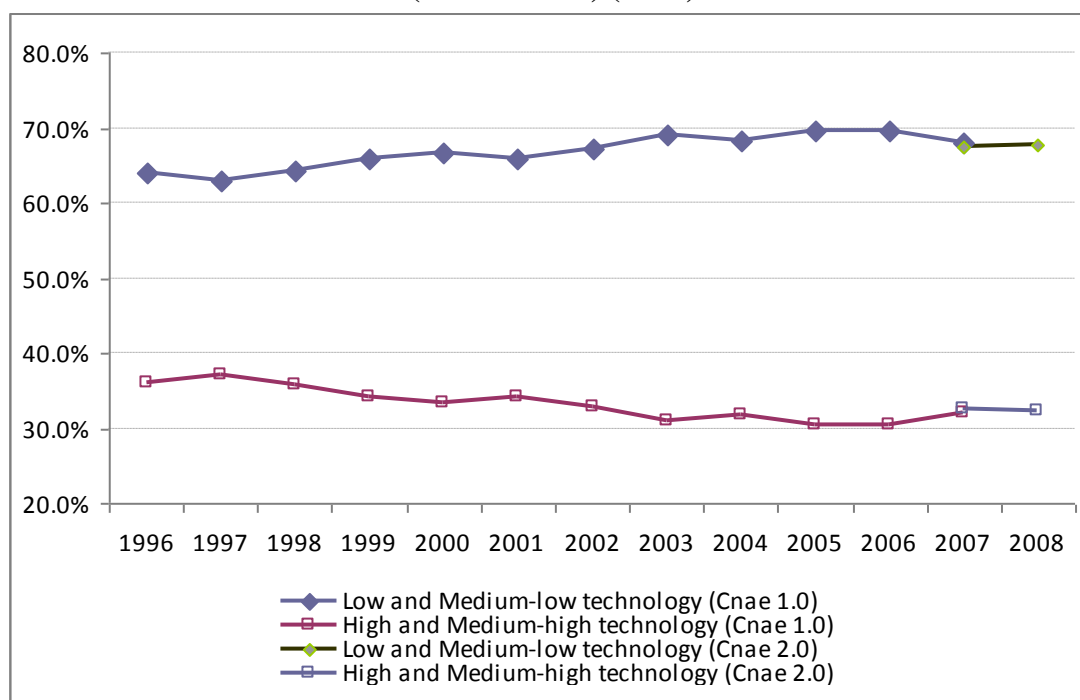
Similarly, when we observe the share of different sectors within the manufacturing industry, the evolution depends on the classification used to aggregate those with higher technological content. If we use the OECD classification, we can see in Chart 3 a drop in the share of more technology-intensive industries between 1996 and 2005, with some signs of reversal as from 2006¹.

However, if the criterion of technological intensity used is not the international standard, but a domestic standard that ranks sectors by the actual intensity level of the Brazilian industry, measured by the share of the expenditures in R&D on sectorial net revenues, obtained from the Technological Innovation Survey (PINTEC) of 2005², the results are quite different.

¹ As of 2008, data from the Annual Industrial Survey (PIA/IBGE) began to be published with the CNAE 2.0, including data from 2007, the last year of disclosure to the CNAE 1.0 rating. Thus, there is a discontinuity in Figures 3 and 4, from 2007 to 2008.

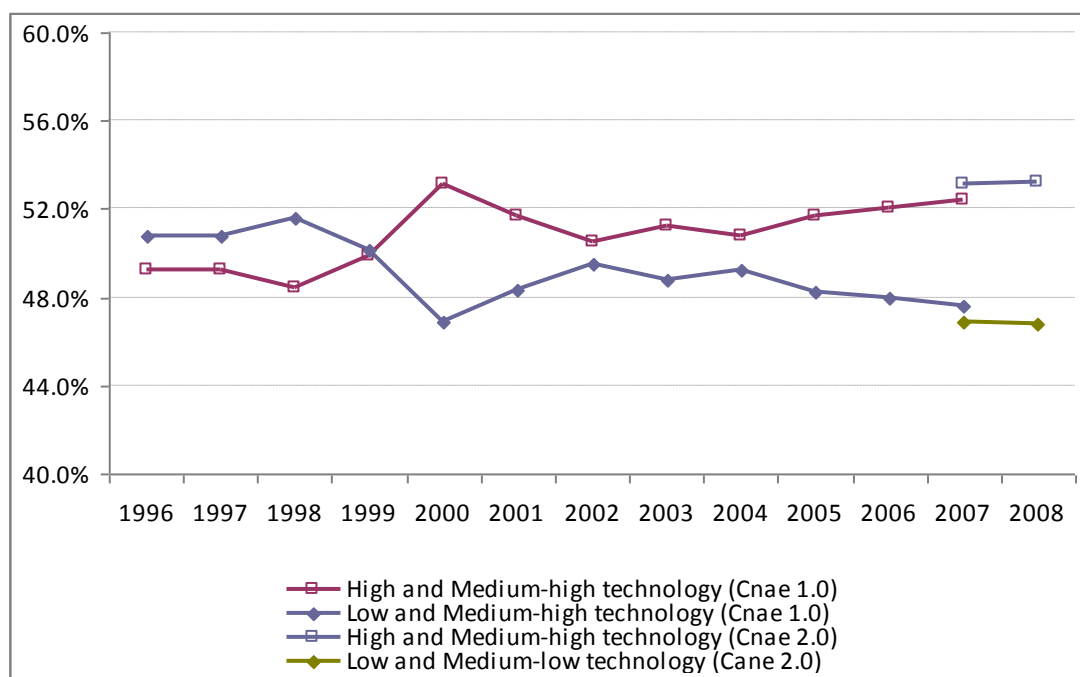
² The methodology used was similar to that proposed by the IBGE, in the analysis of results of the 2003 Annual Industrial Survey. In this analysis, expenditures on R&D, as compared to net revenue, according to PINTEC 2000, were ordered and categorized into quartiles to classify the sectors of high, medium-high, medium-low, and low technological intensity. The difference was that this study used data from the PINTEC 2005.

Chart 3 – Evolution in the Share of High and Medium-High and Low and Medium-Low Technology Sectors in the Value of Industrial Transformation of the Manufacturing Industry– OECD Classification (1996 to 2008) (in %)



Source: NEIT/IE/UNICAMP based on data from the PIA/IBGE.

Chart 4 – Evolution in the Share of High and Medium-High and Low and Medium-Low Technology Sectors in the Value of Industrial Transformation of the Manufacturing Industry – IBGE Classification (1996 to 2008) (in %)



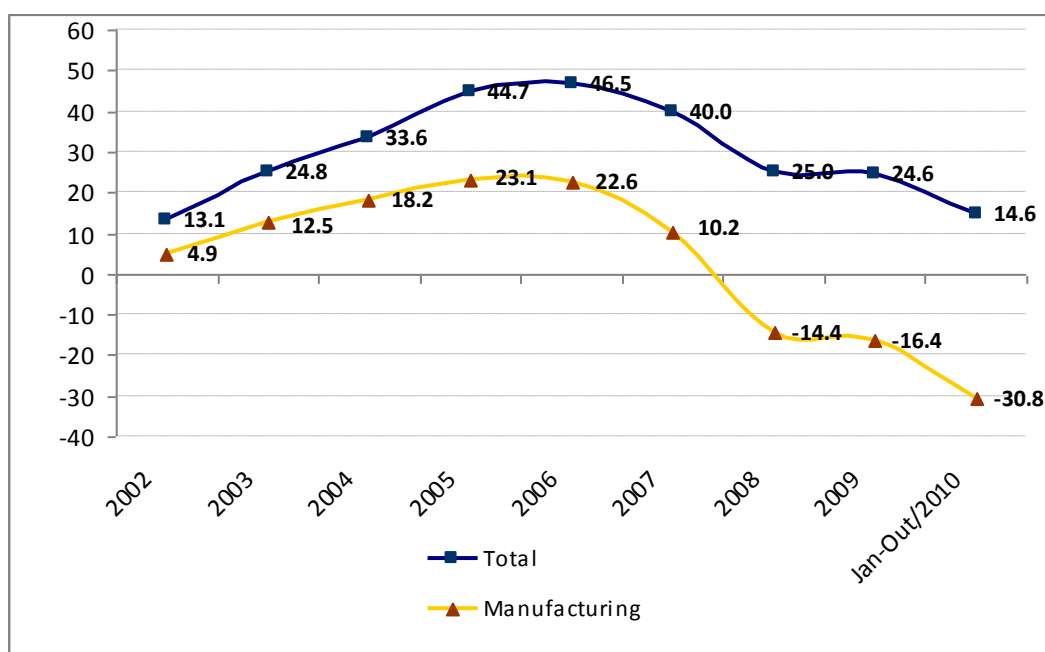
Source: NEIT/IE/UNICAMP based on data from the PIA/IBGE.

First, the level of the sectors considered in each group changes substantially according to the classification used. In the second approach, the share of sectors of high and medium-high technology rises substantially in relation to the international classification. That is because some important sectors, which are considered in groups of low or medium-low technological intensity by the international rating, maintain relative R&D expenditures above average in Brazil and are classified as high or medium-high technological intensity, as the Oil Refining Sectors.

Not only is the level higher but also the evolution is different, since the tendency is to increase the share of high and medium-high technological intensity sectors, as seen in Chart 4.

Another contrast focus can be seen when we examine and compare the evolution of physical production of the industry with imports and the trade balance of manufactured goods. In fact, imports have been growing at an accelerated rate as was discussed in the first part of this report, reflecting the acceleration in domestic demand, the overvalued exchange rate and increased international competition due to stagnant demand in developed countries. As shown in Chart 5, this has been reflected in the emergence of negative trade balances as from 2008, reaching more than \$30 billion in 2010, in the period from January to October alone.

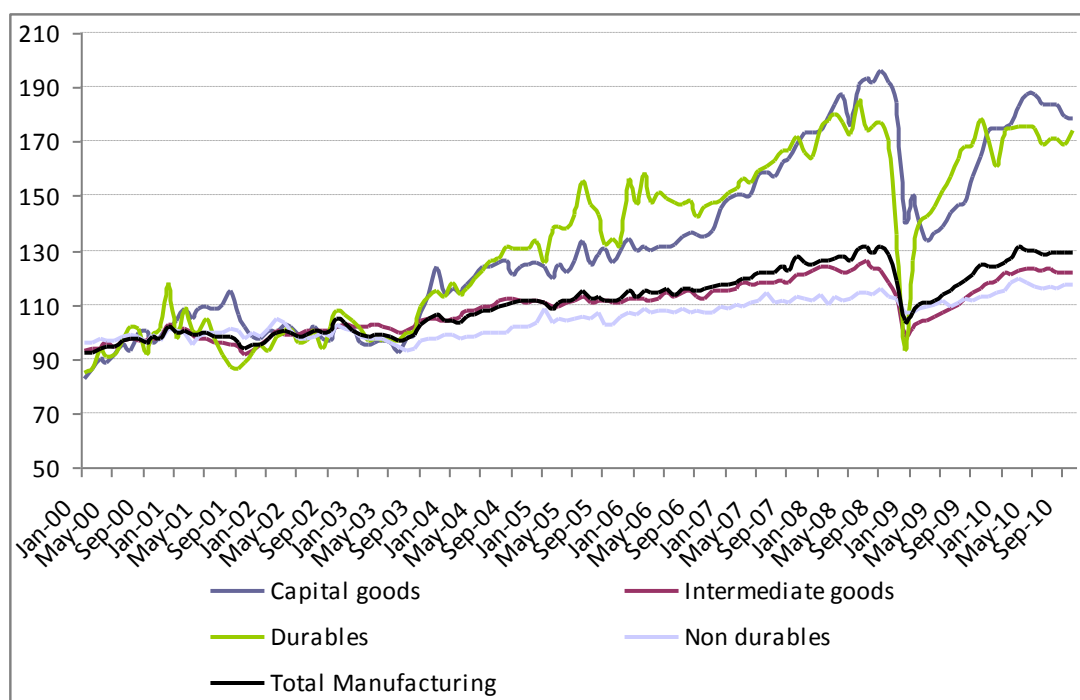
**Chart 5 – Total and Industry Trade Balance
(2002 to Jan-Oct/2010) (in \$ billion)**



Source: NEIT/IE/UNICAMP based on data from the MDIC.

Despite the deteriorating trade balance, physical production data show signs of acceleration starting in 2004 and reaching higher rates as of 2007. It is interesting to note that the capital goods sector was the category that showed the highest rates of growth of physical production, especially in the pre-crisis period. The international crisis interrupted this process abruptly, but industrial production is resuming pre-crisis levels, despite a certain slowdown in the third quarter of 2010.

Chart 6 – Evolution of Physical Production of the Industry by Category of Use (Jan 2000 to Oct 2010) (index number – base: average 2002 = 100)



Source: NEIT/IE/UNICAMP based on data from the PIM/PF, IBGE.

In other words, the limited data analyzed in this paper show that it is difficult to draw a definitive conclusion about the existence of an ongoing process of deindustrialization in the Brazilian economy. This is because, despite the increased share of primary products in total exports, boosted by the good performance of agricultural, mineral and metal commodities in the international market, the information observed concerning the production structure indicates that the increase in domestic demand was able to boost industrial production. On one hand this was not reflected in the increased share of the industry in the GDP, yet it represented an increase of the share of industrial employment in the overall economy.

From the standpoint of the sectors within the industry, it is important to remember that, in addition to the differences observed when using different classifications of technological intensity, the most recent period of growth in physical production was pointing to an important development in technology-intensive sectors, associated more directly with the sector of capital goods and durable consumer goods. The relatively higher growth of these segments, particularly capital goods, is also occurring in the post-crisis period, despite the faster growth of imports. This, incidentally, is perhaps the most important aspect to be highlighted: the growth of industrial production and imports has been accompanied by rising investment, measured by gross fixed capital formation in relation to the GDP³.

We still cannot affirm that there has been a clear process of deindustrialization, particularly because, in recent years, investment had been growing in parallel to industrial production. And these investments were not restricted only to primary and commodities sectors, being distributed among many sectors of industry and

³ See data in the first part of this bulletin.

infrastructure. Despite a period of disruption due to the effects of the international crisis, these investments show signs of being renewed.

To permanently remove the risk of deindustrialization, investments must remain increasing on a sustained basis, incorporating, above all, more investments targeted at structural changes in production toward more innovative products and processes. In this sense, currency appreciation and excessive increase of imports can be factors of concern, especially from the moment they begin to adversely affect these investment decisions.

References

Fundação Centro de Estudos para o Comércio Exterior (FUNCEX). **Boletim de Comércio Exterior**.

Instituto Brasileiro de Geografia e Estatística (IBGE). **Pesquisa Industrial Mensal – Produção Física (PIM-PF)**.

Ministério do Desenvolvimento, Indústria e Comércio Exterior (MDIC). **Secretaria de Comércio Exterior (SECEX)**. Foreign trade statistics. Various years.

Ministério do Trabalho e do Emprego (MTE). **Cadastro Geral de Empregados e Desempregados (CAGED)**.

Ministério do Trabalho e do Emprego (MTE). **Relatório Anual de Informações Sociais (RAIS)**. Various years.