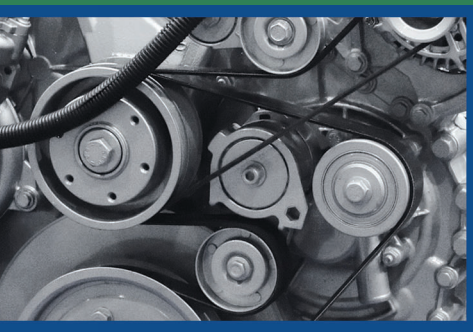
ABDI
Agência Brasileira de Desenvolvimento Industrial

BULLETIN

INDUSTRIAL CONJUNCTURE

MARCH 2011





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INTRODUCTION

The Brazilian Agency of Industrial Development (ABDI, Agência Brasileira de Desenvolvimento Industrial), which is linked to the Ministry of Development, Industry and International Trade (MDIC, Ministério do Desenvolvimento, Indústria e Comércio Exterior), was created in December 2004 with the aim of promoting the execution of Industrial Policies in Brazil, in agreement with the International Trade and Science and Technology policies (Law 11.080/2004).

The principle focus of the ABDI regards the programs and projects established by Brazilian industrial policy, the present Productive Development Policy (PDP, Política de Desenvolvimento Produtivo). The agency, together with the Ministry of Finance, The Ministry of Science and Technology, and the Brazilian National Bank of Economic and Social Development (BNDES), answers to the PDP´s Executive Secretary.

With the aim of following the progress of Brazilian industry, the ABDI works on developing a group of studies and research projects on industrial intelligence to guide its work and help the Government define and develop actions within the PDP.

Among these studies and research projects, is the Industrial Conjuncture Bulletin. The bulletin provides information and analyzes the evolution of Brazilian industry, highlighting the principle problems to be faced and the opportunities available to accelerate development.

The Industrial Conjuncture Bulletin, published every three months, works in partnership with the Center of Industrial and Technological Economics (NEIT, Núcleo de Economia Industrial e Tecnologia) of the State University of Campinas´s (UNICAMP) Economics Department. In this edition, the bulletin highlights the significant growth in Brazilian industry in 2010. It also confirms, based on the analysis on the economic and industrial conjuncture on the fourth quarter of the year, the persisting deceleration of the growth following the changes in a number of internal demand components, such as the gross fixed capital formation and public administration consumption. The document remains positive in terms of expectations for the current year, principally with respect to the physical production of formal employment. It also defends the possibility that the pace of industrial and economic growth will experience a certain degree of stagnation.

The sustained expressive expansion of imports together with a contraction in the balance of trade continued to characterize the behavior of Brazilian external trade. This worrying factor is likely to continue for the Brazilian industry, meaning the substitution of local production, of which contributed to the maintenance of the overvalued exchange rate and the slow recovery of the international scenario. The rise in imports has not yet affected agent´s investment decisions as the Gross Fixed Capital Formation (GFCF) has increased by more than the growth in Gross Domestic Product (GDP).

The bulletin also discusses the issue of industrial productivity in Brazil. It can be observed that work productivity indicators highlight conflicting results. The physical productivity indicator shows a tendency towards growth in recent times, accompanied by an increase in production. The productivity indicators, on the contrary, show that industrial productivity is stagnant. This difference is explained by the fact that the manufacturing industry has not captured the physical productivity gains, with part of these gains being transferred to other economic sectors. Finally, attention is drawn to the need for additional industrial investment in expansion, modernization and innovation in order to achieve greater future productivity gains to guarantee that the virtuous cycle of elevated products, employment level, wages and investment is sustained in the long-term.

BRAZILIAN ECONOMICS AND INDUSTRIAL PERFORMANCE IN THE 4TH QUARTER OF 2010

The Brazilian economy grew significantly by 7.5% in 2010, marking the largest annual variation rate seen in more than two decades. However, analyzing the performance in the last quarter of 2010, the continual deceleration in the growth of the economy can be seen. GDP performance in the third and fourth quarters of that year remained positive when compared to the same periods in 2009, despite at a descending rate: 6.7% to 5.0%, respectively (Table 1). An increase, albeit modest, in the internal product was also observed in the fourth quarter compared to the third of 2010, considering the seasonal adjustment (0.7%).

Regarding the growth in Brazilian GDP in 2010, the performance of internal demand stands out, particularly in terms of investments (21.9%). Playing a secondary role, although still relevant, is household consumption (7.0%) and government spending (3.3%). The roles of the increase in employment, income, physical policies and counter cyclical credit stand out regarding the encouraging behavior of internal demand last year, despite help from the previous year´s lower results, given that they were acting as a comparison.

Taking into consideration the last quarter of 2010 in relation to the same period in 2009, growth, lead by the gross fixed capital formation (12.3%), can be noted, albeit at a substantially lower rate than in the third quarter (21.2%). Household consumption, on the other hand, showed an expansion of 7.5% (compared to 5.9% in the third quarter), while government spending showed a considerable reduc-

Table 1 - GDP Variation Rate by Activities and Demand Components (3Q/2010 and 4Q/2010) (%)

	Quarterly rate versus the same quarter of the previous year		Quarterly rate versus the previous quarter (*)		Accumulated Rate in the previous four quarters	
	3Q/2010	4Q/2010	3Q/2010	4Q/2010	3Q/2010	4Q/2010
Agriculture and Stock Raising	7,0	1,1	(1,6)	(0,8)	5,9	6,5
Industry	8,3	4,3	(0,6)	(0,3)	10,2	10,1
Mining	16,6	14,8	-	-	13,5	15,7
Manufacturing	7,1	2,4	-	-	10,5	9,7
Civil Construction	9,6	6,2	-	-	10,7	11,6
Electricity, gas and water	8,0	5,1	-	-	6,6	7,8
Services	4,9	4,6	0,9	1,0	5,7	5,4
GDP at basic price	5,9	4,2	0,1	0,6	6,8	6,7
GDP at market prices	6,7	5,0	0,4	0,7	7,5	7,5
Household consumption expenditure	5,9	7,5	1,8	2,5	7,0	7,0
Public administration consumption expenditure	4,1	1,2	(0,1)	(0,3)	4,8	3,3
Gross fixed capital formation	21,2	12,3	3,1	0,6	20,2	21,9
Goods and services exports	11,3	13,5	4,2	3,6	6,7	11,5
Goods and services imports (-)	40,9	27,2	7,1	3,9	29,4	36,2

(*) Seasonally adjusted. Note: The data incorporates the revision of the times series analyzed and published by the IBGE. Therefore, there may be differences in relation to the data analyzed in the previous industrial conjuncture bulletins. Data from the last quarter of 2010 are preliminary. Source: The National Accounts System (SCN)/IBGE.

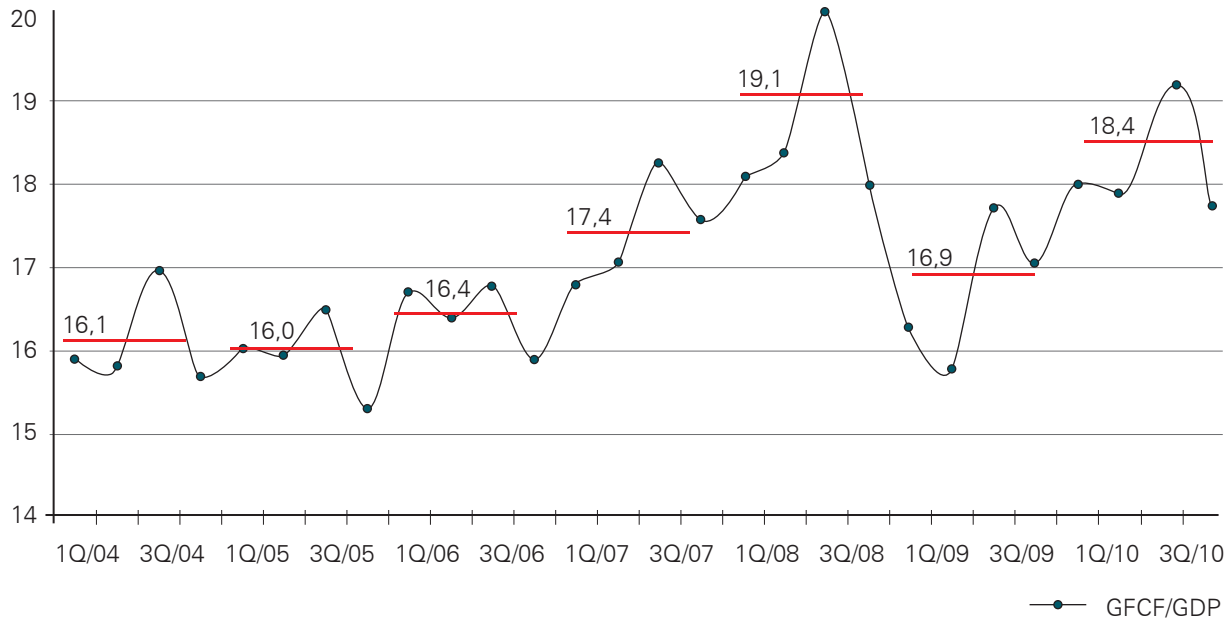
tion, from 4.1% to 1.2% (Table 1). Looking at the variation rates in relation to the previous quarters, a deceleration in the growth of the gross fixed capital formation is noted, as well as the contraction in government spending, certainly contrasting with the increase in household consumption.

The significant expansion in the gross fixed capital formation made feasible the rise in the average investment rate to 18.4% in 2010. This meant an important recovery in relation to that observed in 2009, despite at a lower rate than that registered pre-crisis in 2008 (Graph 1). In the last quarter of the year a small reduction in the investment rate (to 18.0%) was verified. It is important to point out that the contractions in investment rates tend to be observed in the last quarter of each year, as can be seen in the graph. Despite not reaching the performance level of the period that preceded the financial crisis, perspectives remain positive regarding the 2011 investment rate, a fact that tends to re-establish the pattern of effective growth that was evident in the pre-crisis period, the gross fixed capital formation leading the growth of the economy.

The recovery of external demand that reflects the recovery of the world economy, albeit slowly, is also noted. Exports remained steady when comparing the last quarter of 2010 with the last quarter of 2009 (13.5%). Exports also remained positive in relation to the third quarter of the year, taking into consideration the seasonal adjustment (3.6%). In 2010, exports grew by 11.5%, more vigorously than was observed in previous periods, though at a significantly inferior level to that of imports, worsening the Brazilian trade balance. It is important to point out that this growth in imports is worrying, as a continual tendency of growth can end up affecting the investment decisions in the new areas of local productivity, presenting an obstacle to the increase in investments.

Explaining GDP behavior in terms of economic activity, the growth in Brazilian industry in 2010 (10.1%) stands out. Both the government´s fiscal incentives, largely at the beginning of the year, as well as the weak basis for comparison in 2009, contributed to this growth. Despite the positive behavior of Brazilian industry (4.3%) in terms of both mining and manufacturing, it is important to point out that in the third quarter of 2010 compared to the same quarter of 2009 the growth rate decelerated. This was also true of agriculture and stock raising and the service industry. The industry did achieve growth levels above that of agriculture and stock raising (1.1%), although slightly less than that of services (4.6%) in the last quarter of 2010 ahead of the same period in 2009, however all variation rates were inferior to those presented in the third quarter of 2010 in relation to the same quarter of 2009. When comparing the data by activity sector from the third and fourth

Graph 1 - Investment Rate Evolution
(1Q/2004 to 3Q/2010) (%)



Source: The National Accounts System (SCN)/IBGE.

quarters of the year, contraction in industry can be observed (-0.3%), and for agriculture and stock raising (-0.8%), differing from the growth, all be it slight, of the service sector (1.0%) (Table 1).

The data for physical production also shows the positive industry performance during 2010. The year´s growth rate was 10.4% for manufacturing industries, 10.3% for industry in general and 13.4% for the mining industry (Table 2). However, a deceleration in Brazilian industry was confirmed in the fourth quarter of 2010. Particularly for the manufacturing industries and general industry, a deceleration in the growth of physical production in the last quarter of 2010 can be seen. This is when comparing to extremely significant variation rates presented in the first quarters of the year, in relation to the same periods in 2009. This positive distinction was due to the mining industry that was able to sustain an exceptional growth rate (10.2%) in the same period. The removal of countercyclical fiscal incentives, credit restrictive measures and the increase in imports appears to have contributed to the deceleration in the production industry during the period analyzed.

Taking into consideration the quarters immediately before this period, together with the seasonal adjustment, the previously positive marginal performance of physical production of the manufacturing industry and the industry in general was negative in the third quarter and remained almost stagnant in the fourth quarter of 2010 (Table 2).

Looking at the data on monthly variations, the importance of the recovery in industrial production that occurred throughout the first months of 2010, compared to the same periods in the previous year, was noted. The force of these recuperations diminished principally in the second half of last year (Industrial Conjuncture Bulletin, December 2010). The recent trend has been towards a deceleration in the monthly growth of industrial production in Brazil. For example, the variation rate remained the same, at a relatively low level, in December 2010 and January 2011 (2.5%) in relation to the same months in the previous year. Compared to the previous month, the data from January 2011 show a modest growth in the industry in general (0.2%) as well as the manufacturing industry (0.4%), while the mining industry showed a contraction (-0.8%). Thus, the monthly data, confirmed by the last data available – January of last year – show a slowdown in the growth rate of Brazil´s industrial production at much more modest levels that those observed monthly up to the middle of 2010.

Considering the behavior of industrial production according to category of use, a relative improvement in the variation rates in the fourth quarter compared to the third quarter in 2010, with the seasonal adjustment, is noted (Graph 2). Durable consumer goods and capital goods production started to grow once more, albeit at lower levels.

Table 2 - Variation Rate of the Brazilian Industrial Production (4Q/2009 to 4Q/2010) (%)

Activities	4Q 2009	1Q 2010	2Q 2010	3Q 2010	4Q 2010
Quarterly variation rate in relation to the same quarter in the previous year					
General Industry	**5,9**	**18,2**	**14,3**	**7,9**	**3,3**
Mining	3,0	18,9	14,0	11,4	10,2
Manufacturing	6,0	18,2	14,3	7,7	2,9
Quarterly variation rate in relation to the previous quarter (with seasonal adjustment)					
General Industry	**4,3**	**3,1**	**1,1**	**(0,6)**	**(0,1)**
Mining	2,7	4,0	2,1	2,4	1,3
Manufacturing	4,4	3,7	0,6	(1,0)	(0,1)
Accumulated variation rate in the last four quarters					
General Industry	**(7,4)**	**(0,3)**	**6,5**	**11,2**	10,4
Mining	**(8,8)**	(1,1)	5,4	11,6	13,4
Manufacturing	**(7,3)**	(0,2)	6,5	11,2	10,3

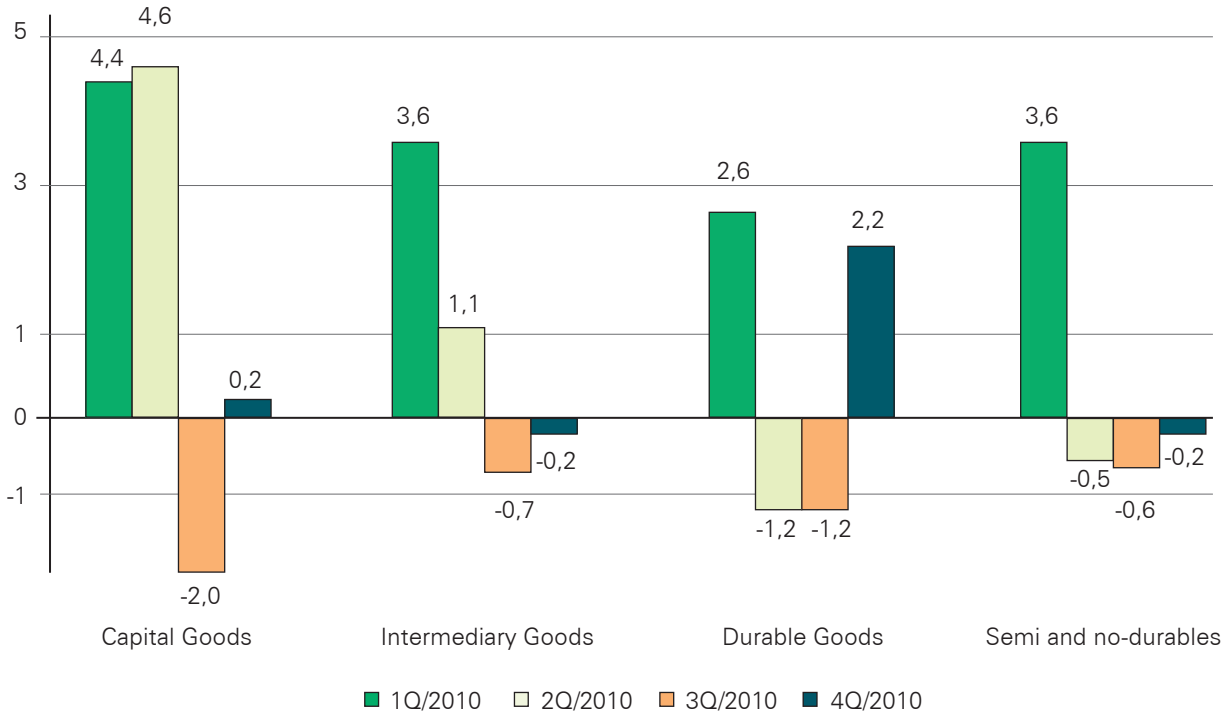
Note: The data incorporates the eventual revision of the previous numbers published by the IBGE. Therefore, there may be differences in relation to the data presented in the previous industrial conjuncture bulletins.
Source: Monthly Industrial Research-Physical Production (PIM-PF)/IBGE.

The production of intermediate goods and semi-durable consumer goods continued to fall, though less intensely than was observed in the third quarter in relation to the second in 2010.

The growth in the production of durable consumer goods stood out in the fourth quarter of 2010 compared to the third, with the seasonal adjustment (2.2%), as, on one hand the reversion of the negative behavior presented in the second and third quarters was represented, and on the other hand, it outperformed the performance of the other categories of use in the same period (Graph 2). The decrease in production of durable goods substituted the strong recovery period during a period of fiscal relief adopted by the Brazilian government to provide incentive to automotive goods and domestic appliances production. As highlighted in previous bulletins, the gradual elimination and subsequent abolishment of the tax on industrialized products (*Imposto sobre Produtos Industrializados, IPI*) contributed to the production performance in the period analyzed. Observing monthly variation rates of the production of durable goods in 2010 in relation to the same months in 2009 confirms the deceleration from April onwards, with the concentration being in September and October, as well as the recovery in November (5.0%) and December (5.8%) (data from the Monthly Industrial Research on Physical Production and the Brazilian Institute of Geography and Statistics, PIM-PF/IBGE). The variation rate of the production of durable goods in January 2011 compared to January 2010 also confirmed the recovery mentioned (6.1%). The growth in the production of durable goods observed in January 2011 in relation to December 2010 was also substantially high (6.0%), standing out among the other categories of use.

The production of durable goods, therefore, appears to have re-started a growth trajectory, inaugurated in the last quarter of last year, albeit at evidently lower levels. The continuation of positive behavior regarding employment and income should continue to stimulate the activity of durable consumer goods. Recent measures taken to restrict credit could, however, contribute to limiting recovery levels in the near future. In this case, the maintenance of less vigorous growth concerning the production of durable goods in 2011 is expected.

Graph 2 - Evolution of Industrial Production By Categories of Use
(quarterly variation rate in relation to the previous quarter –
(1Q/2010 to 4Q/2010) (%)



Note: The data incorporates the eventual revision of the previous numbers published by the IBGE. Therefore, there may be differences in relation to the data presented in the previous industrial conjuncture bulletins.
Source: NEIT/IE/UNICAMP based on PIM-PF/IBGE data.

The capital goods sector showed an increase in its physical production in the fourth quarter, in relation to the third quarter of 2010, taking into consideration the seasonal adjustment (0.2%) (Graph 2), despite being far from attaining the vigorous performance presented in the last two quarters of 2009 and, on a smaller scale, in the first two quarters of 2010. The recovery of the physical production of capital goods post-financial crisis suffered a blow in the third quarter (-2.0%), when clearly the fall in dynamism of Brazilian industry was felt. Nevertheless, the situation improved, albeit in a more restrained way, in the last quarter of 2010. In January 2011 the capital goods production growth rate returned at a relatively vigorous rate (9.1%), repeating that observed in November 2010 (9.2%), comparing to the same periods in the previous years. Production of capital goods in January 2011 also started to grow again in December 2010 (1.8%).

The direction of the production of Brazil´s intermediate goods for the external market has provided explanation for a large part of its behavior, however, the recent influence of internal demand and behavior of imports must not be forgotten. A fall in the production of intermediate goods occurred in the third quarter in relation to the second (-0.6%), and in the fourth quarter of 2010 compared to the third (-0.2%) (Graph 2). The numbers show the persisting difficulty in terms of recovery of the external demand for basic inputs and primary products during the period after the financial crisis, despite the significant contribution of Chinese demand. The adverse effects of the intermediate good´s external position lessened as a result of the performance of internal demand that provided an additional incentive to the production of these goods. However, the recent fall in dynamism of the internal demand sectors and the entry of imported products at lower prices, also contributed to the negative performance of intermediate goods production in the second semester of last year.

The production of intermediate goods showed very modest growth in January 2011 in relation to January 2010 (0.9%). January 2011 presented negative behavior compared to December of last year (-0.4%), standing out from the other categories of use. The intermediate goods will only be able to recover in 2011 if the external demand, lead by the Chinese demand, is able to recover more consistently, and if the internal demand sectors, such as the sector for durables, sustain their growth trajectories and do not substitute intermediate domestic products for imported products.

The production of semi-durable and non-durable consumer goods did not suffer so acutely from the effects of the financial crisis, taking into consideration the limited dependence on the availability of credit for consumption. However, the low post-financial crisis quarterly growth rates (2009) remained, when comparing to the quarterly periods right before this time, taking into consideration the seasonal adjustment. Furthermore, contraction in production levels of semi-durables and non-durables from the second quarter of last year onwards, in comparison with the previous quarters (with the seasonal adjustment), accompanied by a loss in dynamism of production in the other Brazilian industrial sectors during the same period, was noted (Graph 2). Despite this, a slightly more restrained reduction in the physical production of semi-durable and non-durable goods was noted in the last quarter of 2010. Achieving growth trajectories for Brazil´s other industry sectors in the current year (2011), the trend of production of semi-durables and non-durables appears to highlight positive behavior throughout the year.

Analyzing the data on physical production according to industrial activity, the general persistence of significant growth rates accumulated in 2010 (25 out of the 27 sectors included in the Monthly Industrial Research on Physical Production and the Brazilian Institute of Geography and Statistics, PIM-PF/IBGE), albeit moving proportionally downwards for the majority of activities. This shows that the recovery in the production of diverse industrial sectors was sustained last year, with machines and equipment (24.3%), automotive vehicles (24.2%), metal products – excluding machines and equipment (23.4%), physician-hospital instrument equipment (20.7%) and basic metallurgy (17.4%). Determined sectors continued to stand out in terms of the composition of the Brazilian industry´s rate of growth in 2010 (10.4%): automotive vehicles (2.3%), machines and equipment (1.5%) and metallurgy (0.9%). Some are part of the capital goods and durable consumer goods categories that were able to retrieve the leadership of industrial growth captured in the period of recovery that followed the financial crisis.

The production levels of various industrial sectors grew in the fourth quarter of 2010 in relation to the same period in 2009, despite confirming, with few exceptions, a trend towards deceleration.

The variation rates for production were positive for 19 out of the 27 sectors included in the PIM-PF/IBGE (among which 16 presented deceleration in growth rates in the period cited, when compared to those observed in the third quarter of 2010 in relation to the same quarter in 2009).

Using the third quarter of 2010 as a basis for comparison, including the seasonal adjustment, 19 of the 27 sectors of the IBGE research experienced the same growth rate in the fourth quarter of 2010. What differentiated the marginal growth of physical production in the period analyzed was the intensification for the majority of the industrial activities analyzed (14 of the 19 sectors that presented marginal growth in the last quarter), in comparison to the increase presented in the third quarter of 2010 in relation to the second quarter, taking into consideration the seasonal adjustment. Despite this, reduced levels of marginal growth in the fourth quarter of 2010 (on average 1.6%) remained, with the relevant exception of the office machinery and IT equipment sectors that presented a significant rise in production. The sectors that stood out in terms of marginal growth in the last quarter of 2010 were: office machinery and IT equipment (11.4%), furniture (5.8%) and other transport equipment (3.7%).

Concluding the observation of the latest available quarterly data on industrial production activity, on the one hand highlights the continuation of growth, albeit tending towards deceleration when compared to the previous year (2009), and on the one hand, the recovery of the marginal growth, when looking a more recent time period as the basis for comparison. Positive aspects therefore remain, despite being more modest, for Brazilian industry in 2011 in relation to the 2010 results. There are signs that the move towards recovery in investments and industrial production should continue. There is no doubt, however, that the continuity of policies restricting credit (increased interest rates and shorter timeframes), the maintenance of favorable exchange rates to imports in a time of greater international competition and the confirmation of budget cuts having an effect on public investment, could result in a slower rate than that observed both before the crisis and at the beginning of 2010.

The favorable performance of Brazil´s industrial production in 2010 resulted in the creation of a significant amount of formal employment (almost 478,000 jobs), overtaking results of previous years, including the significant performance noted pre-crisis (Table 3). In December 2009, according to the Annual Social Relation Data (*Relação Anual de Informações Sociais, RAIS/MTE*), there were 7.14 million employed workers in the mining and manufacturing industries. This number exceeded 7.62 million in December 2010, with the RAIS stock updated by the flow from The General Database of Employed and Unemployed (*Cadastro Geral de Empregados e Desempregados, CAGED/MTE*).

However, the hiring of workers in the industrial sector accompanied decelerated growth of Brazil´s industrial production in the last quarter of 2010. There was a net loss of a little over 111 thousand jobs between October and December 2010. This negative performance was, on the one hand, related to the lower dynamism of Brazil´s industry that went through a period of stagnation following significant expansion after the financial crisis. On the other hand, observing the data of the four years (Table 3), a seasonal component, relevant to this result, can be observed given that a fall in formal employment in industry occurred in the last quarter of each year. Comparing the data on the last quarters of each year from 2007 to 2010, it can be seen that the negative result in the last quarter of 2010 was exceeded only by the 2008 result, when the impacts of the world financial crisis on industrial employment started to be seen. The industrial sectors that presented the largest number of net dismissals (minus the hirings) were among those that employ the largest workforce. Those that stood out were the manufacturing of food products (a fall of 50 thousand positions), leather preparation and manufacturing of leather products, travel items and footwear (less than 28 thousand positions).

Regarding the wages in terms of net hiring by Brazilian industry (wages of those hired minus the number dismissed) in 2010 there was a trade surplus of R$125 million, despite the extremely negative performance in the last quarter. This trade surplus, accumulated throughout the year, is the first since the pre-crisis period (2007) and indicates the recovery of the wages of workers contracted in relation to the wages of workers dismissed. In 2008 and 2009, despite the fact that the creation of work places was positive, wages fell. The reason for this was because workers with higher wages were replaced by workers with lower salaries. This behavior appears to have reverted in the last year analyzed when the significant creation of formal

employment was accompanied by a net increase in wages. The maintenance of a favorable performance regarding wages depends on the growth recovery trajectory of average wages at the hiring stage, at a time of sustained industrial production in Brazil throughout 2011.

The trade surplus of net wages last year suggests a fall in the difference between the average salary of industrial workers dismissed and workers hired. In 2009 the average salary of workers dismissed in relation to those hired was extremely significant until October when it began to fall. At the beginning of 2010, the average salary of those dismissed returned to overtake those hired, despite the significantly lower differential than that presented the year before. In the last months of 2010, the behavior observed was the same as in 2009, as the average salary of people hired grew, overtaking that of those fired in December. On the other hand, the average salary of people dismissed, after a certain level of stability throughout the year, fell slightly in December 2009 and 2010. As that period coincides with the largest number of dismissals, it can be concluded that a relevant factor for the inflection presented in the months of December would be the dismissal of a larger number of workers with low salaries. Discounting this seasonal effect observed in the last months, the fall in the differential between the average salaries throughout 2010 in comparison to 2009 points to a relative improvement in salaries paid by the industrial sector, reinforcing the data on growth relative to wages that was previously analyzed.

Data from the Monthly Industrial Research on Employment and Wages (PIMES/IBGE)[1] indicated an accumulated variation of 3.4% in the number of people working in Brazilian industry in 2010 in relation to 2009. This meant that there was a reversal in the negative behavior presented in 2009 compared to 2008 (-5%). However, PIMES data also points to an improvement in the level of industrial employment in Brazil in 2010.

In relation to salaries, the PIMES data shows an increase in the payroll in 2010 (Graph 4), excluding the seasonal influences, which reinforces the findings of a diminished differential in wages between those hired and those dismissed, as pointed out by the General Database of Employed and Unemployed (CAGED, *Cadastro Geral de Empregados e Desempregados*) data. In addition, according to the industrial sector, the volume of paid hours after the significant fall that occurred during the crisis, started to grow again at the end of 2009 and appeared to have stabilized in 2010, albeit at a slightly lower level than that observed prior to the crisis (2008).

However, the data indicated a rise in industrial employment in 2010 - despite the net loss in positions available in the last quarter - related to the increased wages paid to workers hired in industry

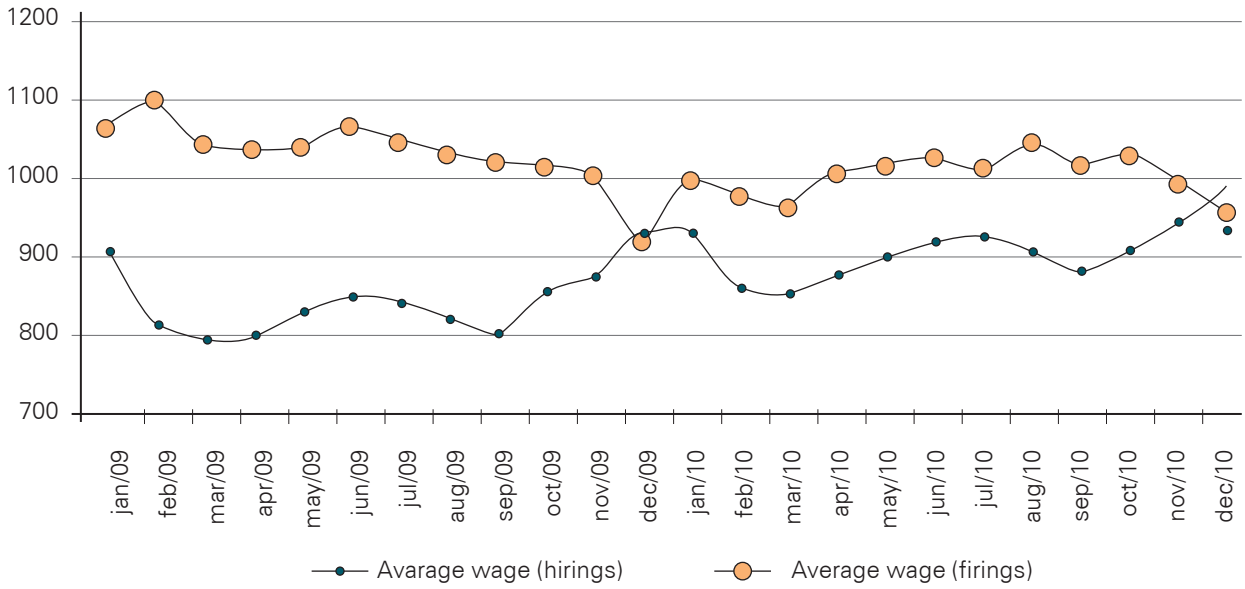
1 The PIMES/IBGE covers a sample that includes companies with five or more employees. The CAGED/MTE present results from all companies that either hired or fired formal employees in the research period, therefore the coverage was census-designated. However, it is possible to find diverging tendencies in the two sources of the data used, principally in sectors predominated by small and medium-sized companies.

Table 3 - The Creation of New Jobs and Wage Changes in Brazilian Industry
(1Q/2007 to 4Q/2010)

	Creation of New Jobs					Wages (Net Hiring) (R$ mil dec/10*)				
	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total
2007	108.986	188.246	175.903	(86.531)	**386.604**	19.582	65.967	53.258	(113.448)	**25.360**
2008	153.090	167.668	193.793	(348.295)	**166.256**	69.627	63.471	67.494	(372.616)	**(172.023)**
2009	-146.761	2.578	203.323	(52.009)	**7.131**	-308.501	-153.828	37.893	(105.773)	**(530.209)**
2010	199.187	186.139	203.873	(111.408)	**477.791**	104.290	76.794	92.038	(147.372)	**125.750**

*Data deflated by the IPCA (consumer price index) (IBGE).
Source: NEIT/IE/UNICAMP based on CAGED/MTE.

Graph 3 - Evolution of Real Average Wages of Hired and Fired Industrial Workers Industrial Workers jan/2009 to dec/2010) (R$ dec/2010*)



*Data deflated by the IPCA (IBGE).
Source: NEIT/IE/UNICAMP based on CAGED/MTE

and to the difference between the average salary of those dismissed and those hired.

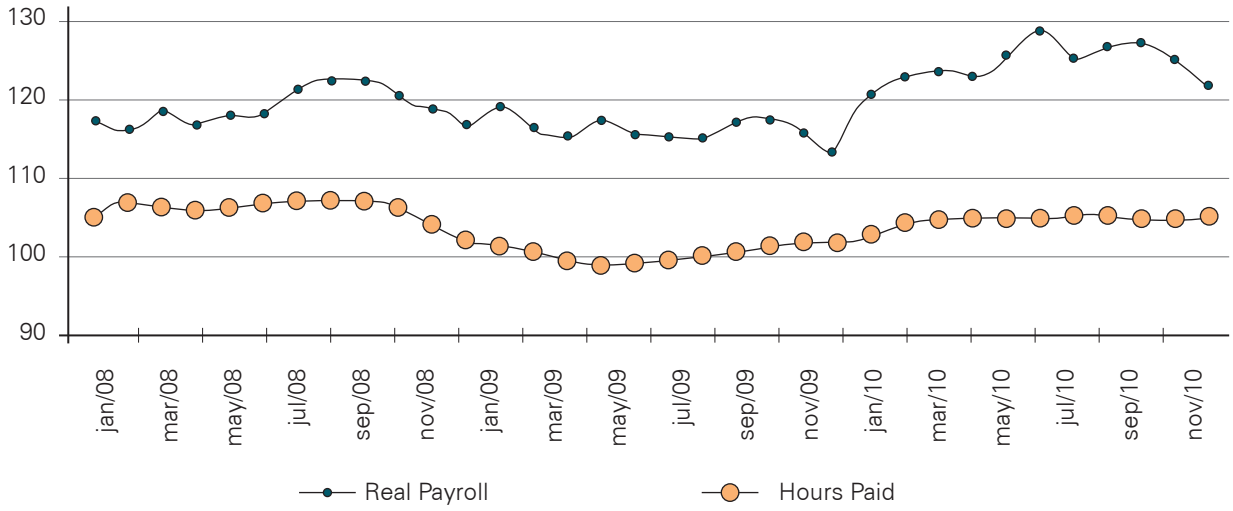
The information previously analyzed indicates that the Brazilian economy experienced significant growth in 2010 lead by internal demand, particularly investments, as well as the expansion in household consumption. From an industrial viewpoint, production and formal employment experienced significant growth, despite the deceleration verified in the last quarter of the year. The greatest difficulties were related to the performance of Brazilian foreign trade. They therefore deserve to be analyzed in more detail.

The data on Brazilian international trade in 2010 indicates the continual trend toward a worsening balance of trade. In 2010, the trade surplus (US$20.3 billion) corresponded to less than half of the peak reached in 2006 (US$45.6 billion), at 20% less than that reached in 2009 (US$25.4 billion) (data from The Center of International Trade Studies Foundation, FUNCEX). A fall in trade surplus was observed, particularly in the first and third quarters of last year, with the second and fourth quarters enjoying a recovery period. In the last quarter of 2010, the balance of trade was US$ 7.5 billion, strongly influenced by the positive performance in exports that reached almost US$ 57 billion.

The contraction of the trade surplus in 2010 compared to 2009 (-20.3%) was principally as a result of the increasing trajectory of imports (42.4%) that outdid the positive behavior of exports (32.0%) in the same period (Graph 6). The increase in the values imported was especially influenced by the rise in the quantity imported (37.8%), with the variation prices of imports being reduced (3.1%). Brazilian imports were certainly favored by the positive behavior of internal demand, as well as the exchange rate in 2010. On the other hand, exports were greatly stimulated by the increase in prices of exported products (20.1%), with the quantum exported playing a smaller role (9.6%). Brazilian export activity was stimulated by favorable conditions regarding demand and prices, principally of commodities on the international market considering Brazil´s competitive advantages in agricultural products and mineral exports.

Even considering the fall in Brazil´s trade surplus last year, quarterly behavior recovered in the last quarter of 2010 compared to the same period in 2009. This balance of trade performance was a result of the considerable increase in exports (38.3%) in relation to the increase in imports (33.4%), which differentiated Brazilian international trade in the last quarter (Graph 5). The increase in exported product prices (22.7%) was the

Graph 4 - Evolution of the Real Payroll and the Number of Paid Hours in Brazilian Industry (jan/2008 to dec/2010) (index numbers)



Note: January/2001 = 100. Source: NEIT/IE/UNICAMP based on PIMES/IBGE data.

main reason for the increase in export values. The increase in the quantity exported (13%) played a less important role, though albeit significant. The maintenance of external demand, principally from Asia, has made feasible the continual increase in the prices of imported products for the Brazilian export portfolio. In terms of imports, the increase in the quantity stood out (27.3%) in the last quarter of 2010, contributing to the continuation of a positive performance of internal demand and the overvalued exchange rate.

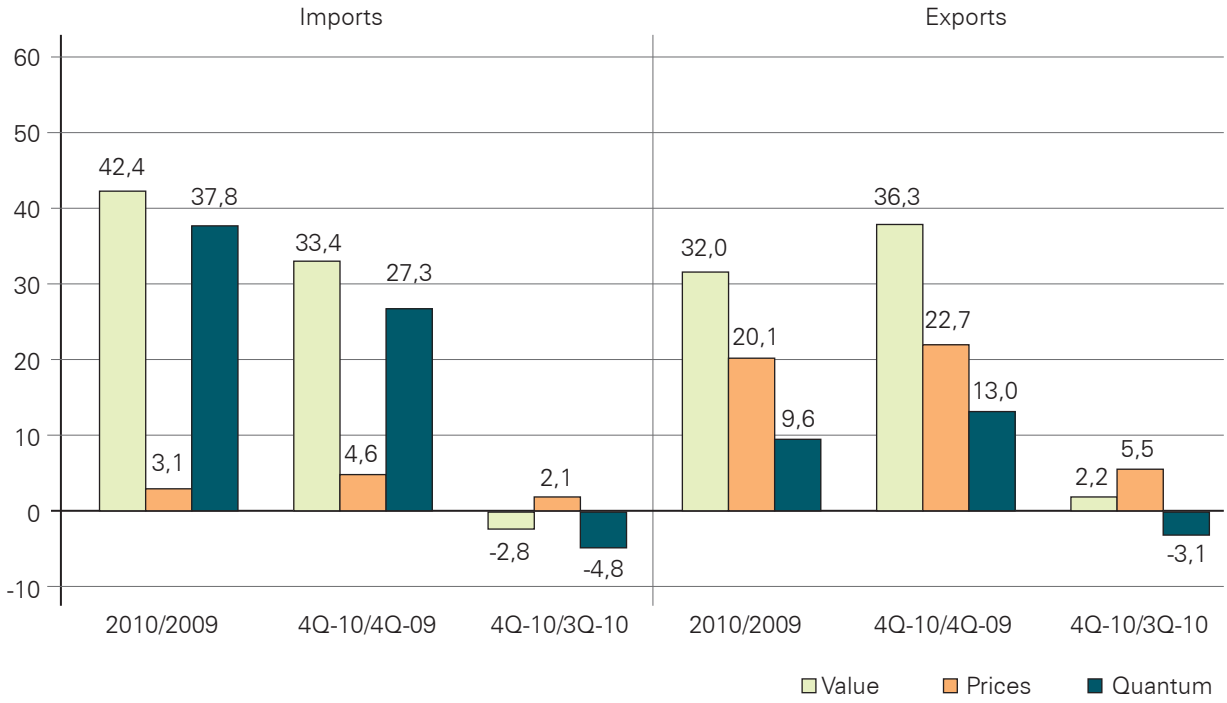
The marginal comparison between the data from the last and third quarters of 2010 shows an increase in the trade surplus as a result of a combination of increasing exports (2.2%), clearly influenced by the prices of exported products, and falling imports as a result of the contraction of the quantity imported, in the context of slower internal demand. What differentiated the behavior of Brazilian international trade between the fourth and third quarters of 2010 were the falling exports, reverting to the quarterly increase in external consumption noted since the third quarter of 2009.

Preliminary data from January and February 2011 indicate trade surpluses of US$424 million and US$ 1.2 billion, respectively. The latest result being three times more than in February last year (International Trade Service, *SECEX*). This was due to the large increase in exports which was influenced, once more, by the climbing prices on the international market. This is clearly the case for oil as a consequence of the political crisis in the Middle East and North Africa. The growth in exports also surpassed the significant increase in imports in February. Adding the balances from the first two months of the year, the first two month period in 2011 ended up registering a significantly superior trade surplus to that presented in the same period of the previous year (almost eight times more). This indicates an improvement in Brazil´s trade balance during a time of favorable international prices.

An analysis breaking Brazilian international trade down by category of use and by activity sector for 2010 clearly shows the principle contributions to the increase in exports, primarily as a result of export prices, and imports, notably via the quantities imported.

Regarding exports, it was observed that intermediate goods stood out in terms of the share of the value exported and the contribution that the elevation of exports had on growth last year. Fuels and intermediate goods lead the increases in prices on the international market, under the effect of continuous external demand. In turn, durable consumer goods and capital goods stood out in terms of the quantity exported, standing out from the other categories of use that faced an increase in the values exported, especially as a result of the increase in prices (Table 4).

Graph 5 - Export and Import Variation Rates: value, price and quantum (%)



Source: NEIT/IE/UNICAMP based on FUNCEX data.

The sectors that contributed most to the growth in exports last year were metal commodities, oil extraction and food and drinks. Out of the eight sectors with the highest relative participation in Brazilian exports last year – responsible for approximately 78% of the quantity and almost 90% of the growth observed - five of them were strongly influenced by the increase in prices on the international market (Table 5). The extraction of metallic minerals and the extraction of petroleum stood out due to the large increase in prices (70.1% and 47.2%, respectively). The automotive vehicles and machines and equipment sectors contributed to the relatively lower rate in growth in exports last year, but stood out in terms of the quantum exported (42.2% and 27.4%, respectively). Therefore, the profile of exports remains concentrated in natural resource intensive products, and with a lower participation in manufactured products as well as those with a larger technological content.

In the case of imports, intermediate goods also stand out in terms of the value imported and the growth in imports last year (Table 6). It is worth pointing out, however, that contrary to exports, imports of intermediate goods involve inputs with a higher level of manufacturing, linked, for example, to the chemical and electronic sectors (Table 7). While only the fuels present significant increases in the prices of imports, there was a general increase in the quantum imported of all categories of use. However, the growth in quantities imported was much more significant for durable consumer goods and capital goods, as well as intermediate goods, categories that were influenced by the increase in external demand and the overvalued exchange rate. In the case of capital goods, the significant increase in imports was related to the expansion in investments. An interesting point, however, is that the increase in imports could be taking place in a way that substitutes domestic production, considering the deceleration of internal physical production and the modest increase in the quantum exported of some categories of use, such as intermediate goods. The greater the negative impact on future investment decisions, the more worrying this issue becomes.

The sectors that contributed most to the increase in imports last year presented significant growth in the quantity imported, as the price variations of imports were reduced or even negative for the majority of the sectors listed. These are sectors which use capital goods, inputs and components, and therefore enjoyed an increase in the amount imported, principally as a consequence

Table 4 - Exports By Category of Use – Selected Indicators (2010)

Category of Use	Value (US$ millions)	Relative Participation (%)	Contribution to Growth (%)	Price Variation (%)	Quantum Variation (%)
Capital Goods	16.200	8,0	5,7	0,6	20,0
Intermediate Goods	127.367	63,1	69,7	21,7	11,7
Durable Consumer Goods	6.843	3,4	3,2	4,5	24,3
Non-Durable Consumer Goods	30.682	15,2	9,6	15,5	2,1
Fuels	20.824	10,3	12,0	43,0	0,1

Source: NEIT/IE/UNICAMP based on FUNCEX data.

of the increase in internal demand, both final and intermediate, in a situation of an overvalued exchange rate. An exception was the oil extraction sector which faced an increase in prices accompanied by a fall in the amount imported, as well as the oil refining sector that presented a strong increase in both the quantity and prices of imported products. In the last two cases, it is worth pointing out the damaging effects that the high importation prices had on the production chain of the oil and petrochemical industries.

Analysis carried out on the behavior of Brazilian international trade revealed an annual deterioration in the trade surplus. This was due to a significant increase in imports in the context of relatively healthy levels of internal demand and intransigent competition in the international scene. The increase in value of the national currency also stimulated an increase in imports and served as an additional hindrance to greater growth rates of exports in sectors and products dependant on external demand, which is still in the recovery phase. However, Brazil´s trade surplus appeared to be more promising in the last quarter of 2010. The contribution that continual external demand for commodities makes, principally Asiatic, must be highlighted in terms of the continuous increase in the price of products relevant to the Brazilian export portfolio that became dependant on the cycle of high international prices of these products. This dependence was worrying, as the expansion in international prices could be reverted at any given time, both due to a downturn in the world economy and according to the dismantling of speculative positions in world stock markets. In addition, the increase in Brazilian exports could continue to be effected considering the difficulty to improve post-crisis demand

Table 5 - Exports of the Main Sectors – Selected Indicators (2010)

Sectors	Value (US$ millions)	Relative Participation (%)	Contribution to Growth (%)	Price Variation (%)	Quantum Variation (%)
Food and beverage products	38.119,1	18,9	14,1	15,2	5,8
Metallic mineral extraction	30.837,5	15,3	33,5	70,1	22,7
Agriculture and stockbreeding	23.029,6	11,4	4,3	5,8	2,6
Basic metallurgy	16.348,7	8,1	6,1	17,7	3,7
Oil extraction	16.293,4	8,1	14,2	47,2	20,3
Automotive vehicles	13.855,9	6,9	9,2	4,2	42,2
Chemical products	11.022,5	5,5	4,3	13,5	9,0
Machines and equipment	8.587,2	4,3	4,0	1,2	27,4

Source: NEIT/IE/UNICAMP based on FUNCEX data.

Table 6 - Imports By Category of Use – Selected Indicators (1Q of 2008)

Category of Use	Value (US$ millions)	Relative Participation (%)	Contribution to Growth (%)	Price Variation (%)	Quantum Variation (%)
Capital Goods	29.840	16,4	15,0	(3,3)	42,2
Intermediate Goods	100.733	55,5	54,3	0,3	40,1
Durable Consumer Goods	11.754	6,5	7,6	3,8	46,3
Non-Durable Consumer Goods	13.310	7,3	6,0	4,6	26,2
Fuels	26.012	14,3	17,6	25,2	26,6

Source: NEIT/IE/UNICAMP based on FUNCEX data.

in important world consumer centers.

The variation in the price of commodities tends to remain an important influence on Brazil´s international trade, notably on exports. Imports could suffer a deceleration as a result of a reduction in the growth rate of internal demand and industrial production, influenced by the combination of credit contraction and an increase in interest rates. Nevertheless, imports should continue at relatively high levels considering the economic growth, albeit more modestly, in the current year. On the other hand, the possibility of the continuation of an overvalued exchange rate should stimulate the entry of imported products. As a consequence, the possibility of an increase in imports means that an increased fall in domestic production becomes a more worrying factor in that it can also affect capacity expansion investment decisions which are still in the recovery phase.

All of the information analyzed, however, highlights the importance of internal demand as a base for the continuation of the Brazilian economy´s recovery, especially in terms of the gross formation of fixed capital and household consumption. Under these circumstances, the intensification of investments becomes a fundamental element in stimulating the recovery of production and employment in Brazilian industry and the viability of a new growth cycle. The continual expansion of imports can, however, be a limiting factor.

Table 7 - Imports of the Main Sectors – Selected Indicators (2010)

Sectors	Value (US$ millions)	Relative Participation (%)	Contribution to Growth (%)	Price Variation (%)	Quantum Variation (%)
Chemical products	33.059,4	18,2	13,6	(-4,0)	31,7
Machines and equipment	20.237,4	11,1	11,1	(-6,7)	51,7
Automotive vehicles	18.772,2	10,3	11,8	0,3	50,6
Fuel and oil refinary	14.338,3	7,9	15,0	24,7	85,9
Electronic and communication material	13.433,5	7,4	7,7	5,0	41,6
Oil extraction	13.007,0	7,2	3,9	24,9	(4,7)
Basic metallurgy	9.987,6	5,5	8,5	4,6	76,4
Machines, appliances and electronic materials	7.694,0	4,2	4,4	(-0,9)	46,0

Source: NEIT/IE/UNICAMP based on FUNCEX data.

THE RECENT EVOLUTION OF INDUSTRIAL PRODUCTIVITY IN BRAZIL

The determinants and impacts of the industrial productivity evolution, in the time that followed the trade opening and economic stability with the implantation of the Real (R$) Plan (*Plano Real*), promoted an intense debate in academia and specialized media. The differences in opinions largely concentrated on the methodology utilized to construct the productivity indicators. Despite these differences, there was relative agreement in relation to the increase in industrial productivity in the second half the 1990´s. In terms of labor productivity indicators, the increase was accompanied by a significant decrease in industrial employment, which reflected a change towards modernization/upgrading of Brazilian industry, benefitted, above all, by the favorable conditions regarding imports of inputs, components and capital goods.

More recently – a time that includes the expansion from 2004 to 2008, the financial crisis that hit the country strongest in the last quarter of 2008, the recovery that began in the second half of 2009 and major expansion in 2010 – the productivity labor gains[2] were associated to the expansion of both production and industrial employment, despite being less significant than those expressed in the 1990´s.

As well as the change in the axis of economic dynamism, which was self-sustained during the expansion of domestic demand (consumption and investment), the period was also marked by an intensification in Asiatic competition, an overvalued exchange rate and the growing pressure of operational costs, particularly the high price of primary goods.

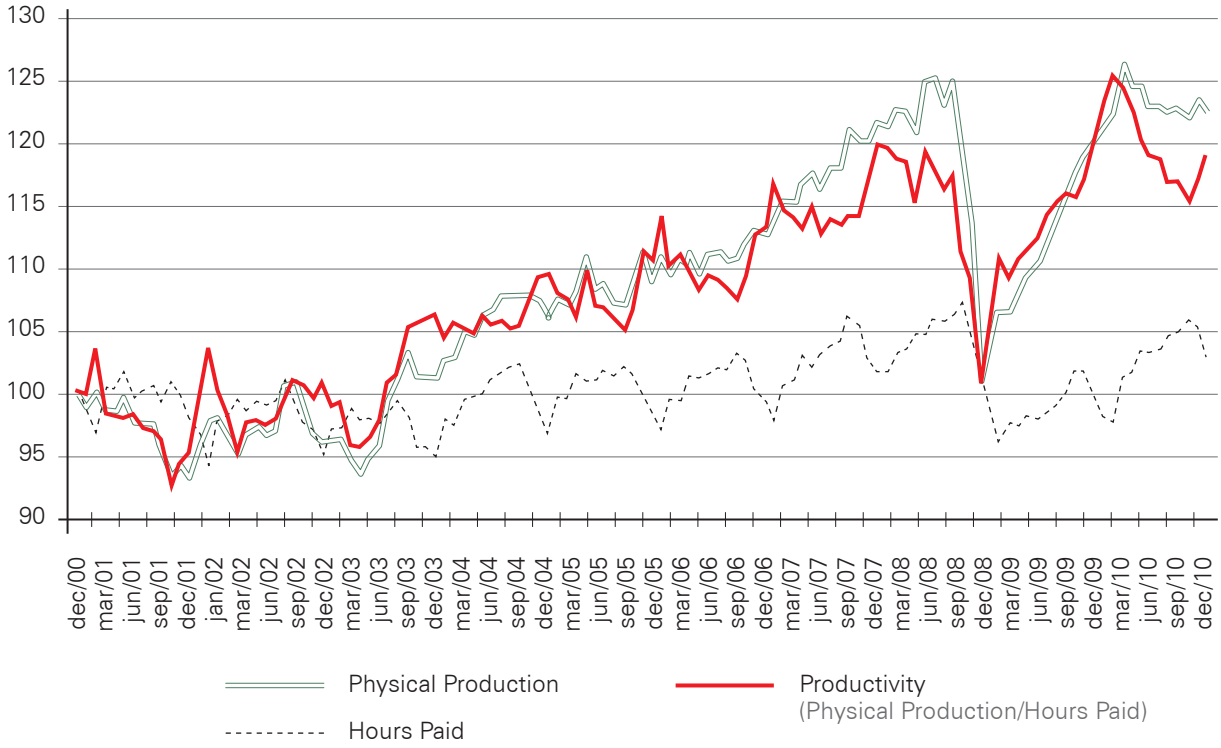
The co-existence of both positive and negative factors in the 2000s explains the differences in the productivity results according to the methodology adopted and sources utilized. The relationship indicator between physical production and employment (hours worked or paid) enjoyed a much more positive evolution than the added value indicator per worker. This difference is explained by the fact that the first indicator does not capture the impacts of the changes on the structure of production and costs, caused by, among other factors, the increase in the import coefficient, the externalization of productive activities and services and non-industrial cost variations. The more modest evolution of the second indicator expresses the industrial capacity of aggregate value, and therefore captures the gains of physical productivity, revealing lower industrial capacity to benefit from the increase in physical productivity, to pass on the productivity gains to wages and to accumulate capital in order to maintain its investment rate. The analysis in the following paragraphs looks to provide some detail about these questions.

Considering, in the first place, the physical productivity based on the PIM-PF data, it is possible to note that the productivity in the last ten years has closely accompanied industrial conjuncture, growing in the periods where production expanded, and worsening in the periods where productive capacity was at its lowest. It can be verified that throughout this time productivity presented a growth trend, above all in the period after 2003, and was greatly affected by the 2008 crisis. The data also indicates that productivity accompanied a quick recovery of the Brazilian economy in the time after the crisis, returning to the pre-crisis position at the beginning of 2010.

While physical productivity was practically stagnant between 2000 and 2003, the average annual growth rate of productivity was 3.1% between 2003 and 2008. In 2009, the growth rate was negative (-1.9%) and in 2010 a period of recovery was enjoyed (6%).

2 Despite the acknowledgment of a discussion about the productivity of the other factors of production and the total productivity of factors, it is also important that this bulletin draws attention to work productivity.

Graph 1 - Evolution of Physical Production, Paid Hours and Productivity per Hour in the Manufacturing Industry
(2000 = 100)



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

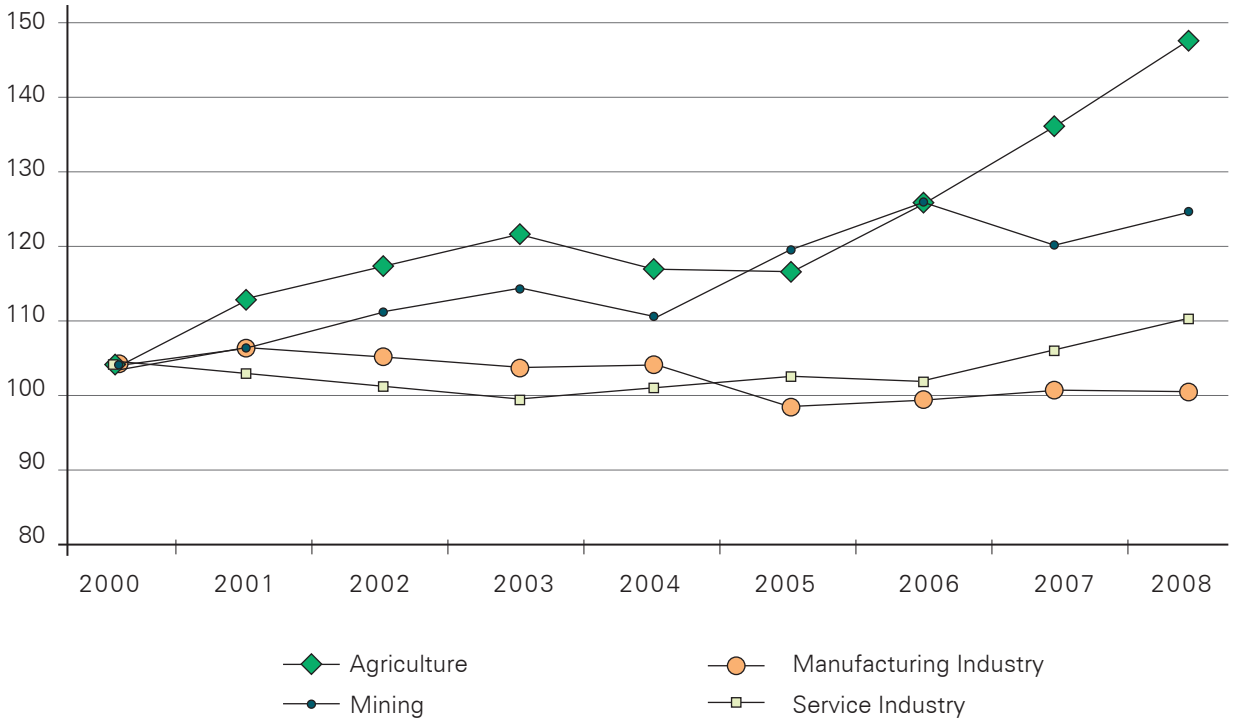
Contrary to the situation in the 1990´s, paid hours, physical production and productivity of the manufacturing industry have behaved similarly in recent times. In this case, the growth in productivity was different to that observed after the *Plano Real* was introduced. The period after 1994 was characterized by weak industry performance in terms of a contraction in the increase of physical production, a result of investment in modernization of machines and equipment facilitated by the favorable exchange rate and the dissemination of workforce rationalization practices. The growth in physical production was recently accompanied by an increase in the number of people employed and the paid hours in production, albeit at a lower rate. The exception is on account of the peak periods of the installed production capacity of industry, in that the paid hours grew at a faster rate than physical production – as in the second half 2010.

The fact that productivity of the manufacturing industry was closely accompanied by oscillations of industrial production leads one to believe that the more intense utilization of productive resources was an important condition regarding the evolution of industrial production in recent times. Therefore, the growth in investment rates observed, particularly from 2006 onwards - despite a disruption caused by the crisis, but is now slowly recovering - was still not enough to provoke structural changes at the magnitude necessary to generate more significant productivity gains.

Despite the appreciated exchange rate that favor machine imports, the improvement in conditions for self-financing on the part of companies and a more favorable economic conjuncture, the volume of investments made by Brazilian companies in expansion and modernization still ramains less than desirable. This fact appears to be particularly important consideration that the operational costs present a high growth tendency throughout the period.

Considering the productivity data on the relationship between the gross added value at the constant price and number of people employed, obtained from the National Accounts System

Graph 2 - Evolution of Productivity (Gross Added Value/ Employed People) in the Manufacturing Industry and other Economic Sectors (2000 = 100)



Note: The service industry does not include public and domestic services.
Source: NEIT/IE/UNICAMP based on SCN/IBGE data.

(SCN) of the IBGE, behavior contrary to that verified for physical production is noted. The productivity evolution of the manufacturing industry decreased (a total reduction of 3.9% in the whole period) between 2000 and 2008 (Graph 2). Not only this, but productivity was less than that observed for services and much less than for the mining industry and agriculture.

It is worth noting that this result is related to, on the one hand, a negative factor, which is the slower growth rate of the value added to the transformation industry in relation to the other sectors. On the other hand, from a positive point of view, the result reflects the large increase in industrial employment, in particular between 2003 and 2008. The increase verified during this time in terms of the volume of employment in the manufacturing industry was 25% - versus an increase of 17% in the service and mining industries, and a fall in employment in the agricultural sector of 3%.

In addition to this, the lower growth capacity of added value, which ended up harming productivity results, can be explained principally by the increase in operational costs, above all the price of inputs from sectors outwith the manufacturing industry, such as the mining industry and the agricultural sector.

The availability of data to analyze the evolution of wages and operational costs can be observed from the IBGE´s Annual Industrial Research (PIA) data. The relationship between the Industrial Transformation Value (ITV) and the Gross Value of Production (GVP) fell between 2000 and 2004, showing a reduction in the capacity to add value at a time where demand was relatively stagnant (Graph 3). The fall in ITV was partly compensated by the fall in wages, as can be seen by the lower participation of wages in ITV, with the Operating Surplus of industry companies remaining relatively constant. From 2004 onwards, however, the ITV/GVP relationship appeared to be more stable, most likely reflecting the best demand conditions on the internal market. All the same, even with more favorable internal demand conditions from 2004, the degree of value adding cannot be heightened significantly, particularly because of the increase in the import coefficients and product parts imported. The elevation of these coeffi-

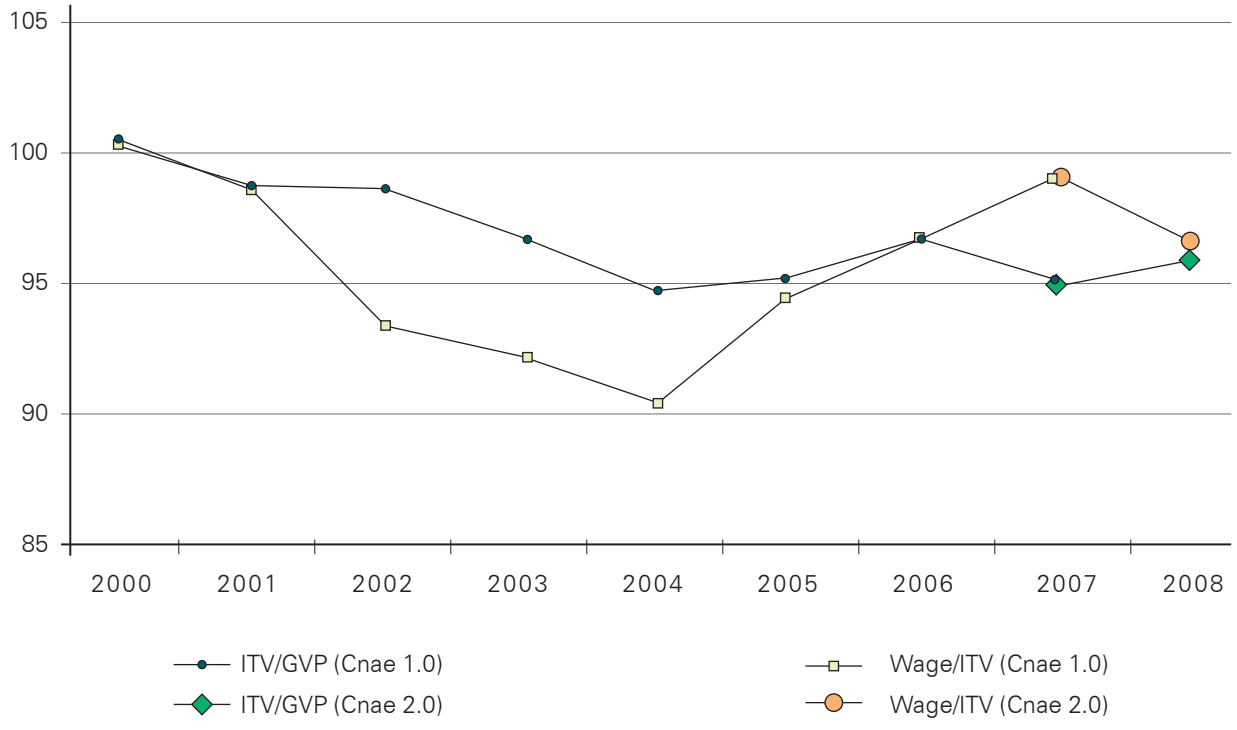
cients implied, for the GVP, a further reduced ITV. The participation of wages in the ITV increased once again, however it did not reach the levels enjoyed in 2000.

The productivity indicator based on PIA/IBGE data shows the same tendency as that calculated based on the SCN/IBGE data. Looking at the behavior of operational costs and average wage in more detail, a number of important changes can be pointed out in relation to interpreting the productivity evolution of the manufacturing industry. Firstly, it can be verified that throughout the period, operational costs increased greatly, while the average wage remained practically stagnant, indicating that the price of inputs forced the value of industrial transformation down (Graph 4). The second point is that the data indicated a significant transfer of productivity gains to the sectors ahead of productive chains, which could explain why, even in periods of industrial growth, the average wage varied only slightly. This also helps to explain the greater rise in the agricultural and mining sector´s productivity, as can be seen in Graph 2.

It can be concluded therefore, that the gains derived from the growth in physical production were in part transferred to other sectors because of the high prices of inputs. The pressure of input prices on industry profitability could result in transfer barriers to wage gains, that, throughout the period analyzed, only presented high tendencies in the periods when the industrial product maintained significant growth, such as the time before the crisis. This serves as indicative in relation to the positive effects that a fall in the rate of economic growth associated to the continuation of a tendency for high prices of commodities could have on the wage structure and employment in the industrial sector.

Another way to analyze the distribution of gains with the increase in productivity can be done by comparing the growth in productivity with the other large economic sectors. It can be seen that the increase in the value of the production of agriculture and stock raising and the mining industry put pressure on the added value in the manufacturing industry. This reinforces the idea that, as well as added value losses for imported production, there was possibly a transfer of productivity gains due to the increase in operational costs for raw material production sectors.

Graph 3 - Evolution of the ITV/GVP and Wages /ITV relationship in the Manufacturing Industry (2000 = 100)



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

Graph 4 - Evolution of Productivity, Operation Costs and Average Wage in the Manufacturing Industry (2000 = 100)

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

Basically, the growth in productivity was lower than the pressures on the structure of industry costs in the last decade. Generally speaking, this makes it more difficult to achieve larger growth in terms of wages, as well as impeding the investment capacity of the industry itself, which is largely financed by accumulated profits.

The results of the increase in productivity, in this perspective, must be interpreted according to the economic conjuncture that the industry went through in the last decade. The growth in internal demand that allowed the more intensive use of productive resources and permitted an increase in productivity in the latest period served, in part, to ease the pressure of the high input prices on the industry. However, in a slower growth period, taking into consideration that economies of scale tend to fall with the rise in capacity utilization, the increase in productivity may not be enough to either reduce pressure on costs or permit the sustainable growth of wages in the manufacturing industry.

Sustainable long-term growth that combines industrial production growth with the generation of more jobs and better wages will depend on a more emphasized increase in productivity than was verified in the last periods, which in turn make it fundamental that investment in capacity expansion, industrial modernization and product and process innovation grow at an even faster rate.

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