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Argentine industry in the early twenty-first century (2003-2008)

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This article studies the exceptional industrial growth that occurred in Argentina between 2003 and 2008. In addition to reviewing aggregate indicators of this growth, the article discusses evidence of changes in sector shares during these years along with a number of specific features in the trend of manufacturing employment. It also analyses the main patterns of Argentine industry's external trade in that period. These contain positive features such as greater relative participation by local production in external markets, and the emergence of a new group of domestic firms with rapidly growing manufacturing exports. Alongside this, and as a residual structural characteristic, imports are supplying an increasing share of the domestic demand for manufactured goods.

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I

Introduction

The collapse of the currency-board regime —the so called Convertibility Plan— opened the door to a new macroeconomic framework that attempted to lift economy out of its crisis situation and sustain rapid economic growth without having to resort to external financing. The new framework was based on a high real exchange rate, rising levels of retention applied to the main commodities (soybeans, oil, meat, wheat, and others), low or negative real interest rates, subsidized public-utility charges, and a tax and income policy that encouraged expansion in the domestic market.¹

Boosted by this new macroeconomic regime, manufacturing industry is growing on a sustained basis and at very high rates, thus bringing to an end a long process of de-industrialization in the domestic economy. Moreover, having shed workers continuously for 25 years, manufacturing industry has started to create jobs once more. In addition, industrial exports performed very vigorously, growing at 19% per year between 2003 in 2007, to represent 26% of industrial output in

the latter year —a much higher level than recorded in the previous decade.

A number of research papers have recently been published in response to this auspicious framework of recovery, highlighting different but complementary aspects and aiming to describe the scope and depth of the change that has occurred in the domestic productive framework (Arceo, Monsalvo and Wainer, 2007; Briner, Sacroisky and Bustos Zavala, 2007; Anlló, Lugones and Peirano, 2008; Fernández Bugna and Porta, 2008; Lugones and Suárez, 2006, among others). With varying explicit emphases, these analyses seek to throw light on the following question: to what extent have the changes in the macroeconomic scenario since the collapse of the currency-board regime had repercussions on the morphology of the Argentine productive structure? The studies thus aim to reconstruct in greater detail the dynamics of the sectoral and microeconomic changes that took place in the productive framework during these growth years.

This article forms part of this line of research, exploring certain aspects that seem to have changed along with others that underlie the aggregate indicators of the recent manufacturing growth.

The article is structured in five sections including this introduction. The following section provides a brief general description of the trend of manufacturing activity over the last few years, before making a comparison of the inter-sectoral dynamic of Argentine industry during the expansionary phase of the past decade and the recent growth period. The third section analyses some of the main trends in industrial employment. The fourth section discusses the trend of industry's external trade in the last five years; and the last section provides a number of final thoughts.

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¹ Detailed descriptions of the functioning of the new macroeconomic model can be found in Goldstein, Peirano and Tavosnanska (2009), Kiper (2009) and Kulfas (2009).

II

Post-currency-board industrial recovery: growth, investment and changes in the sectoral structure

1. Industrial growth in 2003- 2008 and investment strategies

Since 2003, Argentina has returned to a high-growth path, posting an average annual expansion of 8%. The largest contributions to this expansion were made by consumption and then investment, which achieved its highest share of gross domestic product (GDP) (23%) since the mid-1970s. Exports were also unusually buoyant, growing by a cumulative 134% in the period 2003-2008, or even more (174%) if manufactures of industrial origin (MIO) are included.

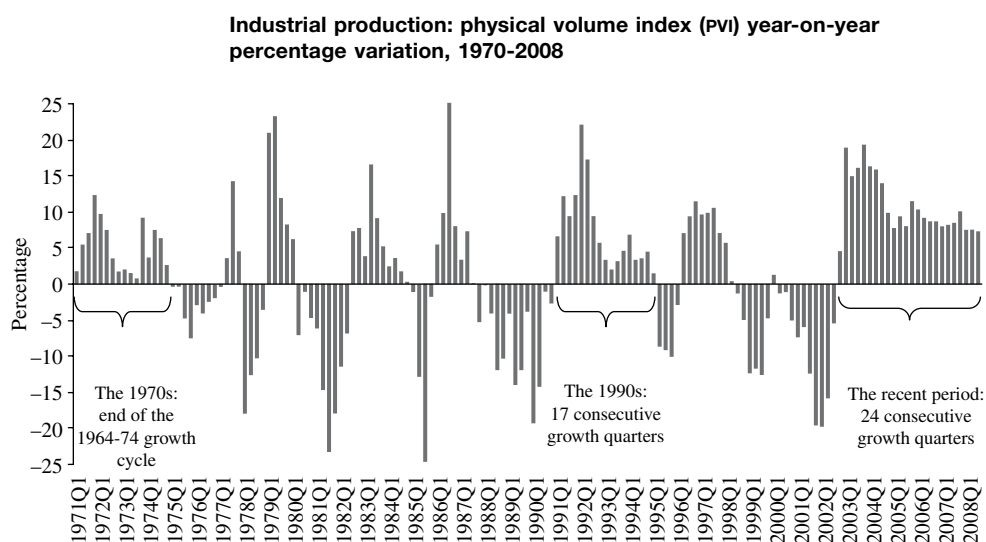
Against this backdrop, and following nearly five years of agony in which manufacturing activity shrank by about 35%, Argentine industry started to expand, posting average annual growth of 10% over a six-year period. Figure 1 reveals the exceptional duration and intensity of this industrial growth period: never before, since the end of the 1964-1974 boom, had there been 24

consecutive quarters of manufacturing growth (lasting from the third quarter of 2002 until the second quarter of 2008, inclusive).

The expansionary period that began after the 2002 devaluation can be divided into two phases. The first phase was one of recovery, with exceptionally high growth rates. In 2003 and 2004 manufacturing activity grew by nearly 16% per year. This was followed by a second phase lasting from 2005 to 2008, in which growth stabilized an average rate of 8.9%.

The distinction largely coincides with the different characteristics of the investment process. During the first two years of recovery, the upturn in the domestic market provided firms with buoyant demand that they could supply by putting their plants back to work and exploiting their huge idle capacity. But as this began to be used up in the various sectors, new investments became necessary. Since 2005, therefore, most production has been based on the creation of new productive capacity: in 2005 and

FIGURE 1



Source: Prepared by the authors on the basis of the Monthly Industrial Survey conducted by the National Institute of Statistics and Censuses (INDEC) of Argentina.

2006, three quarters of the expansion of production was the result of capacity expansion, whereas in 2007 this was true of nearly all output growth (see table 1).

TABLE 1

Expansion of industrial production and installed capacity, 2003-2008
(Percentages)

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 (Q3) |
|--------------------|------|------|------|------|------|-----------|
| Capacity expansion | 0.6 | 2.6 | 5.9 | 6.2 | 7.2 | 4.4 |
| EMI | 16.2 | 10.7 | 8.0 | 8.4 | 7.5 | 6.1 |

Source: Prepared by the authors on the basis of Jorge Schvarzer and others, "La actividad productiva en 2007. Un crecimiento que se consolida en distintos ámbitos", *Notas de coyuntura*, No. 24, Buenos Aires, Faculty of Economics Sciences, University of Buenos Aires, 2008.

EMI: Monthly industrial estimator.

This second stage involved firms with considerable liquidity obtained from the high profit margins earned in the initial phase, which made it possible to finance investments. In the first instance, these were small and incremental; productive expansion needs were covered by lengthening shifts, purchasing machinery to alleviate specific bottlenecks, or expanding plants by purchasing neighbouring land plots. By 2007, however the limits of this productive expansion strategy were becoming evident; and growth itself forced firms to take investment decisions of increasing scope, involving a higher level of complexity and financial commitment.

Many firms implemented major investment projects to set up new factories, thereby giving an additional boost to the competitiveness of certain sectors. Others, however, adopted a different strategy: either as a result of their reluctance to invest, owing to the complexity of setting up a new plant, or because of an inability to respond to demand that was growing too fast, many firms started to import increasing volumes of goods to supplement their own output.

2. Changes in the productive structure

During the twentieth century, Argentina went through a process of industrialization that certainly had its share of difficulties and contradictions. Despite this, the country had made headway in gradually developing a relatively integrated and diversified industry; and it had managed to enter a number of activities of highly technological complexity.

Nonetheless, the mid-1970s represented a turning point, inaugurating a long process aimed at dismantling the import-substitution-industrialization model (Bisang and others, 1996). This not only entailed a reduction in industry's share of GDP (which certainly occurred and was very pronounced) but also a clear sectoral disarticulation to the detriment of activities producing consumer durables and capital goods (categories that are relatively intensive in domestic value-added and in the use of engineering services) and in favour of the production of certain basic industrial products that make intensive use of domestic natural resources (Katz, 1993, p. 386).

The growing process of trade liberalization and currency appreciation that occurred in the 1990s aggravated the regressive restructuring and sectoral concentration, causing a partial return to specialization in food products and other natural-resource-intensive goods. At the same time, concentration within sectors increased; whereas the bulk of the industrial framework faced a highly adverse scenario and developed defensive strategies to survive (Kosacoff, 1996), a few small firms, largely of foreign origin, substantially increased their relative share of global industrial output (Kulfas and Schorr, 2000; Schorr, 2001).

The final stage of this industrial "primarization" process can be seen in table 2. From 1993 to 2002, the fastest-growing sectors were food and beverages (sectors that make intensive use of natural resources), along with the chemical and basic metal industries. In 1993 these sectors jointly contributed over half of industrial value-added (52%), but by 2002 their share had grown to two-thirds (66.4%). Over the same period, engineering- and labour-intensive sectors saw their share of industrial structure shrink by 30%.

The change in macroeconomic regime marks a break in the economy's return to producing natural-resource-intensive-commodities. The recent phase of manufacturing growth has not been confined to certain "traditional" branches of the local industrial structure (food and beverages, motor vehicles, non-metallic minerals, basic metal industries); the most dynamic sectors also include several metal- machinery or engineering-intensive activities, such as the manufacture of machinery and equipment, medical instruments and metal products —segments that were particularly hard hit during the 1990s.²

² Along the same lines, in a study of new firms showing rapid employment growth in the post-currency-board period, Attorelli and others (2007, p.20) argued that "[...] activities associated with the production of food and beverages have lost share, whereas engineering and labour intensive branches have expanded in relative terms".

TABLE 2

Contribution to industrial value added, 1993-2007
(Percentages based on figures in pesos at constant 1993 prices)

| Sector Year | Food and beverages and tobacco | Automotive | Engineering- intensive | Natural- resource- intensive | Labour-intensive | Basic metals and chemicals |
|----------------|-----------------------------------|------------|---------------------------|---------------------------------|------------------|-------------------------------|
| 1993 | 22.7 | 6.5 | 16.3 | 15.4 | 25.1 | 13.9 |
| 1998 | 24.0 | 7.0 | 14.0 | 15.7 | 24.3 | 15.0 |
| 1999 | 26.8 | 5.3 | 12.4 | 16.2 | 23.7 | 15.6 |
| 2000 | 26.6 | 5.7 | 12.3 | 15.8 | 23.2 | 16.4 |
| 2001 | 28.0 | 4.5 | 11.6 | 16.5 | 21.8 | 17.6 |
| 2002 | 30.5 | 4.7 | 9.9 | 17.3 | 19.1 | 18.6 |
| 2003 | 28.0 | 4.3 | 11.5 | 16.9 | 21.2 | 18.0 |
| 2004 | 26.4 | 5.0 | 13.0 | 16.9 | 21.4 | 17.4 |
| 2005 | 26.4 | 5.6 | 13.6 | 15.9 | 21.6 | 16.9 |
| 2006 | 25.9 | 6.3 | 14.2 | 15.2 | 21.0 | 17.4 |
| 2007 | 25.7 | 6.8 | 14.7 | 14.5 | 21.5 | 16.8 |

Source: Prepared by the authors on the basis of the national accounts.

Note: The sector blocks were based on the classification used by Katz and Stumpo (2001), adapted to the Argentine industrial framework. They include the following groupings from the International Standard Industrial Classification of all Economic Activities (ISIC): Food and beverages and tobacco; Motor vehicles. *Engineering intensive*: Metal products, machinery and equipment, electrical appliances; Radio, television and communications equipment; Medical and precision instruments; Transport equipment. *Natural resource intensive*: Wood and products of wood; Paper; Oil refining; Rubber; Non-metallic minerals. *Labour-intensive*: Textile products; Wearing apparel, Tanning of leather and footwear manufacture; Publishing and printing; Plastic products; Basic metals and Chemicals.

Table 2 shows that engineering-intensive sectors (excluding the automotive sector), which in 2002 accounted for just 10% of industrial value added, in 2007 had grown their share to 15%, while the share of value-added produced by labour-intensive sectors grew from a 19% in 2002 to 21.5% in 2007. Meanwhile, the food and other natural-resource-intensive sectors retreated during the period, with their joint share shrinking from 47.8% to 40.2%. This trend is not confined to the initial years of the industrial recovery, but was sustained in the following years, although the installed capacity of several of these sectors had become exhausted and growth came to depend on new investments.

Table 3 shows the contribution made by different sectors to total manufacturing growth, comparing the recent expansion with the zenith of the currency-board regime. The two most significant changes are, firstly, the greater contribution made by engineering- and labour-intensive sectors; and, as a counterpart, the sharp fall in the share of food and other natural-resource-intensive products. The first two groups mentioned explained just 20% of growth in industrial value-added between 1993 and 1998 (note the near zero contribution of the metal-machinery sector at a time of pronounced activity expansion); nonetheless, from 2002 to 2007, these sectors accounted for 46% of total industrial value-added.

The opposite occurs with food and other natural-resource-intensive products, which contributed almost half of additional value-added between 1993 and 1998, but explain just 30% of the expansion in 2002-2007.

Similarly, the automotive, basic metals and chemical industries —sometimes hailed as the only sectors responsible for post-currency-board industrial growth— in those years contributed the same or less than in the upswing phase of the past decade, and significantly less than the engineering- and labour-intensive sectors.

TABLE 3

Contribution to the growth of industry value-added, 1993-1998 and 2002-2007
(Percentages based on figures expressed in pesos at constant 1993 prices)

| Sectors | 1993-1998 | 2002-2007 |
|--------------------------------|-----------|-----------|
| Food and beverages and tobacco | 31.6 | 19.0 |
| Automotive | 9.7 | 9.9 |
| Engineering-intensive | 0.5 | 21.4 |
| Natural-resource-intensive | 17.6 | 10.7 |
| Labour-intensive | 19.4 | 24.8 |
| Basic metals and chemicals | 21.2 | 14.2 |

Source: Prepared by the authors on the basis of the national accounts.

Apart from the smaller contribution to growth made by the food sector, as noted above, oil refining, chemicals, rubber, plastics and furniture all saw their shares fall sharply. In contrast, strongly performing sectors included textiles and clothing, construction materials and metallic products, along with various capital goods (machinery and equipment, electrical appliances, medical instruments, among others).

This change in the engines of industrial growth also afforded a more leading role to relatively less concentrated activities, with a preponderance of small and medium-sized enterprises (SMEs) —unlike what happened during the currency-board period when the fastest-growing sectors were producers of basic industrial products (metal sheets, fuels, oils and others) which tend to be capital intensive and highly concentrated.

Clearly, and although it is premature to claim the existence of substantive changes in the sectoral structure of industry, there has been a turnaround in the pattern of growth towards metal-machinery or engineering-intensive sectors, in contrast to the concentration and “primarization” process through which the Argentine economy passed during the currency-board period.

III

Trend of industrial employment

1. The halt to the shedding of employment and trend of wages

This section investigates one of the greatest novelties of the recent cycle: the pronounced trend of job creation shown by manufacturing industry from 2003 to 2008, which interrupted a period of industrial worker lay off that had lasted for about 25 years.

As noted above, there is a degree of consensus that the second half of the 1970s was a decisive turning point for industry. In terms of employment, the trend is clear. After following a substantial expansionary path until 1976 (albeit with intervals of stagnation), industrial employment then entered a sustained path of contraction that lasted until the collapse of the currency-board system (see table 4).

During that period, industry shed jobs continuously, with an initial sharp adjustment (at an annual rate of about 7% against a backdrop of recession under the military government) and with dramatic accelerations at the

epicentres of the crises (the hyperinflationary episodes of 1989-1990 and the collapse of 2002). Nonetheless, employment also declined in periods when manufacturing activity was expanding at positive, albeit moderate, rates. This pattern of growth with shrinking employment was particularly visible during the boom of the 1990s.

As shown in table 4, manufacturing employment recovered at an annual average rate of 5.8% in 2003-2008, during which two phases can be distinguished: firstly, after falling by 9% in 2002, employment bounced back at rates between 6% and 10% from 2003 to 2005. Once this initial rebound had been accomplished, job creation continued at rates of around 5% year-on-year until the first half of 2008. As a result, 1,200,141 formal workers were employed in industry in the first quarter of 2008 —55% more than at the bottom of the cycle in the first quarter of 2002.³

³ Ministry of Labour, Employment and Social Security.

TABLE 4

Trend of employment and industrial production, 1975-2008

| Historical reference | Years | Annual average rate of employment growth (Percentages) | Average annual rate of output growth (Percentages) |
|-------------------------------------|-----------|--|--|
| “Rodrigazo” and military government | 1975-1982 | -6.8 | -2.1 |
| “Alfonsinismo” | 1983-1988 | -0.9 | 1.2 |
| Hyperinflationary episodes | 1989-1990 | -12.9 | -9.6 |
| Currency board | 1991-2001 | -4.2 | 0.9 |
| Collapse of the currency board | 2002 | -9.1 | -9.7 |
| Post-currency board | 2003-2008 | 5.8 | 11.2 |

Source: Prepared by the authors on the basis of data from the Annual Industrial Survey conducted by the National Institute of Statistics and Censuses (INDEC) of Argentina.

In this context, industrial workers were able to obtain substantial pay rises. From 2003 and until the first half of 2008, the nominal wage grew at an average annual rate of 24%, while the economy as a whole grew at 16.8%.⁴ Thus, the sharp fall in the real industrial wage seen in 2002, following the devaluation and the surge in inflation in that year, was not validated in terms of a new “equilibrium” level, but represented a point in a path of growth from its previous levels. This expansion contrasts sharply with what happened in other historical sequences of sharp falling real wages, as shown in figure 2.

As noted above, the industrial nominal wage grew at a rate of 24% between 2003 and 2008, which raised the real wage 32% above pre-crisis levels by 2006. Given the scale of this increase, it is interesting to consider its potential effect on competitiveness (in other words, a measure of the wage in terms of production costs). Although there is no single scenario applicable to the different sectors, table 5 provides a synthesis of trends in industry generally.

As shown in the table, the recovery of wages was compatible with a reduction in wage costs in relation

⁴ National Institute of Statistics and Censuses (INDEC): Wage index per worker and index of the general wage level

to those prevailing during the currency-board period. This was partly due to productivity growth (which in 2007 exceeded the 2001 levels by 22%) and, also, to adjustments in the prices of industrial goods. The two factors combined to push average industry wage costs in 20% below their pre-devaluation level in 2007.

2. Beyond the general trend: significant cross-sections

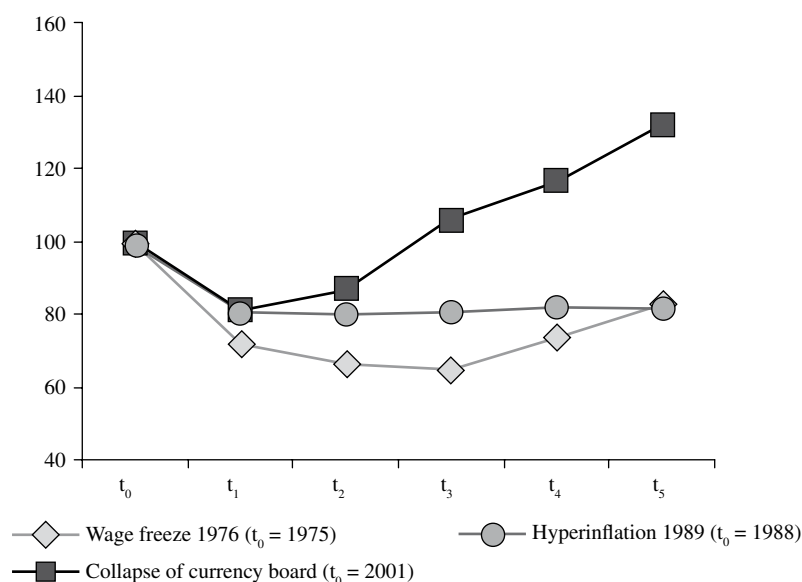
As noted above, the recent industrial expansion phase has been distinguished by a trend of job creation, largely reflecting the sector composition of the recent manufacturing growth, which was biased towards labour- and engineering-intensive sectors.

Table 6 summarizes the sector trend of industrial employment during the latest phase of manufacturing growth.⁵ From 2002 to 2007 industry created over 410,000 new jobs, representing a 55% increase since

⁵ Registered employment data are used here because this makes it possible to work with the absolute number of jobs in each sector. The figures are available as from 1996, so the share in job creation from 2002 to 2007 is compared with the average employment structure during the period 1996-2001.

FIGURE 2

Trend of the real industrial wage in three historical crises
(Indices initial period $t_0=100$)



Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina (Annual Industrial Survey).

TABLE 5

Trend of wage costs in industry and its components, 1998-2007
(Indices 1997 = 100)

| Year | IVF ^a | IHT ^b | Productivity (IVF/IHT) | Hourly wage index (ISH) | Producer price index (IPP) | ISH/IPP | Productivity-adjusted wage cost ^c |
|-----------------------------------|------------------|------------------|---------------------------|----------------------------|-------------------------------|---------|---|
| 1998 | 99.6 | 95.3 | 104.5 | 102.0 | 99.1 | 103.0 | 98.4 |
| 2001 | 77.7 | 70.9 | 109.6 | 106.1 | 95.6 | 111.0 | 101.2 |
| 2002 | 70.2 | 62.9 | 111.7 | 109.1 | 145.5 | 80.4 | 71.9 |
| 2005 | 102.6 | 84.1 | 121.9 | 186.8 | 222.7 | 83.7 | 68.6 |
| 2006 | 112.1 | 87.5 | 128.0 | 237.8 | 240.9 | 98.6 | 77.0 |
| 2007 | 122.5 | 91.3 | 134.1 | 291.7 | 269.4 | 108.2 | 80.7 |
| Percentage variation 2007/2001 | 57.6 | 28.8 | 22.4 | 175.0 | 181.9 | -2.5 | -20.3 |

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina.

^a Physical volume index.

^b Index of hours worked.

^c $(ISH \cdot IHT) / (IVF \cdot IPP)$: Formula used to calculate the "productivity-adjusted wage cost."

TABLE 6

**Registered industrial employment, 2002-2007: sector trend
and share in job creation**

| ISIC - description of activity | Percentage change with respect to the previous year | | | | | Variation in 2007 with respect to 2002 | | Contribution to job creation 2007 with respect to 2002 | Share of the employment structure, 1996-2001 |
|--------------------------------------|--|------|------|------|------|---|------------|---|---|
| | 2003 | 2004 | 2005 | 2006 | 2007 | Number of persons employed | Percentage | | |
| | | | | | | | | | |
| General level | 7.1 | 12.5 | 9.7 | 7.9 | 6.2 | 411 848 | 54.2 | 100.0 | 100.0 |
| 15 Food and beverages | 6.5 | 8.7 | 3.8 | 4.2 | 4.2 | 73 996 | 30.5 | 18.2 | 29.7 |
| 16 Tobacco | 11.3 | 12.8 | 1.3 | 4.3 | -7.2 | 1 091 | 23.2 | 0.4 | 0.5 |
| 17 Textile products | 19.9 | 12.5 | 8.8 | 7.5 | 3.3 | 26 345 | 62.9 | 6.8 | 5.8 |
| 18 Wearing apparel | 25.4 | 18.2 | 13.1 | 12.5 | 5.8 | 25 782 | 99.7 | 6.3 | 3.9 |
| 19 Leather and footwear | 18.4 | -0.1 | 9.5 | 4.0 | 3.2 | 11 574 | 39.1 | 3.0 | 3.9 |
| 20 Wood and wood products | 22.1 | 15.3 | 8.2 | 7.9 | 2.6 | 13 697 | 68.7 | 3.6 | 2.6 |
| 21 Paper and paper products | 7.0 | 11.4 | 6.7 | 5.7 | 3.0 | 9 230 | 38.5 | 2.4 | 2.9 |
| 22 Publishing and printing | 4.1 | 8.7 | 9.0 | 4.4 | 3.9 | 12 589 | 33.8 | 2.6 | 4.6 |
| 23 Oil refining | 1.9 | 1.0 | 7.4 | 2.9 | 1.6 | 1 472 | 15.6 | 0.4 | 0.9 |
| 24 Chemical products | 8.5 | 8.4 | 8.1 | 5.4 | 5.1 | 28 144 | 40.9 | 6.7 | 8.3 |
| 25 Rubber and plastic | 16.6 | 12.8 | 9.5 | 6.8 | 5.8 | 24 030 | 62.7 | 5.9 | 4.8 |
| 26 Non-metallic minerals | 15.4 | 12.2 | 13.2 | 9.3 | 8.4 | 17 675 | 73.8 | 4.2 | 3.6 |
| 27 Basic metals | 11.2 | 11.1 | 8.1 | 7.0 | 3.9 | 13 400 | 48.4 | 3.3 | 3.7 |
| 28 Metallic products | 20.8 | 19.7 | 15.1 | 9.7 | 9.5 | 45 030 | 100.2 | 11.0 | 6.4 |
| 29 Machinery and equipment | 22.5 | 18.3 | 11.1 | 7.0 | 7.6 | 30 177 | 85.2 | 7.6 | 4.9 |
| 30 Office machines | 37.1 | 28.6 | 17.5 | 16.5 | 24.5 | 1 644 | 200.5 | 0.4 | 0.1 |
| 31 Electrical machinery | 16.5 | 17.1 | 13.0 | 7.3 | 11.9 | 9 375 | 85.0 | 2.1 | 1.7 |
| 32 TV and communications equipment | 4.3 | 25.4 | 17.5 | 10.0 | 14.6 | 4 059 | 93.8 | 0.7 | 0.9 |
| 33 Medical and precision instruments | 12.3 | 14.0 | 12.3 | 6.1 | 5.3 | 2 922 | 60.5 | 0.7 | 0.6 |
| 34 Motor vehicles | 8.9 | 19.5 | 16.3 | 13.5 | 14.0 | 36 977 | 95.7 | 8.2 | 6.1 |
| 35 Transport equipment | 13.4 | 19.5 | 16.5 | 16.9 | 8.9 | 5 325 | 100.9 | 1.3 | 0.8 |
| 36 Furniture and n.e.s. | 16.0 | 17.6 | 13.4 | 9.7 | 8.5 | 17 314 | 84.3 | 3.9 | 3.3 |

Source: Prepared by the authors on the basis of data from the Observatory of Employment and Business Dynamics (Ministry of Labour, Employment and Social Security). The variations and shares were calculated from information relating to the fourth quarter of each year.

ISIC: International Standard Industrial Classification of all Economic Activities.

n.e.s.: Sectors not elsewhere specified.

the start of the period. Employment growth was widespread; all sectors recorded significant increases in a range varying from 15% to 200%. Nonetheless, a number of sectoral trends are worth highlighting.

The right-hand section of table 6 shows the sector share in manufacturing job creation in the period 2002-2007, compared to the previous structure. Predictably, the food-producing sector, up by 18%, accounts for the majority of new jobs created. Nonetheless, this increase is significantly less than the sector's previous share in the structure of industrial employment (it accounted for nearly 30% of total manufacturing employment in 1996-2001). Employment in this activity sector grew by less than the industry average every year since the collapse of the currency board, yielding leadership to sectors that are much smaller but particularly dynamic in terms of labour demand.

Ten sectors of activity display highly dynamic and sustained trends in terms of job creation, growing above the general level in at least four of the five years reviewed. These sectors will be divided into three groups for analysis.

The first group contains textile garments and furniture manufacture, two highly labour-intensive sectors that operate basically in the domestic market

and benefited from the import-substitution process launched immediately after the devaluation. The garment sector doubled its workforce in 2002 and 2007, while employment in the furniture sector grew by 84%. The two sectors jointly account for 10% of total industrial employment generated during the period.

The second group includes the manufacture of non-metallic minerals, a sector directly related to the vigorous expansion of construction in recent years. Sector employment grew by almost 74%, and explains just over 4% of aggregate industrial job creation.

Lastly, there is a group of engineering-intensive activities with rates of employment growth between 85% and 200% that are way above the industrial average. The jobs created by these sectors represented slightly over 31% of total industrial employment generated—particularly noteworthy considering that these sectors accounted for just 21% of industrial employment on average between 1996 and 2001.

The sector trends identified in the previous section are thus tending to repeat themselves. A group of activities that suffered badly in the 1990s (labour-intensive sectors, such as the textile complex and engineering-intensive sectors such as metal and machinery) are now growing particularly fast.

IV

Selected trends in industrial foreign trade

Having analysed a number of aspects of the changing pattern of manufacturing development since the abandonment of the currency board, this section will discuss the trend of external trade display in industrial products.

1. Trend of industrial exports

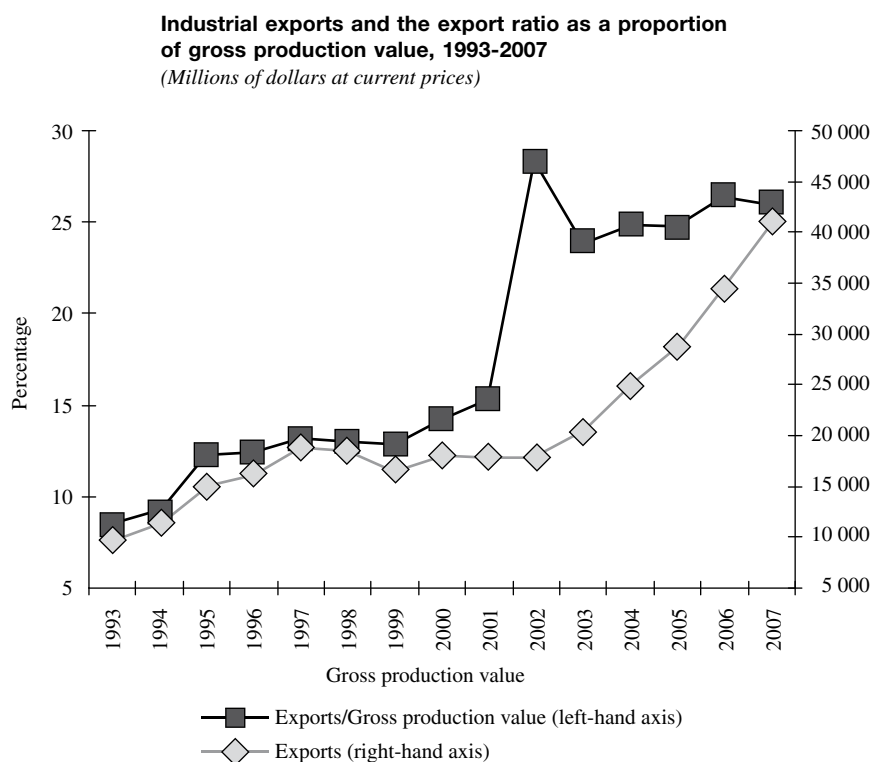
From 2003 onwards, industrial exports grew very rapidly, accumulating a 130% increase in just five years and thus breaking out of the stagnation that had prevailed since 1998 (see figure 3). The expansion of industrial exports in 2003-2007 was slightly greater than in 1993-1997 (19% per year compared to 18%). It should also be noted that in both periods the country enjoyed a substantial

improvement in its terms of trade, mainly driven by rising prices among agricultural products.⁶

The exponential growth of exports increased their share of industry sales. During the currency-board period, the ratio between exports and gross production value (GPV) rose sharply, from 8% in 1993 to 15% in 2001. Nonetheless, this increase was concentrated in the years 1995 and 2000-2001, two periods of sharply falling activity, thus underscoring the fundamental importance of the contraction in the domestic market for the outcome observed. Following the devaluation, the export ratio rose

⁶ For further details on the trend of prices and export volumes, see Schwarzer and others, 2008.

FIGURE 3



Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina.

in two phases. In the first, in 2002, it reached a peak of 28%, combining a pronounced change in relative prices caused by the devaluation, with the collapse of domestic sales. This quickly eased, however, reversing by 24% in 2003, when the economic recovery began and relative prices returned to a degree of normality. That gave rise to a second stage (2003-2007) in which the ratio slowly recovered to reach 26% in 2007, against a backdrop of intensive expansion in the domestic market. Exports grew vigorously without responding to a forced need to sell surplus production as a result of a contraction in domestic activity.

The export ratio displays major differences between sectors (see table 7). As would be expected, the highest levels are seen in sectors related to natural resources (food, leather and oil refinery), in which between 25% and 40% of sales went to foreign markets. In addition to the traditional export sectors, the export ratio has grown in chemicals and basic metals, with levels exceeding 20% in 2007; and also in other sectors, which, starting from low values, such as textiles, paper, rubber and plastic, machinery and equipment, and electrical

apparatus, surpassed 10%.⁷ In nearly all sectors, by 2007 the coefficient had easily surpassed the levels recorded in 1998, although in many cases it was below the 2003 level because the domestic market was still very depressed in that year. The automotive industry displays specific features owing to the managed trade regime in the Southern Common Market (MERCOSUR), which results in intra-industry trade with high import and export coefficients. The counterpart of the increase in the export ratio from 29% to 43% is the rise in the import ratio from 40% to 50%.

A greater export orientation has a number of positive effects on the industrial structure: it enables firms to gain access to new sources of information on markets, technologies and products; increase the scale of their production and thus spread the burden of overheads; and

⁷ The figure for "Other transport equipment" was influenced by the external purchase and hire (or return abroad) of aircraft, by airlines, which are often recorded as imports (exports) when they pass through customs. Nonetheless, there has been a genuine increase in exports in this sector, particularly ships.

TABLE 7

**Export coefficient as a percentage of GPV and composition of exports,
by sector of manufacturing industry, 1998-2007**

| Sector | Exports/GPV | | | Composition of exports | | |
|--|-------------|-------------|-------------|------------------------|--------------|--------------|
| | 1998 | 2003 | 2007 | 1998 | 2003 | 2007 |
| Food and beverages | 19.7 | 33.0 | 37.8 | 43.9 | 45.4 | 43.4 |
| Tobacco products | 0.9 | 0.8 | 0.8 | 0.1 | 0.1 | 0.0 |
| Textile products | 4.6 | 11.4 | 10.0 | 1.3 | 1.2 | 0.9 |
| Garments and leather clothing | 3.3 | 8.5 | 7.6 | 0.6 | 0.4 | 0.3 |
| Tanning and leather manufactures | 25.7 | 34.8 | 30.1 | 4.7 | 3.8 | 2.7 |
| Wood, cork and fibre materials | 2.7 | 11.4 | 8.0 | 0.4 | 0.9 | 0.7 |
| Paper products | 7.3 | 12.3 | 12.4 | 1.5 | 1.7 | 1.3 |
| Publishing and printing | 2.5 | 3.1 | 2.0 | 0.8 | 0.3 | 0.2 |
| Oil refining | 6.2 | 23.1 | 27.6 | 3.9 | 11.2 | 10.2 |
| Chemical substances and products | 11.2 | 19.8 | 22.4 | 9.9 | 11.4 | 10.1 |
| Rubber and plastic | 4.7 | 8.3 | 11.4 | 1.7 | 1.5 | 1.8 |
| Non-metallic minerals | 3.8 | 7.7 | 5.6 | 0.7 | 0.6 | 0.5 |
| Basic metals | 18.3 | 28.2 | 25.2 | 5.9 | 7.4 | 7.4 |
| Products made from metal | 3.6 | 6.2 | 7.3 | 0.9 | 0.6 | 0.8 |
| Machinery and equipment | 10.0 | 15.4 | 15.0 | 3.1 | 2.4 | 2.9 |
| Office machinery | 30.6 | 36.5 | 46.1 | 0.2 | 0.1 | 0.1 |
| Electrical machinery and appliances | 9.7 | 21.9 | 17.1 | 1.1 | 0.7 | 0.8 |
| Radio, TV and communications equipment | 4.0 | 28.5 | 25.1 | 0.3 | 0.2 | 0.3 |
| Medical, optical and precision instruments | 14.8 | 37.7 | 40.7 | 0.4 | 0.4 | 0.5 |
| Automobiles | 29.5 | 37.6 | 43.2 | 17.4 | 7.7 | 13.6 |
| Other transport equipment | 9.8 | 83.0 | 74.1 | 0.5 | 1.0 | 1.0 |
| Furniture and other manufacturing industries | 3.1 | 22.5 | 7.3 | 0.7 | 1.1 | 0.3 |
| <i>Manufacturing industry</i> | <i>13.0</i> | <i>24.0</i> | <i>26.1</i> | <i>100.0</i> | <i>100.0</i> | <i>100.0</i> |

Source: Prepared by the authors on the basis of National Institute of Statistics and Censuses (INDEC) of Argentina.

GPV: Gross production value.

diversify the risks of market shrinking. In this regard the change of regime shows one of its most successful facets—industrial growth driven by combined, and relatively balanced expansion of production both for the domestic market and for export. It is therefore difficult to speak of growth based exclusively on the domestic market, since exports have been the most dynamic component (growing at a rate of 19% per year, while production for the domestic market has grown at 16%); or of export-driven growth, because even today, two thirds of production continues to be sold on the local market.⁸

Changes in the sector composition of foreign sales between 2003 and 2007 show falls in the share of food products, leather and footwear, oil refining, and chemicals, matched by increases in automotive and, to

a lesser extent, machinery and equipment exports (see table 7). Nonetheless, an analysis of the last 10 years reveals a different picture: only oil derivatives and basic metal industries grew their export share. In contrast, the weight of automotive and leather and footwear exports decreased, as to a lesser extent did that of textiles, food products and publishing and printing. Accordingly, while the share of exports recovered in some sectors between 2003 and 2007, the composition of foreign sales has changed little since 1998. Moreover, among the few changes that have actually taken place over the last 10 years, the most significant were increases in exports of basic industrial products (oil refining and basic metals).⁹

⁸ Nonetheless, in some sectors, particularly those related to certain foods and fuels, there are tensions owing to the increase in international prices and external demand, which are driving domestic prices upwards. The paradigm case was bovine meat, in which exports were prohibited to reduce repercussions on domestic prices.

⁹ This is heavily influenced by price increases in certain sectors (particularly soybean derivatives, meat, and dairy products, oil, steel and aluminium) which significantly increase their share of total exports, overshadowing the export performance of other sectors that did not have the same luck, but which still increased their export volumes.

The following paragraphs analyse exports of manufactures of industrial origin (MIO) by size and origin of capital. For this purpose, the 500 largest exporters of MIOs were divided into groups according to their position in the export ranking and origin of capital in 2007. The results make it possible to highlight a number of stylized facts regarding the recent boom in industrial exports.

The most salient feature is the preponderant role of transnational corporations (TNC) in manufacturing exports. Over 40% of the 500 leading industrial exporters are majority foreign-owned and jointly account for about two thirds of the exports of these 500 firms (see table 8). Transnationals are pre-eminent among the 100 leading exporters, with a ratio of two TNCs to every one domestically owned firm. This asymmetric relation is reversed further down the ranking: in the next

100, practically half are national enterprises and half foreign, whereas in the lower groups, the ratio rises to 59%, 66% and 72%, respectively, in favour of national firms. Although these results are surprising, they are merely one manifestation of the high level of foreign involvement in the Argentine economy (Kulfas and Schorr, 2000; Schorr, 2001).

Secondly, even within a general context of export growth, there are differences according to the origin of capital and the size of the firms in question. Here again, there is a turnaround in the behaviour of the main TNC: in 1998, the 36 largest firms exported over US\$ 3.3 billion; but this amount declined significantly in subsequent years, and was only surpassed in 2004. Since then, the exports of the main TNC have started to grow at a rate of 30% per year. Thus, the US\$ 2.5 billion exported in 2003

TABLE 8

The 500 largest MIO export enterprises by origin of capital, 1998-2008
(Millions of dollars at current prices)

| Ranking | Origin | Number of firms | 1998 | 2003 | 2008 | Growth 2003-2008 (Percentages) |
|---------------------------------|--------|-----------------|--------------|--------------|---------------|--------------------------------|
| 01-50 | TNC | 36 | 3 373 | 2 536 | 9 292 | 29.7 |
| | NE | 14 | 964 | 1 490 | 3 665 | 19.7 |
| <i>Total 0-50</i> | | <i>50</i> | <i>4 337</i> | <i>4 026</i> | <i>12 958</i> | <i>26.3</i> |
| 51-100 | TNC | 29 | 302 | 301 | 870 | 23.7 |
| | NE | 21 | 232 | 216 | 586 | 22.1 |
| <i>Total 51-100</i> | | <i>50</i> | <i>535</i> | <i>517</i> | <i>1 456</i> | <i>23.0</i> |
| 101-200 | TNC | 49 | 197 | 300 | 736 | 19.7 |
| | NE | 51 | 121 | 180 | 731 | 32.3 |
| <i>Total 101-200</i> | | <i>100</i> | <i>318</i> | <i>480</i> | <i>1 467</i> | <i>25.0</i> |
| 201-300 | TNC | 41 | 154 | 214 | 364 | 11.2 |
| | NE | 59 | 119 | 169 | 495 | 23.9 |
| <i>Total 201-300</i> | | <i>100</i> | <i>273</i> | <i>383</i> | <i>859</i> | <i>17.5</i> |
| 301-400 | TNC | 34 | 72 | 100 | 205 | 15.5 |
| | NE | 66 | 85 | 112 | 382 | 27.7 |
| <i>Total 301-400</i> | | <i>100</i> | <i>157</i> | <i>212</i> | <i>587</i> | <i>22.6</i> |
| 401-500 | TNC | 28 | 39 | 46 | 120 | 21.3 |
| | NE | 72 | 83 | 75 | 296 | 31.7 |
| <i>Total 401-500</i> | | <i>100</i> | <i>122</i> | <i>121</i> | <i>416</i> | <i>28.1</i> |
| <i>General total</i> | | <i>500</i> | <i>5 742</i> | <i>5 738</i> | <i>17 743</i> | <i>25.3</i> |
| <i>National subtotal 51-500</i> | | | <i>640</i> | <i>753</i> | <i>2 490</i> | <i>27.0</i> |

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina.

MIO: Manufactures of industrial origin

TNC: Transnational corporations

NE: National enterprises

became nearly US\$ 9.3 billion in 2080, which means that these 36 firms alone explain just over half of the total growth of the country's exports of manufactures of industrial origin.

The 14 national firms among the top-ranked 50 have increased their exports at an average rate of 20%, rising from US\$ 1.5 billion in 2003 to US\$ 3.6 billion in 2008. Their exports grew at a slower rate than the average of the 500 firms analysed (25%) between 2003 and 2008, although in this case they did not start from a situation of stagnation, as occurred with the TNC. This group of 14 firms explains 18% of the increase in MIO exports considered in the period 2003-2008.

The third stylized fact is that the buoyancy of the largest TNC—the 36 firms mentioned above—is not repeated among the smaller transnationals. In particular, the TNC ranked in positions 101 to 400 have growth rates which, in all groups, are below 20%, and lower than those of national enterprises, thus reversing the pattern described among the 50 largest export enterprises.

Lastly, there is a core of medium-sized national firms displaying considerable growth, particularly those corresponding to the second hundred leading exporters, whose foreign sales grew at 32% per year, making these 51 firms the most dynamic export group of the 500 enterprises analysed. To gain a deeper understanding of the dynamic of national MIO exporters, a study was made of those which, without being among the 50 largest, display a minimum growth floor (10% per year) and in

2008 exported more than the maximum achieved between 1998 and 2001. This produced a group of 224 national firms which in 2008 exported between US\$ 3.5 million and US\$ 40 million. These enterprises in 2003 exported an average of slightly less than US\$ 2 million each, but in the five subsequent years grew at an average annual rate of 36%, so by 2008 were exporting more than US\$ 9 million on average per year.

Table 9 classifies these firms by activity sector. Note the heavy presence of producers of capital goods and other metal-machinery products, which, even excluding vehicle-part manufacturers (classified in another group), comprise a total of 91 firms that jointly exported over US\$ 800 million in 2008. These sectors posted the highest growth rates in the last five years, outpacing the already high average level of the group (36%). The exports of these firms thus help to explain the change in the productive structure described in section II, which reveals a greater bias towards the metal-machinery sectors.

But this phenomenon is not confined to the metal-machinery complex. The group also contains 48 chemical firms, 17 plastics manufacturers, 14 manufacturers of vehicle parts, and 11 iron and steel makers, among others. Even in the textile and clothing sector (the latter included among "Others"), there are a number of rapidly growing national exporters.

Table 10 compares part of this dynamic exporter group (67 firms) with other industrial enterprises, and shows that these tend to be more "innovative" and

TABLE 9

Fast-growing domestic MIO exporting firms, 1998-2008
(Millions of dollars at current prices)

| Sectors | 1998 | 2003 | 2008 | Number of firms | Growth in 2003-2008 (Percentages) |
|--|--------------|--------------|----------------|-----------------|-----------------------------------|
| Machinery and equipment | 69.6 | 98.9 | 505.3 | 56 | 38.6 |
| Chemical substances and products | 110.0 | 141.4 | 506.8 | 48 | 29.1 |
| Rubber and plastic | 11.6 | 25.6 | 136.0 | 17 | 39.7 |
| Electrical machinery and appliances | 12.8 | 17.1 | 105.8 | 15 | 44.0 |
| Automobiles | 19.6 | 32.0 | 144.6 | 14 | 35.2 |
| Products made from metal | 20.6 | 22.7 | 147.8 | 14 | 45.4 |
| Basic metals | 5.7 | 14.9 | 84.0 | 11 | 41.3 |
| Non-metallic minerals | 14.5 | 13.3 | 53.9 | 9 | 32.4 |
| Paper products | 18.7 | 25.5 | 66.2 | 7 | 21.0 |
| Publishing and printing | 2.5 | 7.8 | 34.2 | 6 | 34.3 |
| Medical, optical and precision instruments | 11.9 | 11.8 | 73.2 | 6 | 44.2 |
| Textile products | 4.9 | 6.3 | 55.1 | 5 | 54.4 |
| Other | 15.7 | 19.7 | 143.0 | 16 | 48.6 |
| <i>Total</i> | <i>318.1</i> | <i>436.9</i> | <i>2 056.0</i> | <i>224</i> | <i>36.3</i> |

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina.

MIO: Manufactures of industrial origin.

TABLE 10

Innovation by fast-growing firms compared to other industrial enterprises, 2002-2004
(Percentages)

| | Fast growing | Rest of industry |
|-------------------------------|--------------|------------------|
| “Innovative” | 91 | 60 |
| Innovating | 84 | 49 |
| TPP innovators | 82 | 45 |
| R&D/sales 2002-2004 | 0.64 | 0.20 |
| Innovation/sales 2002-2004 | 1.88 | 1.19 |
| Human resources in R&D | 5.40 | 1.80 |
| Human resources in innovation | 9.10 | 2.90 |
| Professional human resources | 24 | 14 |

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina. Note: “Innovative” firms are those with expenditure on innovation activities; Innovating firms are those that have obtained positive results from such activities; TPP innovators are those that have achieved product or process innovations (in other words, not organizational or marketing innovations).

R&D: Research and development

RRHH: Human resources

R&D/sales: R&D expenditure/total sales

Innovation/sales: Innovation expenditure/total sales

Human resources in R&D: Proportion of human resources working in R&D activities

Human resources in innovation: Proportion of human resources working on innovation activities

Professional human resources: Professional staff

innovating than the average, while they devote more human resources and a larger proportion of their sales to innovation and research and development (R&D) activities. Moreover, of the 224 firms in the group, 60 had undertaken “innovative” projects, with financing from the Argentine Technological Fund (FONTAR).

In short, one of the most interesting changes caused by the high exchange rate was the boost given to a core of dynamic nationally owned export enterprises that show promising growth prospects.

2. The trend of imports and the balance of industrial trade

In the 1990s, tariff reduction and an over-appreciated exchange rate had generated a massive inflow of imports, leading to a widening trade deficit. Industrial imports, which in 1993 amounted to US\$ 16 billion, grew over a five-year period to US\$ 30 billion in 1998. Imported products satisfied 13% of apparent consumption in 1993, and 19% in 1998. This process was temporarily halted in 1998, with the onset of the recession that resulted in the collapse of the currency board, but it regained strength on the back of recovering activity levels. The

US\$ 8 billion floor to which industrial imports had fallen in 2002, thus multiplied to reach the previous high in 2006; and, by 2007, industrial imports were standing at US\$ 41 billion, 40% above the maximum achieved during the currency-board period. Thus, imports continued to penetrate the local market, until they accounted for over one quarter of all industrial products consumed (see figure 4).

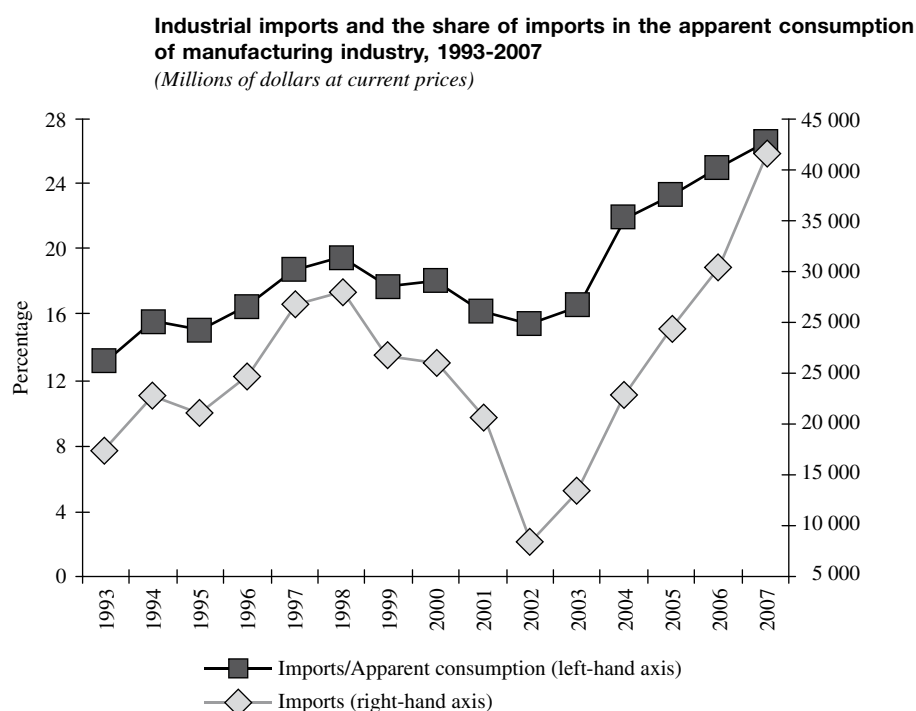
The penetration of industrial imports was widespread. In a total of 22 sectors, the imports/apparent consumption ratio was lower in 2007 than in 1998 in just five cases: food and beverages, wood, paper, publishing and printing and metallic products. In addition, a number of sectors have seen the ratio rise, albeit by a small amount: tobacco, non-metallic minerals, basic metals and machinery and equipment. In the other sectors, in contrast, the share of imports in the respective markets has grown considerably, particularly in the cases of textiles; wearing apparel; oil refining; chemical products; radio, TV and communications equipment; and furniture manufacture (see table 11).

The evidence shows that, although in 2002 and 2003 the share of industrial imports in total consumption was less than in the late 1990s, it subsequently recovered rapidly and surpassed those levels. Thus, contrary to part of the discourse on the recent trend of the Argentine economy, the rise in the real exchange rate seems not to have caused a stable and significant import-substitution process. Although within sectors there are probably certain products for which local production has replaced imports, such cases seem to have been offset by others in which the imported products gained ground. Thus, not only is it impossible to discern a pattern of import substitution at the sector level, but, in several cases, local sector production has retreated substantially.¹⁰

The data shown in table 11 make it possible to analyse changes in the sector composition of imports. Between 2003 and 2007, the largest increases occurred in imports of consumer durable goods, which were badly hit during the crisis: motor vehicles, television sets, cellphones, air-conditioning equipment, and other items; and a number of basic inputs (steel, aluminium

¹⁰ In a review of the industrial development process between 1880 and 1993, Schvarzer (1998, p.9) highlights the analysis made by Dorfman, who suggested that the process was insignificant and insufficient in relation to the trend and possibilities of the local economy; and, to demonstrate his conclusions, he compares it with other variables. One of these is the growth of imports, whose value multiplied fivefold over the same period; hence [Dorfman] deduces that “the domestic market has grown faster than domestic manufacturing industry, which was overwhelmed by foreign competition.”

FIGURE 4



Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina.

TABLE 11

Share of imports in apparent consumption and composition of imports by industry sector, 1998-2007
(Percentages)

| Sector | Import/apparent consumption | | | Composition of imports | | |
|--|-----------------------------|-------------|-------------|------------------------|--------------|--------------|
| | 1998 | 2003 | 2007 | 1998 | 2003 | 2007 |
| Food products and beverages | 3.1 | 2.0 | 2.4 | 3.6 | 2.9 | 1.8 |
| Tobacco products | 0.2 | 1.0 | 1.1 | 0.0 | 0.1 | 0.1 |
| Textile products | 13.5 | 17.2 | 21.1 | 2.6 | 3.0 | 2.1 |
| Leather clothing and garments | 6.5 | 5.7 | 11.6 | 0.8 | 0.4 | 0.5 |
| Leather tanning and manufacture | 10.0 | 8.4 | 14.0 | 0.9 | 1.0 | 1.0 |
| Wood, cork, and fibre materials | 6.8 | 5.1 | 5.6 | 0.7 | 0.6 | 0.4 |
| Paper products | 22.1 | 15.3 | 19.1 | 3.4 | 3.4 | 2.2 |
| Publishing and printing | 5.2 | 2.9 | 3.3 | 1.0 | 0.5 | 0.3 |
| Oil refining | 3.0 | 2.3 | 14.4 | 1.1 | 1.4 | 4.4 |
| Chemical substances and products | 25.6 | 29.3 | 36.9 | 16.8 | 30.4 | 20.1 |
| Rubber and plastic | 14.1 | 14.9 | 20.0 | 3.6 | 4.7 | 3.5 |
| Non-metallic minerals | 11.2 | 10.1 | 12.1 | 1.3 | 1.3 | 1.1 |
| Base metals | 19.8 | 13.3 | 20.4 | 4.1 | 4.6 | 5.5 |
| Products made from metal | 19.3 | 14.4 | 19.2 | 3.4 | 2.5 | 2.5 |
| Machinery and equipment | 45.8 | 38.8 | 46.8 | 14.9 | 13.6 | 13.9 |
| Office machinery | 93.8 | 92.9 | 97.4 | 4.2 | 3.9 | 3.3 |
| Electrical machinery and appliances | 49.5 | 48.5 | 54.6 | 6.2 | 4.0 | 4.8 |
| Radio, TV and communications equipment | 58.3 | 80.2 | 90.3 | 6.8 | 3.8 | 7.8 |
| Medical, optical and precision instruments | 64.8 | 71.8 | 77.6 | 2.6 | 2.7 | 2.4 |
| Motor vehicles | 40.7 | 38.2 | 49.8 | 17.8 | 12.5 | 17.4 |
| Other transport equipment | 46.0 | 81.0 | 90.3 | 2.3 | 1.4 | 3.3 |
| Furniture and other manufacturing industries | 11.6 | 18.9 | 26.4 | 1.9 | 1.4 | 1.6 |
| <i>Manufacturing industry</i> | <i>19.3</i> | <i>16.5</i> | <i>26.4</i> | <i>100.0</i> | <i>100.0</i> | <i>100.0</i> |

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina.

and petroleum products). In contrast, imports of chemical products, food and beverages, textiles, wood and paper products, rubber and plastic have all seen their shares decline. Comparing this with the situation in 1998 makes it possible to analyse changes in the sector composition of imports, isolated from the effects of the currency-board crisis. Increases basically occurred in imports of industrial and agricultural inputs, whereas imports of various metal-machinery and natural-resource-intensive products have declined.

As noted above, there was a substantial increase in industrial exports in 2003-2008. Both exports of agribusiness manufactures (MAO) and those of industrial origin (MIO) grew strongly at average rates of 19% and 23% respectively. Nonetheless, the industry trade balance deteriorated steadily during the recent period. Although the MAO trade balance tripled between 2002 and 2008, basically driven by exports of soya flour and soybean oil, this has been more than offset by a decline

in the balance of MIOs. From 2003 to 2008, MIO imports quadrupled from US\$ 12 billion to US\$ 48 billion. Consequently, the MIO trade balance in 2008 reached a level of US\$ 26 million, thus outweighing the MAO surplus and accentuating the deficit of manufacturing industry as a whole (see table 12).

The deficit is widespread: nine out of every 10 MIO subsectors, classified according to the International Standard Industry Classification of all Economic Activities (ISIC) at the four-digit level, posted negative trade balances in 2008. Nonetheless, most of the deficit is explained by a few sectors (see table 13).

Significantly, in 2008, more than a quarter of the MIO deficit is explained by trade in machinery and equipment and electric materials. The dismantling of the machinery and equipment producing sector—a direct legacy of neoliberal policies—resulted in forced growth of capital goods imports, as a result of the rising rates of investment experienced by the economy over the

TABLE 12

MAO and MIO trade balance
(Millions of dollars at current prices)

| | 1993 | 1998 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-------------------|---------|---------|-------|--------|---------|---------|---------|---------|---------|
| MAO exports | 4 930 | 8 761 | 8 138 | 9 938 | 11 926 | 13 141 | 15 244 | 19 187 | 23 803 |
| MAO imports | 840 | 1 389 | 395 | 539 | 648 | 715 | 812 | 1 065 | 1 296 |
| MAO trade balance | 4 089 | 7 372 | 7 743 | 9 399 | 11 279 | 12 426 | 14 432 | 18 122 | 22 507 |
| MIO exports | 3 678 | 8 624 | 7 601 | 7 675 | 9 616 | 11 985 | 14 826 | 17 321 | 21 970 |
| MIO imports | 15 024 | 28 240 | 7 683 | 12 103 | 19 979 | 25 392 | 30 395 | 38 990 | 48 654 |
| MIO trade balance | -11 346 | -19 616 | -82 | -4 429 | -10 363 | -13 407 | -15 569 | -21 669 | -26 684 |

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina.

MIO: Manufactures of industrial origin.

MAO: Manufactures of agribusiness origin.

TABLE 13

Industrial trade balance, 1993-2008
(Millions of dollars at current prices)

| Year | Electrical machinery and materials | Electronic and household appliances | Chemicals | Motor vehicles | Other metal-machinery | Textiles, clothing and footwear | Oil refining | Food and beverages | Rest |
|------|------------------------------------|-------------------------------------|-----------|----------------|-----------------------|---------------------------------|--------------|--------------------|--------|
| 1993 | -2 627 | -2 357 | -1 676 | -1 506 | -1 218 | -503 | 475 | 3 827 | -808 |
| 1998 | -5 171 | -3 520 | -3 175 | -2 067 | -2 171 | -786 | 398 | 7 091 | -1 821 |
| 2003 | -1 482 | -1 023 | -1 574 | -41 | -427 | -196 | 2 101 | 8 859 | 1 352 |
| 2004 | -2 740 | -2 499 | -2 051 | -989 | -1 247 | -343 | 2 624 | 10 455 | 820 |
| 2005 | -3 536 | -3 524 | -2 314 | -1 317 | -1 558 | -503 | 2 708 | 11 559 | 659 |
| 2006 | -4 337 | -4 166 | -2 667 | -1 367 | -1 718 | -636 | 2 932 | 13 800 | 750 |
| 2007 | -5 872 | -4 901 | -4 246 | -1 701 | -2 444 | -864 | 2 349 | 17 107 | -146 |
| 2008 | -7 092 | -5 200 | -4 820 | -2 939 | -3 075 | -1 181 | 1 479 | 21 620 | -951 |

Source: Prepared by the authors on the basis of data from the National Institute of Statistics and Censuses (INDEC) of Argentina.

last few years. Currently, 60% of investment in durable equipment corresponds to imported goods.¹¹

In second place are electronic and household appliances, which respond directly to the growth of the consumption of durable products. Here also, imports are significant, in the form of cellular phones, computers, air-conditioning units and other similar goods not produced in the country, or which are only assembled locally from imported components. In 2008, the trade deficit in these products amounted to US\$ 5.2 billion, 50% above the maximum level of the 1990s. The third group is chemical products, with a value that reached US\$ 4.8 billion in 2008. This group in turn consists of basic chemicals, agro-chemicals and pharmaceutical products. Another US\$ 3 billion of the deficit is accounted for by the automotive sector. Although trade is managed in this sector, it is in deficit because automobile production continues largely to depend on imported parts and spares (of which about 45% came from Brazil in 2008).

In 2008, the four groups jointly accounted for a trade gap of US\$ 20 billion, which explains the bulk of the MIO deficit.

As discussed in the literature, the regressive restructuring that occurred in the 1990s forced firms to adopt defensive practices, which included, among other things, increasingly obtaining supply and production from abroad (Porta, 1996; Bisang and others, 1996). The incorporation of imported inputs, and even finished goods to supplement local supply, was a widespread response by local business to pressure from trade liberalization and

currency revaluation.¹² Thus, and in line with the data discussed above, it can be stated that despite the various changes caused by the abandonment of the currency-board system, the openness of the supply and production function does not seem to have changed greatly.

The industrial trade gap—and particularly the MIO deficit—is therefore due to the entry of a large number of final products for which there is little or no local production (such as cellphones, computers, and a large number of capital goods), intermediate inputs in activity sectors that were vertically broken up in the previous liberalization process (vehicle parts and spares, pharminochemicals, for example), and final consumption goods that supplement local supply (typically textiles and certain metal-machinery products). In other words, most of the trade deficit reflects the existence of “empty cells” in the productive structure inherited from the structural adjustment period.

It is significant that, in the period analysed, and unlike so many other experiences in the past, the industrial trade deficit has not resulted in a “traditional” balance of payments crisis. Nonetheless, this outcome seems to have been significantly affected by the unusual improvement in the terms of trade, which enabled the country to run a large overall trade surplus, sufficient even to meet external debt payments. In other words, the widely discussed failings of Argentina’s industrial structure, although clearly inherited from the past, remained concealed—and their effects probably postponed—by the external boom; and no decisive attempt was made to solve them in the recent period.

¹¹ This is a historically high value, comparable only to levels recorded by Argentina in the early twentieth century. Until the mid-1970s, and even for the most of the 1980s, only 10% of equipment was imported. The proportion grew to one quarter while the Martínez de Hoz *tablita* exchange-rate policy was in force, and exceeded 50% in the 1990s.

¹² This feature was exacerbated in the case of TNC, which normally show a higher propensity to import (Chudnovsky and López, 2001), replacing local suppliers by global agents as a result of choices made by their parent companies.

V

Conclusions and final comments

Between mid-2002 and late 2008, Argentine industry enjoyed an exceptional growth period. Although the start of this process was influenced by the deep recession from which it started, the recovery quickly turned into a sustained growth process that lasted until the international crisis made itself felt. As noted above, the various phases of this process represented both breaks and continuities compared to the patterns seen in recent decades, particularly the 1990s.

In the first place, the growth in these years displayed a new bias in terms of the sectors leading the upswing. Unlike what had happened in the last quarter of the twentieth century, this time the protagonists were not sectors linked to natural resources, particularly food and beverages, and capital-intensive sectors. The industrial “primarization” process seems to have been halted, at least temporarily, in 2002; after which more engineering- and labour-intensive sectors gained momentum. In other words, the contribution made to industrial growth by sectors such as iron and steel, petrochemicals, or oil, although very important, as a whole was less in those years than that of engineering- and labour-intensive activities, such as the production of agricultural machinery, medical instruments, electrical materials, equipment for compressed natural gas (CNG), textiles, plastics and clothing, among others.

Secondly, this turning point in the pattern of industrial growth had a direct correlation in employment. For the first time in 30 years, industry created jobs again, making a substantial contribution to reducing the unemployment that prevailed in the period. This break was closely related to the change in the sector bias of industrial expansion. In addition, real wages trended steadily upwards, rapidly surpassing their pre-crisis levels and breaking with the traditional wage freeze and establishment of a new floor that had been a feature of real-wage reduction episodes in the past.

Thirdly, the expansion of industry in these years was based on balanced growth of the domestic market

and exports, with the latter’s greater dynamism making it possible to continue increasing the industrial export coefficient. Despite the emergence of a new group of medium-sized national firms exporting more complex products, it proved impossible to alter the country’s profile of international participation, which is overly reliant on sales of agricultural and industrial commodities.

Fourthly, the new macroeconomic framework (often referred to as a competitive exchange rate) does not seem to have been effective in preventing a massive inflow of industrial imports, which steadily increased their share of the domestic market in nearly all sectors. Accordingly, the period analysed does not seem to have experienced a deep and sustained import-substitution process. On the contrary, the rapid increase of industrial imports generated a growing MIO trade deficit, particularly concentrated in capital goods, consumer durables (mainly electronic products) and intermediate inputs. Although this trade gap reached levels that even exceeded the previous highs of the post currency-board period, it did not cause balance of payments difficulties because it could be financed by the growing trade surplus achieved by agricultural manufactures.

In short, the new regime promoted rapid growth of production and industrial employment, and a recovery in the productive framework and expansion of industry into external markets; but it proved inadequate in terms of restoring linkages and recovering lost production lines—starting a gradual process of import substitution—and moving the country’s international participation towards higher-value-added products.

The recent experience of Argentine industry should help to explain the benefits and limitations of the new macroeconomic framework, highlighting the need for the change in macroeconomic policy to be supported by a far-reaching reconsideration of the industrial policy framework. This is essential if the aim is to make progress on the key problems that hamper industrial development in Argentina.

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