

Understanding Productivity Levels, Growth and Dispersion in Argentina: The Case of Supermarkets

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1. Introduction

The object of this paper is to shed light on the contribution of resource allocation (or misallocation) to productivity in the Argentine supermarket sector. The analysis focuses on the past ten years.

Special interest is placed on analyzing whether there exist government and market failures that hinder reallocation of resources towards the most efficient firms, and that impede equating revenue productivity across firms.

More specifically, we care about the impact of labor regulations, the tax burden and discretionary government intervention in goods markets (like price controls at the retail and supplier levels) on the competitiveness of formal and more productive supermarkets, vis-à-vis informal and less productive outlets, and how this prevents the former from gaining market share and contributing to bigger sectoral productivity through this channel. We are also interested in the changes in allocation between formal and productive supermarkets of different sizes that are caused by the different wedges.

We also care about the possible constraints for the expansion of the more productive supermarkets caused by concentration of suppliers and problems of access to credit and skills that hurt them differently than what they may hurt the less productive outlets. In this vein, we are also concerned on the effects of relative access to credit on technology choices by different actors.

We additionally consider the effect of changes in consumer preferences, and on how this affects the market share for the different types of outlets. The impact of the business cycle on consumers' habits and on policy distortions and market failures is also considered.

A point of further interest is the emergence of price-setting games between the different players, both formal and informal, which affect market shares directly through its impact on sales and also indirectly through the ability to self-finance the opening of new shops by the different firms in the market.

In terms of productivity growth decomposition analysis, we are interested in the *between* effect and not so much about the *within* effect. We will however introduce some background analysis of the latter. As pointed out by Hopenhayn and Neumeyer (2008), it is also important to consider the effect that distortions may have on technology choices and the distribution of productivity.

We also want to elucidate whether the reallocation occurs in the form of entry and exit or in the form of M&A and of opening of new shops by the more productive firms.

The supermarket sector in Argentina experienced a large boom in terms of modernization, productivity improvements, FDI inflows, mergers and acquisition and growing formalization during the 1990s, although there was also important technological and managerial modernization during the 1980s. In 1998 the “modern channel” (the more productive firms) accounted for 50% of all supermarket sales. The modern channel includes supermarket chains of different sizes that are formal and incorporate technology and standardized administrative and logistic processes. The recession that took place from 1999 until the collapse in 2002 reversed this trend. By 2002 the more productive supermarkets accounted for only 30% of total sales, and they currently capture between 35 and 40% of the market. At that time large formal chains lost share to small formal chains within the modern channel. As a whole the modern channel lost market share mostly to informal and relatively unproductive supermarkets, most of them owned and operated by Chinese immigrants. Based on the estimated productivity differentials between the modern channel firms and the rest, a back of the envelope calculation shows that if the market share of the modern channel were to grow up to 70%, then sectoral productivity could rise by up to 20%.

We conduct this analysis both by looking at the scant figures on the pattern of allocation of resources and sales within this sector and some rough productivity proxies and, more importantly, by undertaking a case study analysis based on interviews to relevant actors. For this draft we have interviewed the CEOs or CFOs of the four largest modern supermarket chains (which account for 81% of all sales in the modern channel, or 28-32% of all sales), of a regional chain (that accounts for a further 5% of the modern channel), of one city-specific chain (from the City of Córdoba), of three small supermarket chains in the Greater Buenos Aires area, the authorities of the supermarket business chambers of Argentina and of Córdoba. We conduct structured interviews in the manner of Javorcik, Keller and Tybout (2006).

Section 2 provides a macroeconomic and policy background. Section 3 presents the stylized facts and the industrial organization of the supermarket sector in Argentina. Section 4 analyzes the different government and market failures that affect resource allocation and productivity in this sector in Argentina. Section 5 discusses the modes of competition and business strategies of the different actors in the sector. Section 6

presents the impact of foreign sectors on this sector. Section 7 appraises the maturity of the industry. Section 8 analyzes the entry and exit patterns. Section 9 quantifies the competitive advantage obtained through lack of compliance with output and labor taxes and regulations by informal firms, and provides back-of-the-envelope calculations of the productivity gains that would accrue from increases in compliance with taxes and regulations. Section 10 introduces a discussion on the types of technology being operated and on whether distortions affect productivity through production techniques, scale, or technology choices; particularly whether they segment the sector into modern and traditional sub-sectors. Section 11 concludes. Appendix 1 describes the design and implementation of the methodology and questionnaire employed in the case study analysis.

2. Macroeconomic and policy background and evolution of the supermarket sector in Argentina

In this section we provide a sketchy macroeconomic and policy background. Foreign “modern” supermarkets like Carrefour and Jumbo Retail (Chilean group Cencosud) entered Argentina in the early 1980s. Those were times of great macroeconomic instability, closure to international trade and financial flows, and big government intervention in the economy. At that time there existed a host of local supermarket chains that were trying to keep change with technological innovations observed abroad, but the entry of Carrefour accelerated this process.

During the 1990s there was macroeconomic stabilization and openness to trade and capital flows, together with a favourable environment for FDI. During this period rules prevailed over discretion. This was a period of fast growth and price stability until 1998. This period witnessed the entry of a large number of foreign players in the supermarket sector (Royal Ahold, Casino, Walmart, etc.), which contributed to modernizing the sector and improving productivity, especially through bigger competition. Local supermarket chains like Norte (which was the leading firm in the sector at the time) were also undertaking important innovations.

Things changed for the worse when Brazil and other developing countries devalued after 1998, while Argentina kept its exchange rate fixed. Additionally capitals started flowing out of emerging markets. Argentina started to experience a combination of fiscal unsustainability, loss of competitiveness and monetary contraction that

eventually led to the collapse of the convertibility regime in 2001-2002. Aggregate GDP fell 20% between 1998 and 2002 (11% in 2002), and per capita GDP declined by 27%.

In 2002 a huge devaluation (260% vis-à-vis the US dollar) occurred in order to facilitate the required current account reversal (8% GDP), restore competitiveness and public and private savings, and to melt down public spending and private debts. There ensued a period of increasingly discretionary policies and government intervention in the goods and factors' markets, which includes bigger and more discretionary taxes, price controls for many goods and public utilities, compensating subsidies to suppliers of many of these goods and services, quantitative restrictions on exports and imports, meddling with the official inflation statistics, government intervention in wage setting, and so on. Government intervention was especially heavy in the food sector.

Despite all these rising distortions the economy grew very fast until 2007 (around 8% per year on average between 2003 and 2007), helped by the initially large output gap, the boost to savings and investment promoted by the devaluation and public debt restructuring of 2005 and the rise in the terms-of-trade, world growth, and very expansionary fiscal and monetary policies. Since 2006 inflationary pressures started to mount and the economy began to operate above potential GDP. Since mid-2008 the economy had started to adjust to the natural level of production through a monetary contraction and real exchange rate appreciation. The international financial crisis that exacerbated in September 2008, fiscal sustainability concerns and some bigger discretionary government interventions that have deteriorated severely the business climate have fostered capital outflows, reduced domestic and external demand and consumers' confidence, bringing the economy close to a sudden stop.

Between 2001 and 2007 the overall tax burden rose from 24% GDP to 34% GDP, aided by the introduction of new distortionary taxes on exports and on financial transactions (4% GDP), and by bigger tax burden across the board. This tax burden has been concentrated on a relatively small number of formal firms in the economy.

Large modern supermarket chains did not expand between 2002 and 2005. Only since 2006 did some of them start to open new shops. During 2002-2004 the smaller formal chains gained market share vis-à-vis the large chains within the modern channel. The 2002-2006 period witnessed a fast expansion in the number of informal outlets (mostly "Chinese") and the passing to informality of small outlets operating in the traditional channel. Since 2007 the modern channel started to partially recover its market share vis-à-vis the other channels, while the large chains gained share vis-à-vis

the small chains within the modern channel. During this period no new foreign chains entered the market. There was rather a bigger concentration through acquisitions within the modern channel.

Labor market informality has risen from 48% of the labour force in 1992 to 50% in 1997, 57% in 2003, and then reverted to 53% in 2006. Government measures taken after 2002, such as doubling severance payments, temporarily banning firings, and raising taxes have contributed to this outcome.

Financial constraints have exacerbated since 2002. In 2002 banking credit to the non-financial private sector amounted to 23% GDP while it currently represents only 12% GDP (and half of it finances consumption, while in 2001 only 20% of these credits financed consumption). Sánchez and Butler (2008), estimate that financial constraints have become tighter since 2002 (especially for SMEs). The abnormally large cash flows of firms permitted the self-financing of investment by the large modern chains. This possibility has been curtailed since mid-2008 with the observed decline in profits. Small modern chains had to rely on both internal and external finance, and are currently very constrained.

3. Stylized facts and industrial organization of the supermarket sector

There are three types of actors in the sector: the modern channel (supermarket chains with shops with surfaces above 500 m², with very low informality, modern technologies with scale economies and standardized managerial and logistic processes), the self-service channel (Chinese supermarkets and independent supermarkets) and the traditional channel (mom and pop shops). The modern channel firms can be distinguished according to their sizes (number of shops and shop size); whether they operate with up-to-date technologies and exploit large scale economies via distribution centers or good but not top technologies with lower returns to scale; their bargaining powers with suppliers and financial institutions; the types of services offered to customers; their regional coverage; their business strategies and target market; and on whether they are nationally or foreign owned.

Our interviewees point out that in 2008 the market share distribution is as follows:

- Modern channel: 35-40%
- Self-service channel: 30-35%

- Chinese: 25-30%
- Independent: 5%
- Traditional channel: 30%

This distribution stands in contrast to 1998, when the modern channel represented 50% of total sales, and the Chinese supermarkets had almost nil participation.

Shops differ by size (hypermarkets with more than 4,000 m², supermarkets of 500-4,000 m², and smaller surfaces, including convenience stores), by items sold (food, non-food), and by location and ease of access (edge-of-town/out-of-town versus highstreet/neighbourhood). The most rapidly growing format is the one with 500-1,500 m² in central areas. This trend appears to be driven in large part by changes in consumer preferences and the competition of the informal self-services. The main players in the modern channel, presented in alphabetical order, are: Carrefour (French-owned), Casino (French-owned), Coto (national), Jumbo Retail (Chilean-owned), La Anónima (national) and WalMart (US-owned).

The participation of different chains in the sales of the modern channel in 2008 is as follows (we preserve their identities):

Group	Market share
Chain 1 (foreign)	26%
Chain 2 (foreign)	20%
Chain 3 (national)	18%
Chain 4 (foreign)	12%
Chain 5 (national)	7%
Chain 6 (foreign)	5%
Regional and small chains	12%

Hence the four largest chains control 76% of the modern channel, and the six largest have 88% of the market share for this channel.

These chains differ in their core businesses. Chains 1, 2, 3 and 6 all operate hypermarkets (which sell food and non-food), and some of them also operate supermarkets and even convenience stores. Some of them operate only one type of store, while others, like Chain 2, operate different stores. Most of them have their own distribution centers. The regional and small chains generally operate small surface shops and very few of them have distribution centres.

Carrefour and Jumbo Retail entered the Argentine market in 1982. In the 1990s there entered international groups such as WalMart, Casino, Auchan and Royal Ahold,

among others. Some of them opened new chains and shops, while others acquired previously existing local firms. For instance Carrefour initially installed its own shops, but recently bought Supermercados Norte, a relatively large local chain which was the leading chain during the 1980s and 1990s. Another example is given by Supermercados Disco, which before being acquired by Jumbo Retail had grown a lot by purchasing 8 other chains in different regions (some of these chains in turn had previously bought other firms), and in turn had been bought by Royal Ahold. WalMart also bought the Auchan shops. And so on.

There thus appears to have been some concentration in the modern channel, together with a loss of market share relative to the other channels. This concentration is also being caused by the recent gain of market share of large modern chains (through the opening of new shops) vis-à-vis the small modern chains, which compete for similar market niches.

The traditional channel and the self-service channel are populated by one-shop firms which are mostly informal and operate unsophisticated constant returns to scale technologies, and that lack standardized managerial and logistic procedures. The majority of the Chinese firms forms an informal chain, and is suspected to be actually owned by a few (mainland) Chinese diplomats. There are also a few independent firms that are mostly of Taiwanese origin. This channel also includes small domestic supermarkets that have varying degrees of informality.

The productivities differ significantly across the different channels. Ideally we would like to compute TFP levels but there is not enough information, neither at the firm nor at the industry level to do so. Commonly used (by supermarkets and the official statistics agency) measures of productivity include sales per m² (square meter) and sales per worker. These measures are available at some levels of aggregation and for certain periods both in nominal and real terms. The available data on sales per employee are not too informative for comparisons across types of firms, as the formal modern supermarkets include a significant number of employees that are not directly related to sales (such as customers' service).

Focusing on sales per m², the opinions of our interviewees from large modern chains are that productivity is between 1.5 and 2.7 times bigger in the modern channel than in the informal self-service channel, for comparable shops (surfaces and location). A crude back of the envelope calculation suggests that if the modern channel market share reached 70% (which one of the interviewees suggested as a reasonable benchmark

if the government fought informality), then this measure of productivity could rise between 15 and 37% (on a purely comparative statics basis). This simplistic calculation assumes that productivity is homogenous among the large chains in the modern channel (which account for 88% of the sales in this channel), which is not an unrealistic assumption.

More generally, productivity varies by type of shop (hypermarket, supermarket, convenience store) and by type of channel. The most commonly held view among our interviewees is that supermarkets (1000m²-4000m²) are the most productive surfaces, and that productivity comparisons between comparable surfaces are highly favourable for the modern channel relative to self-service and the traditional channel.

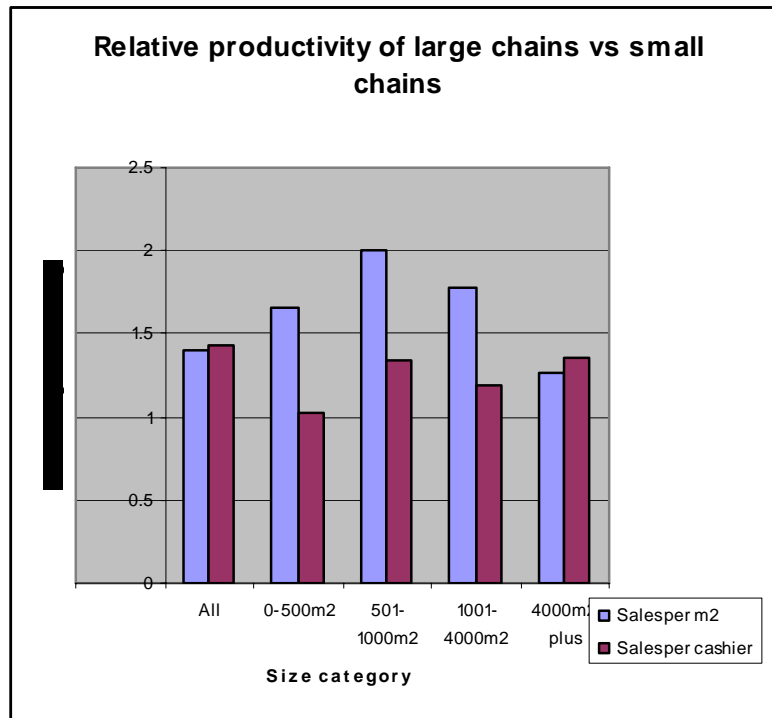
Our interviews reveal that within the modern channel there is some disparity in productivities depending on the chain sizes. Considering comparable surfaces (500-1,000 m²), sales per m² in good supermarkets of large chains fall in the range of AR\$2,500-3,500, while those of small chains fall in the AR\$ 2,000 – 2,300 per m² range. Hence large chains appear to have productivities between 1.25 and 1.5 times bigger than small chains. It should be recalled that large chains account for 88% of sales in the modern channel.

At this point we should note that our analysis is based on proxies for the physical productivity of inputs, but that the interviews reveal that, for purposes of measuring impact on welfare, physical productivity measures should be adjusted by units of service valued by consumers (proximity, customers' service, etc.), which goes beyond the scope of the present study.

We now present a depiction of the evolution of the industry in terms of types of shops and of productivities based on the scant official statistics that are publicly available. INDEC (the statistics office) last published a relatively detailed supermarket survey in 2004, which compares different indicators between 1999 and 2003. This survey collects data on 11 large chains (with sales exceeding AR\$ 20 millions per month) and 59 medium chains. For the purpose of our analysis the most interesting results are:

- Sales were concentrated in the larger shops (more than 1,000 m²) for the large chains.
- Sales were concentrated in the smaller shops (less than 1000 m²) for the medium chains.

- Sales (in nominal terms) per m² in 2003 were biggest in the shops in the 1001-4000 m² range.
- Sales (in nominal terms) per m² in 2003 were bigger in the large chains for any surface than in the medium chains.
- Comparing 2003 to 1999, the number of shops rose 37%, but the average size fell 11%. The smallest surface shops (less than 500m²) were the ones that grew the most.
- There was a switch in sales towards supermarkets of less than 1000 m² (which captured 18% of sales in 1999 and 24% in 2003), especially in the medium chains.
- The shops under 500 m² showed a rise in the number of operations per shop, while all the other formats showed a decline, especially in the medium chains.
- There was also a switch in sales from large chains to medium chains.
- Sales per employee were usually smaller for the large chains, save for the largest surfaces (above 4000 m²).
- Sales per employee rise with the shop size for the large chains. This may reflect the fact that most large chains have fixed personnel employed in customers' services. They also have bigger managerial staff.
- Sales per employee are quite similar across shop sizes for the medium chains (suggesting lower fixed costs).
- A perhaps more accurate measure of productivity per worker may be proxied by sales by cashier. Sales per cashier are especially bigger for the large chains, but especially so for the shops with surfaces bigger than 1000 m². Sales per cashier in 2003 were on average 43% bigger for the large chains.

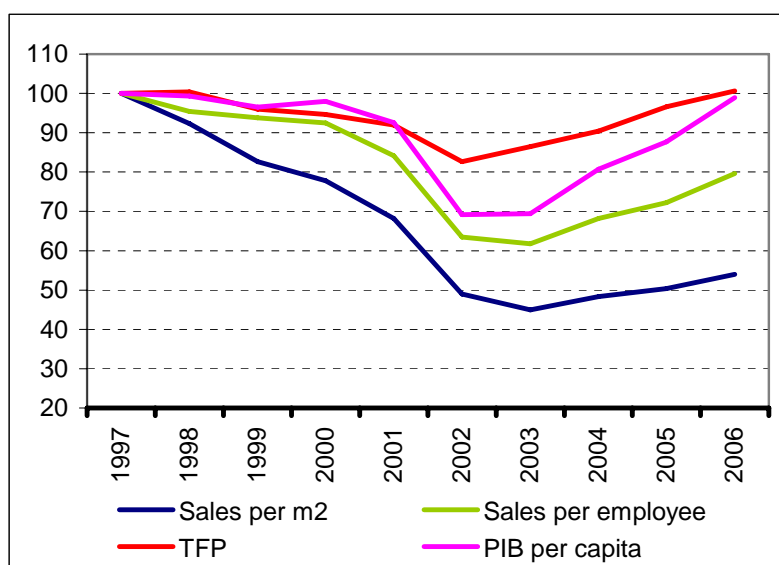


Hence sales per m² and per cashier are bigger for large chains for all shop sizes, but especially for those shops with surfaces above 500 m² in the case of sales per m².

Next we discuss the evolution of productivity over time for the supermarket sector as a whole and for different types of chains.

While the economy as a whole experienced large declines in TFP (-17%) and per capita GDP (-30%) between 1997 and 2002, productivity measures in the supermarket sector fell much more. Real sales per m² declined more than 50% between 1997 and 2002, while sales per employee fell close to 40% during that period. Additionally, while per capita GDP and TFP had recovered their 1997 levels by 2006, supermarket sales per m² and per employee experienced much milder recoveries. In 2006, sales per m² were still 48% lower than in 1997, while sales per employee were 20% smaller than at the onset.

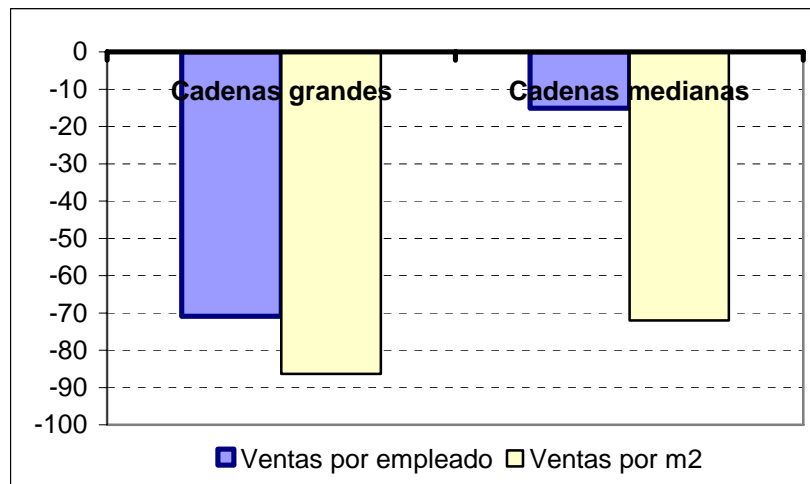
Base 1997=100
 Con inflación supermercados



The large chains experienced the bigger declines in total sales and sales per m2 and per employee during 1999-2003. This stylized fact would be consistent with a story of labor hoarding and/or bigger regulatory impediments to reduce employment by the larger firms. Indeed, our interviews reveal that during 2002-2004 there was a large switch in sales from large chains to small formal and informal chains and supermarkets, caused mostly by price differentials. This is consistent with the observed declines in sales for all chains, and with the relatively larger decline for large chains.

		Changes in real sales (1997 price) (%)		
		May 1999 - May 2003		
		All chains	Large chains	Medium chains
Total sales		-36,1	-37,2	-30,4
Sales per shop		-53,4	-49,2	-54,2
Sales per m2		-47,6	-49,0	-41,0
Sales per transaction		-41,3	-37,5	-46,6
Source: INDEC Supermarket Survey, 2004.				

Variación real 1999-2003



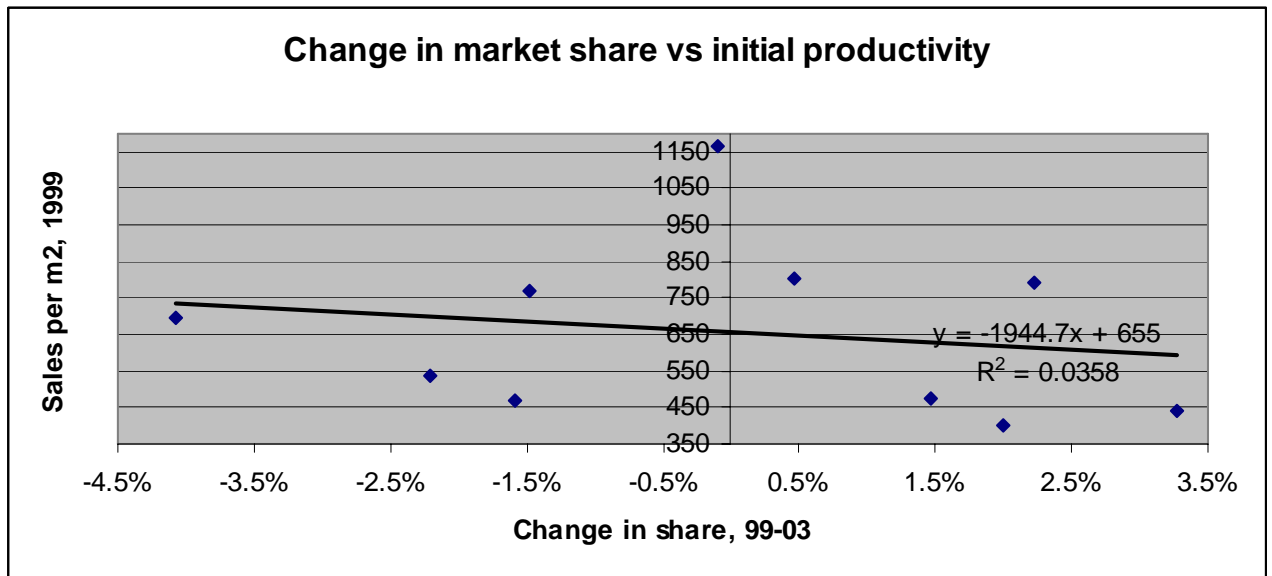
The observed decline in aggregate productivity in the supermarket sector is consistent with the changes in market shares within the modern channel and between the modern channel and the traditional and self-services channels occurred between 1998 and 2007 according to our interviews. The market share of the modern channel went from 50% in 1998 to 30% in 2002, and partially recovered to 35-40% in 2008). It is also consistent with the re-direction of sales occurred between 1999 and 2003 from large chains and large surfaces towards medium chains and small surfaces, which according to our interviews only started to revert since 2005-2006.

Category	Change in share 99-03	
	Large chains (1)	Medium chains (2)
All	-1.5%	1.5%
0-500m2	0.5%	3.3%
501-1000m2	-0.1%	2.0%
1001-4000m2	2.2%	-2.2%
4000m2 plus	-4.1%	-1.6%

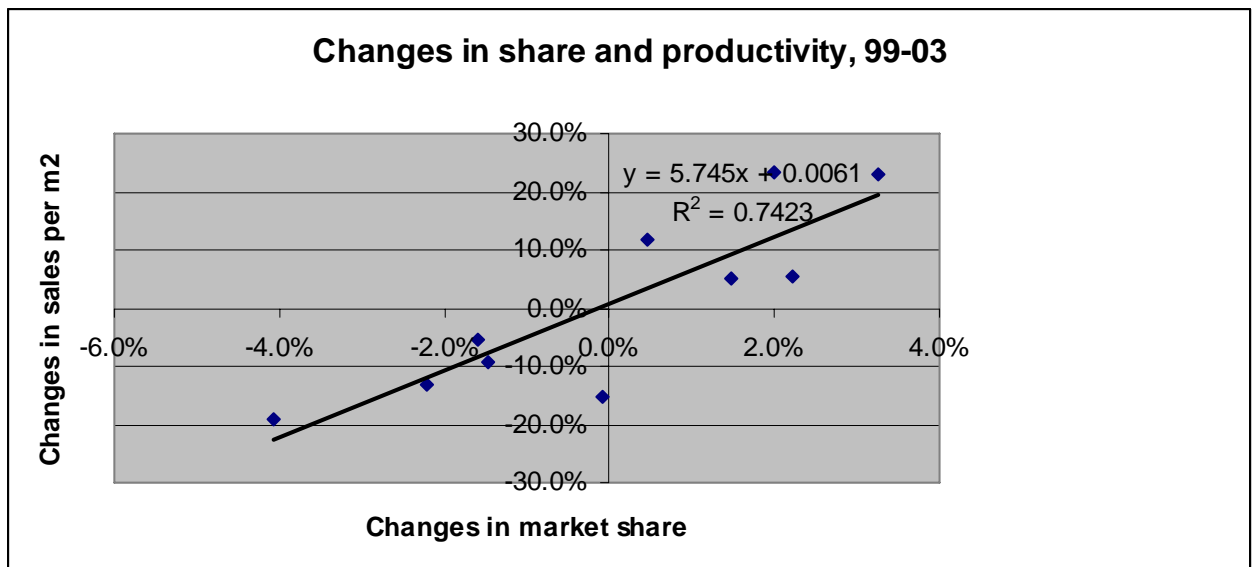
Category	Change in Number of shops, 99-03		
	Total	Large chains (1)	Medium chains (2)
All	37.1%	23.5%	52.1%
0-500m2	61.4%	20.7%	74.6%
501-1000m2	43.0%	34.6%	51.6%
1001-4000m2	12.7%	17.6%	-2.4%
4000m2 plus	15.7%	28.0%	-50.0%

The performance of simple OLS regressions of changes in initial market share on the initial productivities of the different types of shops (defined by size and chain)

shows that during 1999-2003 there appears to have been a reallocation away from the initially most productive.



On the other hand, those that gained market share during that period also experienced bigger productivity gains.



This suggests that in order to understand the changes in productivity we must definitely analyze the distortions that have caused a resource and sales reallocation from the modern channel to the other channels, especially the informal segment (which includes both the Chinese self-service and a growing number of traditional mom and pop shops and independent self-service shops), and from large chains to medium size chains and more recently back to the large chains. The Chinese supermarkets currently run between 3,500 and 4,000 highstreet/neighbourhood shops (of less than 500 m2) in the Greater Buenos Aires area alone. For the country as a whole they operate between

4,000 and 5,000 small surface shops (dwarfing the 1,485 formal shops registered in March 2007).

During the past three years, more aggressive pricing policies set by two of the leaders of the modern channel, that were accompanied by most of the modern channel as a whole, permitted recovering some of the market share lost to the informal chains and shops. This partial reversal was also helped by a bigger preference of consumers for 1st and 2nd brands and customer services associated to the recovery in aggregate and per capita income. The growth in the access to financing purchases in large supermarkets with credit cards (and the special discounts offered by the issuing banks) also favoured this trend. Finally, the steep rise in the cost of renting commercial locales between 2002 and 2007 also punished the informal chains, especially the Chinese.

4. Determinants of resource allocation and productivity in the supermarket sector

Aggregate productivity in the sector will be affected both by wedges that prevent the reallocation of resources towards more productive firms and wedges that prevent some less productive firms from investing in more productive technologies with bigger returns to scale. Our analysis suggests that the reallocation effect dominates.

Let us consider what drives resource allocation in the supermarkets sector. Reallocation with an effect on productivity can result from:

- Entry and exit of establishments of different productivity of a same firm.
- Entry and exit of chains
- Acquisition of less productive chains or shops by more productive chains
- Entry and exit of informal shops
- Demand shifts towards firms and establishments with different productivities, caused by price differential and/or changes in consumer preferences towards certain attributes (proximity, customers' services, etc.).

What determines productivity is a combination of scale (there exist scale economies) and technology (logistics, ITCs, just in time processes, etc.). Scale economies operate both at the shop (establishment) and firm levels. At the shop level because regulations make labour a quasi-fixed cost in the short run. At the firm level because the investment in distribution centers and in technology entails fixed costs that have to be amortized over a large number of establishments.

Regarding technology, an adequate management of logistics and just in time processes ensures less waste and product presence on the shelf (key for developing customers' loyalty). A better management of stocks also saves substantial financial cost on working capital. Bigger productivity also arises from the application of automatic processes by the modern channel, versus the manual processes of the informal self-service and traditional channels. There are recent technological developments that allow faster scanning of products at the cash register, which save substantial time.

The market share of different chains and shops will depend on their installed capacities and their actual sales.

The modern channel firms have two decision variables. In the short run they only decide on retail prices (and if they have enough market power they may also have a saying on the suppliers' prices) and product assortment. In the medium-run they also control the installed capacity, and the scale, technology and productivity of the shops. Changes in installed capacity may occur through opening new shops or acquiring pre-existing ones. Opening a new shop entails sizable sunk costs (particularly because Argentine labor laws, especially the firing costs, make formal employment in the sector a quasi-fixed factor). Operating distribution centers (that deliver to highstreet/neighbourhood shops) is another huge fixed cost that creates important scale economies at the firm level; this choice is available for firms that have a threshold number of establishments. Investing in technology is a significant fixed cost for the smaller chains. There are also the maintenance costs, ITC systems and equipment, security, cold storage capacities, and so on, which are fixed costs as well. In the medium run a firm can also re-brand shops when it operates different types of stores.

The choice of prices will depend on the competition from other formal and informal chains, producers' prices, bank financing of discounts to consumers, consumers' preferences, and the business cycle. Preferences will depend on prices and on factors such as brand recognition (of the store), proximity, and product on the shelf, and customers' service. There is the possibility that chains engage in predatory pricing in some locations to drive out of the market or acquire some smaller formal chain. There is also the possibility that major modern chains engage in oligopolistic competition over prices. Price controls would introduce important wedges and differential treatment by suppliers and banks.

The choice of installed capacity (number of shops) will be affected both by strategic considerations (capacity games) and by the size of the market that can be captured

(which is affected by the competition of the modern channel and by the degree of unfair competition from informal shops). Market failures such as credit market imperfections or producers' concentration may matter in this regard. Policy wedges such as limitations on the number of establishments that a same firm may open in a given district matter as well.

The choice of (per shop) scale will depend on consumers' preferences, availability of land, the productivity associated to each size, and regulations such as limits to shop surface in different districts.

The choice of technology will depend on access to technology, its costs, and the expected benefits (which will depend on market share and the firm size or number of establishments, as it is a sunk cost).

Choices are similar for large and small modern chains; although the latter may face bigger size or financial constraints that somewhat limit their choice sets.

Choices are simpler for self-services and the traditional channel, especially if they opt for informality. Entry and exit costs are very cheap for these firms, there are almost no sunk costs, and prices are set quite competitively. There is no investment in technology, training and so on.

The list of distortions that may affect allocation includes all the policies and market failures that may affect differently the formal and informal chains, and the formal firms of different sizes. The asymmetric effect of distortions and market failures on formal and informal firms would arise from lack of enforcement of laws and regulations and from the differences in required investments for each type of firm. The wedges between formal firms of different sizes would arise mostly from differential access to finance, bargaining power vis-à-vis suppliers and banks, and ability to engage in predatory pricing. Our research will reveal that wedges that favour informal firms are what matter the most for aggregate sectoral productivity. The discriminatory policy distortions that matter include:

- Tax burden and its predictability
- Payroll taxes and labor market regulations (firing costs, health and accident insurance, etc.).
- Price controls at the retail and producer levels.
- Limits on number of shops per chain and on shop size in certain districts
- Trade restrictions

The presence of important sunk costs makes modern chains more vulnerable to macroeconomic, financial and return expropriation risks. Other wedges that matter differently for large and small modern firms are the suppliers' concentration and the access to finance.

We analyze next the relevance of each of these distortions and market failures for reallocation and productivity. This analysis is based on interviews to the CEO or the CFO of:

- Carrefour (hypermarkets, supermarkets, convenience stores; food and non food; national market; one type of store; price setter; consumer target depends on location)
- Walmart (hypermarkets; edge-of-town/out-of-town; food and non food; national market; one type of store; price setter; consumer target depends on location)
- Jumbo Retail (hypermarkets, supermarkets and convenience stores; food and non food; three types of store: Jumbo hypermarkets, high end Disco supermarkets, middle end regional Veá supermarkets; national market; consumer target depends on location and type of store)
- Coto (hypermarkets, supermarkets and convenience stores; food; one type of store; concentrated in the Greater Buenos Aires area and some Santa Fe and Entre Ríos; leader in this area; consumer target depends on location)
- Casino (hypermarkets and soft discount supermarkets; food and non food; two types of stores: Libertad hypermarkets and Leader Price supermarkets; regional markets, Northwest, for hypermarkets, Greater Buenos Aires for supermarkets; consumer target depends on location and store).
- Grupo Dinosaurio (supermarkets coupled with shopping malls; food and some non food; one type of store; concentrated in the city of Córdoba; high end consumers)
- Supermercados La Genovesa (small chain that operates three supermarkets in southern neighbourhoods of the City of Buenos Aires and the Great Buenos Aires area; food; one type of store; small surfaces; medium to high end consumers in their area of influence)
- Supermercados Josimar (small chain that operates eight supermarkets, mostly small, in the southern Great Buenos Aires area; one type of store; small to medium size surfaces; medium to high end consumers in their area of influence)

- Supermercados Nene (small chain that operates three small supermarkets in the city of La Plata in the Province of Buenos Aires; medium to high end consumers in their area of influence).

We also interviewed the presidents of the Asociación de Supermercadistas Unidos de Argentina, of the Supermarkets Association of the Province of Córdoba. We are in the process of getting access to an interview with the Chamber of Chinese Supermarket owners.

The design and implementation of the methodology and the questionnaire employed are presented in the Annex.

4.1. Labour costs and the impact of labour market regulations

The incidence of labour costs in the modern channel relative to net sales (net of value added taxes) is between 10% and 11% for the large chains and between 12 and 15% for the small chains. Labour costs additionally represent between 40 and 55% of total costs for the different shops and chains.²

Labour costs have lower incidence the bigger the chain is, and the fewer customer services it offers. These costs have become increasingly bigger with the recent increases in payroll taxes and other non-wage labor costs.

One of the interviewed large chains for which labour costs currently represent 10% of net sales has indicated that the incidence in “normal” times should be 8%. It is currently significantly higher because of the extraordinary increase in labour costs in recent times. It is considered by some of the interviewed chains that in order to open new supermarket shops, the labor costs directly associated to the new shop should not exceed 9% of net sales (unless the new shops offer some additional services that generate an extra source of profits). Due to the recent rise in labor and tax costs small chains are cutting down on services offered to customers (phone purchases, delivery, etc.), or making them more expensive (one of the reasons for doing so is that the labor union forces them to make extra payments to drivers that do the delivery).³ The large chains are also moving in this direction; some of them are doing it by re-labeling shops.

Some of the interviewees indicate that a 50-55% incidence of labour costs on total costs is in line with the norm for countries in the region. In rich countries labor costs

² Some interviewees claimed that the incidence of labor costs for large chains is actually larger, as they do not report the large proportion of employment that they outsource.

³ In 2009, even without increasing wages, labour costs will go up 15% because of the postponement of payroll taxes set in the last wage agreement. This labour cost hike contrasts to the expected sales growth, which do not exceed 15% for that year.

represent only 30% of total costs. What this suggests is that total costs for modern channel firms appear to be high relative to relevant benchmarks.

The typical labor costs include wages, payroll taxes (37% of wages), provisions for firing costs (which amount to one month of wages for each year worked), insurance against on-the-job accidents and diseases, and so on. Non-wage labour costs for firms in the modern channel are deemed to raise total labour costs by 70% over the wage cost.

On the other hand in a typical informal self-service shop, like the Chinese, labour costs are 80% of total costs, but they represent only 4-6% of net sales. This is because these outlets not pay payroll taxes and other non-wage labour costs, and also benefit from paying informal market wages. Some claim that in some cases the Chinese appeal to “slave” labour, as in the case of the Chinese. Others claim that the Chinese have all their staff registered as part-time personnel, which saves substantially on labour costs. This suggests that these stores have very low costs relative to net sales and that most of these costs are labour costs.

Hence informal chains and shops have a very important cost advantage relative to the modern channel in terms of labour costs. For starters they save 70% of non-wage labor costs over wages, and they additionally pay lower informal wages. The large chains are the ones that complain the most about the unfair competition of the informal firms, possibly because one of their line of business is to compete for the same market target as the informal (lower income customers in suburban areas). Small modern chains are actually more worried about the competition of large chains (we discuss this below).

Wages in the modern channel are set through bargaining with the commerce labour union, which has strong backing from the government. Wage agreements involve higher wages for the larger and more visible firms in the modern channel. Wages for these firms are 20% higher than the wages (salarios básicos) agreed for the sector as a whole with the commerce labour union, which are applied to the smaller formal supermarkets and to the formal self-service shops, because of the extra compensation they must pay for their extended hours and days.

Personnel employed in logistics and distribution has been forced to affiliate to the teamster labour union, which demands wages that are 40-50% higher than those of other supermarket workers. The incidence on total costs of the higher wages in logistics depends very much on the extent to which the supermarkets rely on distribution centers and highstreet/neighbourhood shops. This discrimination has occurred only in Buenos Aires, but it is now extending towards Córdoba. Since this is the trend imposed by

consumer preferences, this wedge is likely to become increasingly important over time. Distributions centers are also needed if supermarkets want to deal directly with suppliers and skip distributors, whose intermediation may raise the suppliers' price up to 20%.

Large modern channel chains are also subject to additional labour cost hikes. For instance, work on Sundays has to be paid as overtime work. This meant that while the last agreed wage hike was 19%, actual wage costs for some of the chains rose 25%.

Supermarket chains with wide regional coverage additionally have to pay hardship compensations for work in some regions like Ushuaia (80% compensation over agreed wage). The problem is that many regions demand this type of hardship compensation (up to 80%) when there is no actual hardship involved. This sizably increases costs for supermarkets with wide regional coverage.

For these reasons the operating costs of some of the multinational chains are significantly bigger (6% or more) than in other comparable countries in the region, calling for bigger margins and prices.

Labour costs for the modern channel firms have become a sunk cost. Firms decide on whether to open a shop and on its size based on expected sales, which in turn determine the optimal employment per shop, which does not vary with the actual sales levels. Chains may want to modify to some extent the employment levels as sales deviate from expected levels, but once these personnel have been hired it becomes very difficult to fire, turning labour into a quasi-fixed factor of production. What is more, firms do not have much control over wages. At the time of writing this draft Congress in the Province of Santa Fe has banned firings; there are also discussions of tripling severance payments in the country as a whole. One of the interviewed firms runs a "category killer" store (specialized in certain non-food items), and was recently forced to reverse its layoffs of a relatively large number of workers induced by the current economic downturn. These sunk costs generate a large cost of exit for formal shops.

The incidence of these sunk costs is much bigger for hypermarkets. For instance, one of the interviewed chains has supermarkets of 1,000 m² where they employ 45 people, and hypermarkets where they employ 250 people. When sales drop because of a downturn, the fixed labour costs are harder to bear for hypermarkets. This is especially so because hypermarkets have a bigger participation of non-food items, which are superior goods and make sales highly pro-cyclical (non-food sales of these hypermarkets fell 20% y-o-y in the third quarter of 2008 for one of the large chains we

interviewed; in December 2008 non-food sales fell 7.8% y-o-y, while food sales fell 2.3% for this chain).

The situation of the informal self-service chains and shops, like the Chinese, is significantly different in this regard. In the interviews some indicated to us that Chinese supermarkets usually bring in 12 Chinese workers from China, who are paid minimum informal wages, sleep in the shop, stay for 2 years and then go back to China. Then they bring in a new set of workers from there. According to many interviewees, the savings in labour costs from informality is enough to make the Chinese competitive and more than compensate their lower productivities. The other savings (compliance with norms, other taxes, no financial dependence, etc.) further enhance their competitiveness.

The Chinese and the other informal firms do not face any sunk or fixed labour costs associated to employment. They can hire and fire at will.

Hence there is a sizable labor wedge arising from non-compliance by the traditional and self-service channels.

4.2. Other fixed costs

The largest fixed (and sunk) cost is given by distribution centers and transportation capacity. These are important costs to consider, given the current trend of preferences towards highstreet/neighbourhood shops. Most of the investments in distribution centers by the major chains were done in the 1990s, or acquired through their purchases of pre-existing chains. Some of them consider that nowadays it is unthinkable to undertake such investments because of the low margins that are forced by the unfair competition of the informal shops and chains. Others do not agree, as some small chains have opened their own distribution centers. As discussed above, distribution centers are a must if the firm wants to buy the merchandise directly from producers/suppliers and save the 20% incremental cost that involves buying from distributors.

One interviewee considered that in order to amortize the fixed costs associated to a distribution center, it must be used to ship goods to at least 70 shops. This chain claims that if sales were to fall 30% relative to the current level, then they would not be able to amortize this fixed cost. It must be highlighted that if this were to happen, part of the bigger unit costs would be passed through to suppliers, who benefit from the lower transportation costs caused by the distribution center. On the other hand, there are small chains that have less than 10 shops and still have their own distribution centers. We have not inquired as to whether there are significant differences in technology and/or scale economies between the distribution centers run by large and small chains. The

small chains consider that a distribution center is a fixed cost that self-finances with the bigger margins obtained by bypassing distributors. It must be highlighted that running a distribution center sets determines the degree of technological sophistication and scale economies in the modern channel.

Other fixed costs are related to costs of maintenance, security, hygiene, and technological improvements. The fixed costs of security are more significant for small chains that are frequently victims of armed robberies. Investment in technology is another significant fixed cost for small chains: in order to amortize investing in SAP software specialized in retail a chain must run at least 15 shops.

Some large chains aver that these fixed costs imply that in order to open a new shop, the minimum sales should be AR\$ 1,500 per m², or U\$S 450 (typical sales in the US amount to U\$S 500 per m²).

The Chinese and other informal shops and chains almost don't have fixed costs. They can vary much more the employment level and energy utilization when sales change. They don't face costs of maintenance, security, hygiene, and technological improvements, and they do not have distribution centers either. While they have to bear part of the larger cost of shipping the merchandise to the shop arising from the lack of distribution centers, they compensate it with the bigger profit margins caused by informality.

4.3. Total costs

Total operating expenditures in the modern channel were reported to represent 25-30% of sales for large chains, and 26-27% of sales for small chains (although the figures for the large chains need rechecking). They are bigger for those supermarkets that offer more customers' services and that incur in other spending geared towards ensuring customers' loyalty.

Total costs include labour costs, security, maintenance, electricity, advertising, customers' service, logistics and distribution, and ITC systems, compliance with process standards, and quality assurance and control, among others.

The incidence of the different costs depends on the type of shop, the business strategy and the size and location of the chain. For instance, it is claimed by some that large and "visible" chains in central areas will have to pay substantially bigger wages because of political intervention backing labour unions.

Total costs for traditional and self-service only include labour costs, electricity, and some maintenance.

4.4. Access to finance

Access to finance is less restrictive for large modern formal firms than for small chains and than for chains and shops in the self-service and traditional channels. Hence access to finance by itself is not a barrier to reallocation towards the more productive chains. But it is a barrier towards the expansion of the small formal chains in the modern channel, which do not have enough internal funding to finance investment and which have limited and more expensive access to external finance. These firms claim that if they had adequate access to credit they would be able to expand operations and operate similar increasing returns to scale technologies as the large chains.

While the large chains have better access to finance, they are more sensitive to financial constraints because their financial dependence is bigger than that of firms in the traditional and self-service channels, who are not required to finance large fixed costs and working capital. Opening a shop for an informal Chinese supermarket or any other informal outlet only entails renting a small space, and buying or renting two register machines, a couple of scales and two refrigerators, without investing in compliance with any norm or technical regulation. On the other hand, small modern chains have an even bigger financial dependence as the large firms, because of their smaller sales volumes and associated cash flows.

In terms of resource allocation we thus care about the ability to finance the opening of new shops and working capital by firms in the modern channel. The interviews reveal that financing has not been a binding constraint to gaining market share by the large modern firms in the past few years, either because it was available from banks or because firms could rely on their own large cash flows or on financing from headquarters or from multilaterals such as the International Financial Corporation of the World Bank. The smaller chains in the modern channel relied on institutional financing and own funds for small investments. Most of these chains re-invest all their profits, applying them to finance the opening of new shops or the retooling of the existing ones. For many of the large firms the policy is to expand (open new shops or acquire other chains) up to the limits of self-financing, which was not a constraint thus far.

The differential access to internal and external funding between large and small modern firms in the recent context of exacerbated financial constraints is considered by the latter to favour a bigger concentration in the modern channel.

The interviews also reveal that the current combination of recession and credit crunch would very likely generate an important barrier for further expansion of even the

large chains. For instance one of these chains has already postponed for 6-12 months the already announced opening of a new hypermarket in a medium size city in a rich region because of the lack of access to external financing.

Most large chains additionally have agreements with banks such that customers can finance their supermarket purchases with credit cards issued by those banks. Small formal chains do not have access to such advantages, which they consider that make them lose market share vis-à-vis the large chains. Some shops in the traditional channel offer informal financing to their customers.

There is thus a capital wedge, such that cost of capital is lowest for the large chains, bigger for the small formal chains and biggest for the informal firms. The latter however operate technologies that are much less capital intensive, so it is not clear to what extent this wedge is binding for them. On the other hand, it could be the case the financial constraint may discourage formalization, as access to credit is usually one of the incentives for formality.

4.5. Tax burden

Bigger tax pressure on formal firms is deemed to be one of the main barriers for their further recovery of market share. Not only do the tax levels matter for losing competitiveness vis-à-vis the informal and hindering expansion, but also their variability, unpredictability and growing trend. The perception of increasing risks of fiscal unsustainability which leads the central, provincial and local governments to increasingly squeeze taxpayers is another big constraint. One of the big problems is that the growing tax burden is applied mostly to the relatively few formal supermarkets (“the tax agency chases animals in the zoo,” or “fish in the fishbowl,” is how they put it). All modern channel firms (both large and small) are registered and endure the biggest tax burden. Additionally, the growing tax burden is increasingly forcing many small formal self-service and traditional shops to move into informality. There also exist small chains outside the modern channel located in less visible areas that are registered but that declare only part of their sales, evading sizable proportions of output, labor and financial transaction taxes. This last segment is moving increasingly into informality.

This barrier to the expansion of the modern channel firms arises from both the direct increases in tax costs and the rising loss in profits margins caused by the increasingly unfair competition of the informal. This creates a vicious circle, as the reduction in the number of taxpayers further increases the tax pressure on the remaining formal chains. Unfair competition through non-compliance is considered to hurt mostly the large

chains in the competition for lower-end customers (large chains tend to have formats for all types of customers), whereas it is not deemed to be so important for the small formal chains.

The tax pressure on formal supermarkets becomes bigger at times of economic downturn, when tax collection pro-cyclically falls, adding to the negative effect on competitiveness generated by less credit, less cash flows, and lower demand (bigger unit costs). It is also at downturns that informality grows. This tax pressure must be added to labor informality to explain the bigger wedges that prevent reallocation towards the most productive chains.

The list of taxes applied to the supermarket sector include value added taxes, corporate income taxes, financial transactions taxes, provincial gross revenue taxes, taxes on debit and credit cards, municipal taxes (especially the contributions to street lighting, sweeping and cleaning), real estate taxes and taxes on advertisement.

One of the multinational chains (which has supermarkets worldwide) reports that taxes are abnormally high in Argentina. Taxes in this country lead to a profit (EBITDA) erosion of 2.5% of net sales, much more than in other Latin American markets where they operate supermarkets. National and sub-national governments in Argentina are very creative when it comes to introducing new taxes that do not exist elsewhere: financial transactions taxes, gross revenue taxes, taxes on debit and credit cards, etc., which must be added to the traditional value added and corporate income taxes. As result, in Argentina the EBITDA for supermarkets is less than 5.5% of net sales, whereas in the world it is equal to 6% net sales, and in Uruguay and Colombia it reaches 8% net sales.

A chain that runs supermarkets in Córdoba additionally illustrates the recent rises in the rates of municipal taxes from 0.7 to 1% of gross revenues, of provincial gross revenues from 3.5 to 4% of total final sales. These increases are added to other taxes, to make the tax cost represent 10% of gross sales. The gross revenue tax in the Province of Buenos Aires reaches 4.5% of sales. In some Provinces like Misiones, the gross revenue tax rate is 6%. The financial transactions tax rate is 1.2% of all checking account transactions. And the list goes on.

A further relevant point is that many of these taxes (especially at the municipal level) are introduced or increased after the supermarkets have been installed. This creates a problem of time inconsistency of tax policies which may deter further expansion of formal supermarkets.

These taxes act as an output wedge that hurts mostly the most productive firms.

4.6. The role of price controls

Price control on food products started being introduced in late 2005 when inflation started to accelerate and international food prices were rising significantly. Price controls supposedly sought to keep *actual* inflation down, but given their inefficacy for keeping prices in all outlets at bay they ended up being used as a tool for keeping *reported* inflation down (the statistics agency has been manipulating the reported CPI since 2006 to under-report inflation). Since a large share of the reported prices is collected from large supermarkets operating in the modern channel, these shops were natural targets of price controls. The price controls on some goods, like vegetable oil, generate an excess demand for them.

In order to make these selective price controls effective without overly hurting the supermarkets' profits, price controls were also introduced at the producer level for the suppliers of goods that weigh heavily in the supermarket sales and profits, such as vegetable oil. The government additionally implemented subsidies for the suppliers of these goods. These subsidies did not fully compensate suppliers, which rationed the shipment of the controlled goods, giving priority to the largest supermarkets in the satisfaction of the excess demand caused by the maximum prices. Despite the price control on suppliers, the supermarkets' profit margins on these goods are significantly squeezed.

Small formal chains were not subject directly to price controls, as the statistics agency does not survey prices in their locales. However, they suffered large rationing on the products with controlled prices, as suppliers prefer to deliver them to the large chains where prices are actually surveyed, and also give priority to large customers when there is excess demand because of price controls.

Price controls have had positive and negative effects on profits and market shares of supermarkets in the modern channel. These effects have impacted differently the different chains, depending on their relative market shares and weight in suppliers' sales. They have favoured the recovery of some market share for the modern channel as a whole, and also a bigger concentration within this channel.

The negative effects include the following:

- The supermarkets lose control over their main decision variable. This does not hurt in the short run, but it is a very bad signal for the future of business. This effect has impacted on all large chains.

- The smaller chains in the modern channel were hurt by the fact that suppliers of controlled/subsidized goods gave priority to the larger chains for the shipping of these goods, and rationed the delivery to other chains and the traditional channel. This hurts because having the product on the shelf is crucial for assuring customers' loyalty. The lost customers move towards other highstreet/neighbourhood shops that offer low prices (both formal and informal).
- These types of subsidies to milk producers increase their bargaining power vis-à-vis the smaller formal chains, enabling suppliers to demand payments far in advance of the delivery of the goods to supermarkets.
- Controls force supermarkets to apply, on the week when the statistics office surveys prices, price caps on goods that account for 20% of their food sales. This lowers profit margins, but chains with a large number of shops compensate these losses with freely priced sales in shops that the statistics office does not survey.
- Future profitability becomes much more uncertain. A typical example is given by vegetable oil, which has a large weight on modern channel supermarket sales. Large chains cannot absorb a fall on profit margins that exceeds 10% for this product. For the time being the loss of margins is compensated with bigger market shares, but this will be no longer possible if the profit margins loss is bigger. The problem would be exacerbated if the controls and loss of margins are made permanent and extended to other goods.
- The largest actors have not lost competitiveness and market share because of price controls but they are concerned about the signalling of bigger policy discretion.
- Some smaller chains in the modern channel offer some leading quality product, such as beef, to attract customers. Price controls on these products make them lose between 8 and 9% of total sales in some shops.
- The negative effects on profit margins are smaller for chains that sell both food and non-food.
- Price controls at the suppliers' level have also driven some SMEs out of business, helping a bigger concentration of suppliers. We analyze in a later section how this hurts formal modern supermarkets.
- Even though the larger chains have been favoured in terms of market share, these distortions have perturbed the normal shipment of goods to the

supermarkets. These chains currently meet only 80% of product-on-the-shelf goals. This compliance is currently improving because exports are declining, leading to an excess supply by producers (at the same time sales are expected to drop). This disruption is bigger for the smaller chains.

- Smaller formal chains lose market share to the large firms that enjoy better perception of prices by consumers, partly because of the access of the large chains to goods with controlled prices.

The positive effects (for large chains) include the following:

- Price controls allowed large formal chains to recover market share. The control acted as a coordinating device for the adoption of “predatory” prices that helped formal supermarkets in the modern channel recover part of the market share lost to the self-service and traditional channels and also to small formal chains. This helped especially the larger chains.
 - o This effect worked well because consumers’ preferences for different chains and shops are largely guided by their perceptions regarding prices in each outlet. After the devaluation this perception had favoured the small formal chains and the traditional and self-service channels, and the price controls helped reverse it.
- Price controls were applied to suppliers of the modern channel large chains, but were not binding for supplying the other channels and small formal chains, helping improve the relative profit margins of the large chains on some products.
- The larger chains benefited from the fact that suppliers of controlled/subsidized goods gave priority to these chains for the shipping of these goods, and rationed the delivery to other chains and to the traditional channel. This helps because having the product on the shelf is crucial for assuring customers’ loyalty. This allowed these chains to recover market share.

On the other hand, Chinese supermarkets have played a role in abiding to price controls (helped by informality) and helping the government report lower inflation. This gained them the sympathy from the government, which has been less inclined to enforce informality.

Price controls are an output wedge that on balance appear to discriminate in favour of the large chains.

4.7. The role of trade restrictions

Some large modern chains that sell food and non-food rely strongly on the imports of some non-food items. They have exposed to discretionary barriers to imports that have hurt them significantly. For instance one of them had imported some goods (like toys) with the goal of selling them in anticipation of the Christmas holidays. After completing the import, and while the goods were still being shipped, the Customs Office applied some administrative procedure that arbitrarily changed regulations and that will delay the arrival of the products to the supermarket until after Christmas. These interventions reflect a combination of lobbying activities by local producers and macroeconomic concerns about the balance of payments.

This distortion hurts only some of them. Other large chains only import when the local supply is insufficient, or when the goods are differentiated products that are not manufactured by local producers. The cost of freight and the import tariffs discourage them from systematically importing some items.

4.8. The limitations to maximum surface and number of shops per district

There are important restrictions in the Province of Buenos Aires and in some other locations regarding the maximum surface of shops, and the maximum number of shops (3) that a given chain can install in any district. The latter constraint is especially binding for those chains that target this market. Regulations regarding the maximum footage hurt some chains that wish to set up new hypermarkets, but are not hurtful across the board. These regulations reflect lobbying activities of some local business chambers, that want to protect small local shops, and of some national supermarkets.

They are not deemed to be a major factor for the loss of market share of the modern channel. While they contribute to the trend of opening smaller shops (that may exploit less scale economies), it is believed that this trend is in general equally affected by changes in consumers' preferences and by land scarcity.

It must be said, however, that the two fastest growing large chains in the past three years, which operate hypermarkets, are hurt by these regulations.

The province of Buenos Aires has forbidden installing shops with footage above 3,500 m² in the bigger districts, which has hurt the large chains that operate hypermarkets in suburban districts. In the smaller district the maximum allowed footage is 1,800 m². This regulation forced these chains to work with new smaller formats, below their optimal scale of operations. They do recognize however that consumer preference is shifting in this direction. They are also hurt by the delay in issuing government permits for setting up the new shops in several locations. In many cases

these permits have been suspended. They are facing a similar scenario in the provinces of Santa Fe and Entre Ríos. These large chains consider that these regulations certainly constrain their market shares. For some of them the maximum footage restriction matters more, while for others the restriction on the number of shops is more binding. Only one of the leading chains has opened more shops in these three provinces, favored by the fact most of its shop formats conform to the footage restrictions.

The constraints on the number of shops per district are deemed to benefit the supermarkets that are not organized as chain. The owner of several supermarkets (in the self-service channel) can install more than three shops per district using different names.

Some large chains are also being constrained by the regulations on maximum footage in urban centers for setting up new hypermarkets. The permits take between 3 and 4 years to be approved.

The constraint imposed by provincial and local governments in the Province of Buenos Aires regarding the maximum number of shops that can be opened per district is binding for the small modern chains that we interviewed, which thrive on brand recognition in certain districts. But they complain that biggest constraint lies in the area of obtaining financing for the opening of new shops. The formal shops face a large number of restrictions at a municipal level to open new shops in the Province of Buenos Aires. The first hurdle is to obtain the municipal permit, which is a lengthy and costly process. Then they have to go to La Plata to obtain the provincial permit and to undertake costly environmental impact studies and so on. And once they obtained all these permits they have to obtain financing for opening the shops.

The Chinese supermarkets do not face this legal barrier on the number of shops because they are not organized as a formal chain; they rather act as an informal chain owned by Chinese diplomats that place bogus owners in front of the shops.

Hence this is an output wedge that is big only for some large chains and of second order for small chains that are more constrained by the access to finance.

4.9. The role of technology

Technological upgrading (especially in the areas of supply chain and ICT) is crucial for productivity and for saving financial costs on stocks (working capital). De Vries (2008) has estimated that almost all of the productivity gains in the distributive trade sector in Brazil between 1996 and 2004 were due to within effects, driven to a large extent by the adoption of ICT (the other contributing factors were shifting from

financial to operations management and the increased demand for higher-margin goods associated to macroeconomic stabilization).

The modern channel chains in Argentina are all quite up-to-date on the technology front, especially the large ones. Only some of the small ones which have passed minimum threshold sizes are using state of the art technologies.

Technological upgrading in large modern chains

One of the foreign-owned large chains incorporates the latest technological developments following the worldwide strategy of the chain, while others weigh in the benefits of upgrading against the costs of doing so. Since there are fixed costs of technology adoption and adaptation, adaptation takes time, and there also is a continuous arrival of new technology, some of the chains undertake an S,s strategy of upgrading when the present discounted value of the benefits of catching up compensate fixed costs of adoption.

For one of the leading foreign-owned chains, the technology is provided by the headquarters. In the process of technology adoption and development, there participate international and multi-cultural networks within this chain at a global level. The local branches of MNC benefit from the technological upgradings in headquarters and in global networks, and from the global negotiations with technology suppliers. Local large companies that do not benefit from the technological spillovers of headquarters have also invested heavily in technology upgrading. Smaller local chains undertake technological upgrading but maintain a certain gap vis-à-vis the leaders.

Technological upgrading in small modern chains

Small formal chains consider that it is crucial to incorporate technology in the areas of administration and operations. One of the small chains we interviewed just installed SAP, which is administrative software specialized in retail that is also used by some large chains and by their suppliers. The problem that this small chain faces is that they need to train the operations personnel to work with the new technology (short run human capital bottlenecks and incremental costs). This is because with the incorporation of this technology many processes change radically. For instance, now they undertake analysis of product turnover on the shelf instead of just replenishing the shelf.

The adjustment to the new technology is long and relatively difficult for the operations personnel. It is easier for firms where most of the staff is young and adaptable. It is a significant and costly investment, but this firm considers that in the

future it will ensure a cash flow large enough to amortize it, and to compete with the large chains. In order to maintain a direct account with suppliers, which is crucial to lower costs, it needs to use SAP. Investing in this technology represents a sizable fixed cost, of U\$\$ 200,000, for this small chain. It makes sense if it is going to operate at least 15 shops, so as to amortize it. On the other hand, it cannot operate 15 shops unless it incorporates this technology. Due to this fixed cost component, it is very difficult for smaller firms to incorporate this technology, which in turn makes it difficult to maintain an account with suppliers.

This is a long-term investment that helps improve sizably the management of distribution, stocks, reposition and sales. They control the movement of merchandise from the moment it arrives to the distribution center until it reaches the shelf and leaves the supermarket.

This firm is facing binding financial constraints that prevent it from opening the extra shops that would justify the investment.

They are still undergoing the adaptation process, but they already are reaping important benefits from the investment. For instance they can trace the operating results of each store and analyze them in a centralized fashion.

Technology and productivity change

Since most modern channel firms are close to the technology frontier and constantly innovating, the observed decline in aggregate productivity does not appear to be due to negative *within effects*, but rather to negative *between* and *interaction* effects. There maybe some *within* effect arising from the move towards smaller supermarkets caused by a combination of shifts in consumer preferences, regulations on maximum footage, and scarcity of land (this appears to have been the case in the UK, as estimated by Griffith and Harmgart, 2007). There is possibly another small within effect arising from the financial constraints that small chains appear to face for technological upgrading and for operating technologies with bigger returns to scale.

Investments in technology are crucial for improving the management of stocks and the just-in-time processes (saving financial costs and avoiding lack of products on the shelf). They are particularly important for productivity and efficiency in the distribution centers. With the bigger productivity and lower waste the chains recoup the costs of investments. The management of stocks is crucial to relieve the financial cost. For example, a decline of AR\$ 40-50 millions because of better stock management helps finance the opening of a new hypermarket by one of the leading regional chains.

The Chinese supermarkets and other informal outlets have zero investment in technology. They operate rudimentary technologies. To turn off a refrigerator they only need to unplug it. Instead for the modern channel firms turning off a refrigerator entails resetting the cold chain, losing several days of sale, and so on.

4.10. The role of suppliers' concentration and of store brands

During the past 15 years there has been an increasing concentration at the supplier level that hindered the competitiveness of large chains in the modern channel in two ways. First, it had a direct effect on the profit margins by increasing producer prices through a lower bargaining power. It also affected the ability to secure the supply when producers had the option to export. Second, it reduced the availability of competitive suppliers of store brands, which are very important products for gaining market share by the modern supermarkets.

This growing concentration is the result of the combination of the 1998-2002 depression, especially the collapse of 2002, which drove out of the market many SMEs that supplied supermarkets. The large suppliers engaged in a sort of predatory pricing in 2002, not passing through to prices the 250% devaluation of the Argentine peso. The financial restrictions that prevailed after 2002 also contributed to this outcome. The introduction of price controls also hurt significantly these firms, as they could not compete with the large suppliers that received subsidies and/or that could self-finance the squeeze in profit margins. The price controls worked as predatory prices in this market.

There has indeed been a great concentration in the production of top brand food and cleaning products. The top two producers for each of these products represent 80-90% of the supply of each product. Fifteen years ago the production of these goods (especially food) was much more atomized. There was a great degree of competition among suppliers. There existed numerous SMEs and family-owned firms that produced store brands through contract manufacturing. It was often the case that the core business (or the only line of business) for these SMEs was supplying store brands to a given supermarket. On the other hand, top suppliers have several lines of business, and supplying store brands often competes with these other activities (like selling their own brands).

Concentration of suppliers and store brands

The concentration of supply has greatly limited the possibility of doing contract manufacturing for the supply of store brands. This limitation has affected especially the

smaller modern channel firms, which have less bargaining power. The larger modern channel chains are better positioned in this regard.

Store brands are very convenient for supermarkets. These are products that have the same quality as the top domestic brands, but that can be sold cheaper (20% less than the comparable national brand) because it saves on the costs of distribution, marketing, etc. The store brand offers bigger profit margins because of these lower costs. It is also desirable because it contributes to brand recognition and prestige for the chain as whole, helping ensure customers' fidelity.

All the major chains have a store brand, but its relative weight in sales has diminished in recent years.

The problem with the concentration of supply is that the top suppliers set high prices so as not to compete against their own products. What is more, the supplier cuts the provision of the store brand when it starts to compete with the national brand.

Suppliers concentration and "rationing"

Suppliers' concentration also affects the steady provision of top national brands, which is required to ensure the availability of the product on the shelf (which in itself is required to ensure customers' fidelity). It was highlighted the case of a firm that is a leading producer of canned seafood and vegetables and fruit jams, which was purchased by one of the top two producers of foodstuff. For the previous owners of this firm, supplying the large modern channel chains represented 100% of their portfolio; it was its core business. Hence they made sure that there never was lack of product on the shelf. Instead for the new owners, the products of this firm (and its clients) represent only 5% of its portfolio. Hence they do not give priority to provide a steady supply to these clients.

More generally, top suppliers are complying with only 70-80% of the product requests by the major supermarkets, with some important delays.

If there is lack of product on the shelf, large edge-of-town supermarkets are hurt significantly in terms of customers' fidelity. Smaller highstreet/neighbourhood shops are not hurt so much because they attract customers based on proximity and/or prices (in the case of informal outlets). There are large fixed costs (time and mobility-wise) of going to large supermarkets; hence customers penalize the lack of product on the shelf (they cannot go back the next day to see if the product is now available).

One interviewee highlighted that the current recessive trends in the Argentine economy are causing a decline in the consumption of top brands, raising the demand for

store brands. This trend faces the constraint posed by the lack of adequate suppliers of these brands.

Suppliers' concentration and the small modern chains

Small chains are hurt by concentration of suppliers, which forces them either to buy from distributors (at higher prices) or if they manage to buy from suppliers, to pay higher prices because of the lower volumes. Buying from distributors also makes them lose access to promotions (products at temporary lower prices) offered directly by suppliers. In recent times, because of the rise in the costs of distribution, the leading suppliers only have 20 large customer accounts, which include the four largest chains, plus three or four wholesale chains, plus three medium size regional chains. The small chains complain that suppliers treat them as if they were little more than drugstores in terms of purchasing conditions, but they face much bigger costs than drugstores and tighter tax control and regulations.

Hence suppliers' concentration is also contributing to more concentration in the modern channel. The small chains also complain that this concentration of suppliers much bigger in the past three years and that it severely hurts the bargaining power of SME.

Suppliers' concentration and the traditional and self-service channel

While the traditional and self-service channels are also somewhat hurt by suppliers' concentration, they are not as hurt because their competitive advantage is given by proximity and lower labor and tax costs (for the informal). What is more, the Chinese supermarkets have created an informal cooperative arrangement (favored by ethnic networking and/or mostly likely by the fact that they are suspected to be actually owned by a few Chinese diplomats and/or government officials) for bargaining with suppliers.

Hence, when analyzing the effects of distortions on resource misallocation in the supermarkets sector we must also care about the distortions that affect resource allocation in the suppliers sector.

4.11. Access to human capital

Access to personnel with the required qualifications has not been a constraint for the operation and expansion of the large modern channel chains. Working in operative tasks in supermarkets is often the first job for many people, who receive specific on-the-job training by the supermarkets. The only formal requirement is that they are high school graduates. They do not face any bottlenecks in filling in the managerial positions either.

The quality of human resources is considered to be above the average for other countries in the region.

There only are some bottlenecks in finding adequate personnel for some regional markets, which require that the hired personnel be trained in the national headquarters (in a major city) with some sizable incremental cost. However this is not an obstacle for expansion.

Small modern chains face transitional bottlenecks when incorporating new technologies like SAP, which require investing in some costly training the personnel to use the new technology.

This is definitely not a wedge that distorts neither resource allocation nor technological upgrading.

4.12. The role of macroeconomic fluctuations

There appears to be a connection between the Argentine business cycle, characterized by sharp fluctuations, and resource allocation and technological upgrading within the supermarkets sector. This connection is caused by the effects of the cycle on: a) the introduction of distortionary policies, b) changes in consumers' preferences, c) the availability of self and institutional financing for modern channel chains, d) the effect of the cycle on suppliers' concentration, e) the costs of renting commercial space, and f) the government's attitude towards informality.

Four recent phases can be distinguished:

- 1991-98 expansion: advancing of the modern channel formal
- 1999-2003 downturn: advancing of the informal and of the small modern chains
- 2004-2007 recovery: some recovery of the modern channel vis-à-vis the informal firms
- 2009 sudden stop: the return of the informal or the predation of large firms?

We next provide some of the views offered by different interviewees regarding this connection.

Cycle, sales and behaviour of large firms:

One of the major players interrupted its expansion plan between 2002 and 2006, until consumption recovered the levels it had previous to the crisis (the 1998 levels). Then between 2006 and 2008 they opened 40 new shops (7 in 2006, 14 in 2007 and 19 in 2008). In 2009 they expect to open 15 shops of 2,000 m², slowing down the previous expansion. For 2009 they face a bigger regulatory uncertainty caused by the forthcoming midterm elections, and they expect a flattening of consumption.

Another big player experienced a great recovery in volume of sales during the 2003-2007 expansion, but not in prices and profit margins. During this recovery it upgraded several shops to accommodate the bigger demand for top brands. The growth in real sales during 2006 and 2007 was accommodated through this process of shop upgrading instead of opening new shops. The current slowdown has been hurting mostly non-food sales. The current expansion projects are stopped because of the lack of financing. Since the beginning of the slowdown in the second quarter of 2008 they have stopped looking at strategies to preserve or improve the market share. They are now privileging risk management and profits control. The current sudden stop in sales coincides with inertia in the growth in labor and energy costs, which will greatly squeeze profits.

At the same time, a great share of sales of large chains in the modern channel was being financed by credit cards. This financing has almost disappeared now, which should contribute more to the halt in sales growth.

The demand for top brands and for more upscale supermarkets is highly procyclical. Downturns are bad for the modern channel.

The current income stagnation, the procyclicality of top brand sales, and the lack of financing to consumption might re-direct consumption towards cheaper shops such as the traditional and self-service informal channels. However, the large chains are now more competitive than in 2002, by virtue of the ability to secure better suppliers' prices and to have banks subsidize purchases made with credit cards issued by those banks. Additionally, they have by now learnt to play pricing games with informal shops. On the other hand, the Chinese are somewhat constrained by the steep rise in the cost of renting commercial space observed until 2007. For instance, one of the leading large chains is responding to the downturn by downgrading its shops to accommodate the decline in demand for 1st and 2nd brands. This adaptability to switch to different store names that have associated different price perception by consumers has enabled them to steal demand from other modern channel firms and from the other channels.

Cycle, sales and behaviour of small modern firms and of Chinese supermarkets:

The small modern chains are currently losing market share to the large chains. Right now they are in a worse position than last year (2008). They are in the middle of the competition between the large chains and the informal segments (traditional, self-services, Chinese, and informal SME). They cannot compete successfully neither against the former because of discriminatory treatment of suppliers and banks, nor

against the latter because of lack of compliance. But the main competition comes from the large chains.

The Chinese became strong during the 2002 crisis, selling cheap 3rd or 4th brands and even stolen products, some claim. Non-compliance with taxes and labour regulations, and buying cheaper close to becoming void merchandise also helped them offer lower prices.

When the economy started growing again, consumers returned to the formal small chains because of proximity and customers' assistance. The small chains were the fastest growing segment between 2004 and 2007 (the Chinese between 2002 and 2003), and the large chains are becoming dominant again right now.

In the words of the small modern chains, when the economy started to recover, the first modern segment that recovered market share were the small chains, which then offered an attractive combination of proximity and customers' assistance vis-à-vis the large chains, and an attractive combination of 1st and 2nd brands and customers' assistance vis-à-vis the traditional and self-service segments. During the times of abundance (2005-2007), customers also returned to the large chains. Until 2007 there was room for simultaneous growth of large and small modern chains, because the market as a whole was growing fast. Nowadays, with a shrinking market, large chains are crowding out the small chains. They offer better prices on 1st and 2nd brands, which are privileged by consumers over customers' assistance and proximity. Small chains claim that in 2002 the prices of large chains doubled those of small chains (because of the large fixed costs and their bigger inability to adjust employment, together with no bank subsidizing of purchases by their credit-card holders). Instead in 2008 the prices of large chains could be up to 20% lower than those of the small modern chains and also lower than the Chinese.

The small chains are currently less threatened by the Chinese than by the large chains. The independent Chinese supermarkets are in a downward phase. The organized Chinese chain supermarkets are more threatening. The large chains compete with the small chains in prices, availability of product-on-the-shelf, brands, financing of sales and customer services.

For instance, one of the interviewed small modern chains faced the opening of 8 Chinese supermarkets in its neighbourhood without suffering a loss of market share. However, when one of the leading large chains opened a shop 12 blocks away it stole the customers that made the large monthly purchase at the small modern chain.

The interviewed small formal chains compete for the same types of medium and high-end consumers than the large chains. Nevertheless, the large chains also target low end consumers, where they face bigger competition from the informal.

The small chains we interviewed aver that the Chinese have now lost their price competitiveness mostly because of the rise in the cost of rental space (small and large chains own the buildings where they locate their stores).

Cycle and distortions:

The introduction of higher taxes and distortionary regulations was exacerbated since 2005, when inflation started to accelerate and when the government started to accelerate public spending with political motivations (the electoral cycle has mattered as well).

The government introduced supposedly temporary very distortionary labor regulations during the worst part of the crisis (2002 and 2003), many of which still prevail. The government additionally interfered in wage bargaining between 2003 and 2008 pushing real wages above productivity growth.

Fiscal voracity has played a major role. The willingness to maintain high fiscal surpluses while at the same time engaging in an acceleration of public spending meant increasing the tax burden. Municipalities and provincial government had to keep pace with the central government spending and wage hikes, and also had their spending indexed by inflation, but not their revenues. Hence in order to preserve a fiscal balance they also had to resort to new taxes and to raising tax rates.

At the same time, since the government wanted to preserve high employment levels at a time when enforcing taxes and regulations might have had a negative impact on employment growth, it preferred to look aside.

4.13. The choice of scale

There are two dimensions of scale that matter: shop size and firm size. Griffith and Harmgart (2007) estimate that a large share of the decline in productivity in the UK was caused by the use of sub-optimal scales because of binding regulation on shop footage.

In Argentina regulations on maximum footage in the Province of Buenos Aires have been binding for some leading chains that favour the hypermarket format, but in general the choice of scale does not appear to have been hampered by policy distortions or by market failures. And it is also the case that the maximum footage regulations allow the setting up of shops that have a format that is considered to be very productive. It is rather the change in consumer preferences what is guiding the trend in shop scale.

More generally, all the policy distortions and the unfair competition from informal shops only affect the decision of whether to open a new shop or not (i.e., the firm size), but not so much the choice of shop size, which usually reflects the expected sales in the proposed location (save in the areas where there are footage regulations). Informal shops that exploit the highstreet/neighbourhood format have an impact on the choice of scale, but they are still reflecting the trend in demand.

One of the leading chains, typically characterized by operating hypermarkets, has recently opened two edge-of-town 3,200 m² shops (bound by the footage regulations) and other highstreet/neighbourhood shops of 1,000 m². Its current strategy is to complement its current network with new formats rather than open new hypermarkets. They are moving towards full or half highstreet/neighbourhood formats (that allow quick shopping). This strategy responds to trends in demand, the footage regulations and the lack of land.

Another leading chain that also exploits hypermarkets agrees that the trend is to move towards small (700-1,000 m²) highstreet/neighbourhood supermarkets instead of hypermarkets, reflecting the growing demand for this format. The current key for business is location and adapting to preferences in that location.

Hypermarkets are usually a very successful format in less developed countries where they act as a novelty product that offer not only the chance of shopping at good prices, but also serves as a weekend promenade for low-end consumers. Argentina in the 1980s and 1990s was a good example of this. For instance, sales per m² in hypermarkets in Argentina were U\$S 2,200 in 1993-94, whereas in the US they reached only U\$S 500 per m². Current average sales per m² in good Argentine hypermarkets are U\$S 400, whereas the average sales per m² of good supermarkets reach U\$S 700-1,000.

4.14. The roles of macroeconomic, financial, policy and institutional risks

We asked our interviewees explicitly what were the bigger risks and vulnerabilities that threatened their businesses and that may have hampered their past and present expansion plans. We found out that there are some permanent risks that are always factored in (mostly related to contractual security and to discretionary policies) and some other risks that are more related to the business and political cycles. The latter are latent constraints and include the macroeconomic and financial risks, and also the risk of exacerbating contractual insecurity and policy discretion.

The risks of contractual insecurity and policy discretion that reduce the appropriability of the returns to investment were the most relevant ones for the large modern firms. These risks feature as a barrier to further growth of the market share of these modern chains. These constraints and the unfair competition of informal shops are the two most often cited barriers to expansion by large firms. These risks also increase the risk of increasing the profit margin gap with the informal shops, and of increasing the incentives for more traditional channel shops to move into informality.

We now enumerate these risks, as presented by our interviewees:

- The current threat of a slowdown that re-directs consumption towards shops that sell lower quality and price goods (self-service and traditional channels). Although the small modern chains claim that this is not currently a risk for the large chains.
- The uncertainty regarding factors that matter for obtaining reasonable profit margins, such as the future tax burden and the possibility of new taxes, and of new distortionary labor regulations and government-imposed excessive wage hikes. This is a permanent risk that has been exacerbating in the past 3 years and that is expected to become worse in the near future. This risk affects modern firms of all sizes.
- Fear of bigger government intervention in the retail sector. For instance they are afraid that the government may extend and intensify price controls to the point where actually start losing money. This fear is bigger for the foreign actors in the modern channel than for the local actors.
- Financial risks are important and make modern chains want to maintain leverage at a minimum level. They have become binding constraints only now that the firms' cash flows are decreasing. These risks hurt more the smaller modern chains, which lose market share vis-à-vis the large chains.
- The risk of new discretionary barriers to imports. This is expected to hurt hypermarkets that sell a large share of imported items (35% of all sales for some of the chains), leading to smaller product variety in the shops and to bigger prices, which will make them lose customers' fidelity (which could go to informal shops). If for this motive non-food sales for one of these firms were to decline 10-15%, then the total volume of sales would go down 4%, and the firm would start losing money.

- Macroeconomic risk in itself does not appear to be too binding. Modern channel chains respond by changing the product mix or by re-branding shops in the direction of lower quality and prices. This risk is usually incorporated in the 10-15 year plans that most multinational modern channel firms draw. What matters more are the regulatory and tax burden risks associated to the Argentine business cycle. However it is the case that for 2009 several of these firms are expecting costs to grow twice as much as the value of sales.
- However, the larger modern channel firms are better prepared for macroeconomic risk management and for implementing strategies for dealing with macroeconomic fluctuations. Smaller modern channel firms are more vulnerable to macroeconomic and financial risks. Hence the expected downturn is likely to deal to more concentration within the modern channel.

These risks did not weigh too much in the decisions to expand operations for most modern firm between 2005 and 2007, but weigh in heavily in today's expansion plans.

The risk of low appropriability of returns actually made it very hard for one of the multinational modern channel firms to convince headquarters to approve investing in the recent opening of two new hypermarkets.

It is not perceived that there are direct risks of confiscation of assets as in Venezuela (where one of the interviewed foreign-owned large chains also has supermarkets). Here there is an expropriation of returns, which may wear down the business sentiment of foreign investors up to the point to which they may decide to exit and sell the firm at distress prices to local businessmen that are more adept at operating in "regulated" environments like Argentina.

For the leading modern channel chains there is a political contingency that is incorporated as a potentially binding constraint in their expansion plans. This contingency is related to some politically catastrophic events, such as the looting and pillages in edge-of-town shops they experienced in 2001-2002, and the permanent extortions to "donate" food to picketers and grass-root neighbourhood associations.

Our interviews reveal that the leading risks and vulnerabilities that constrain expansion of modern channel firms are those related to policy unpredictability, especially regarding taxes, government intervention in retail markets, and labor regulations and wage adjustments.

For small modern chains, the biggest risk is the combination of recession and financial cost is jeopardizing their growth/subsistence. Today they are closer to

subsistence than to growth. However, they did not appear to factor in these risks when expanding in the recent years. They appear to have responded to growth in demand and to the availability of internal and external finance.

4.15. The evolution and benefits of informality in the supermarkets sector

There are four types of informality in which different supermarkets can fit. These types of informality are:

- Operational (registry of operations and accounting)
- Means of payments (cash only versus credit and debit cards; informal financing to customers versus formal financing via credit cards)
- Tax evasion
- Non compliance with labor regulations

All our interviewees coincided in the view that the market is clearly divided between the group of modern channel firms that are all formal and the rest which are mostly informal, save for a spectrum of small registered firms that have varying degrees of informality. The authorities of the supermarkets business association further confirmed this view. The interviews with large and small modern chains reveal the following taxonomy of formality (with respect to taxes and labour):

- The large chains are all formal. There is no way they can avoid tax inspections and they cannot employ informal labour due to the control of labour unions.
- The same consideration applies to the modern small chains like the ones we interviewed. Once you are registered, have a minimum size and are located in more visible areas, you cannot indulge in informality.
- Smaller chains that are fully or partially informal, and which are neither audited by tax authorities nor bothered by labour unions. Many of them are not registered and operate in full informality.
- Traditional shops and self-services, which tend to be fully informal (or monotributistas at most). This group includes the Chinese supermarkets.

The large chains complain about the unfair competition of all types of informal shops. The small modern chains complain bitterly about the fact that the tax authority “fishes in the fishbowl.” They characterize the existence of an important segment of informal small firms. Some of these small firms are almost fully informal, while others are partly informal. These informal small firms are smaller than the formal small firms, and operate in more marginal (less visible) locations. Those firms that are registered suffer the biggest tax burden. There are some smaller and more marginal small firms

that are registered and which declare only part of the sale. Hence they avoid paying X% (the undeclared part of sales) of value added taxes and gross revenue taxes. They also use cash in these transactions, avoiding the financial transactions tax. To maintain internal consistency, they must also under-declare the actual employment, which means that they also save on non-wage labour costs. This segment is moving increasingly into bigger informality. But it would appear that they hurt more the large chains than the small chains. It appears that the tax authority does not audit them because of the existence of fixed costs of auditing vis-à-vis low expected tax collection.

Chinese supermarkets show informality especially in the areas of tax evasion and non-compliance with labor regulations, and security and hygiene norms. There is an urban legend claiming that Chinese supermarkets turn off their refrigerators at night. Mom and pop stores (the traditional channel) show informality especially in the areas of financing, registry of operations and means of payments. Both types of shops have unfair competitive advantages over the modern channel.

This informality shows a rising trend, displaying an increasing move of the traditional channel towards informality in the areas of taxes and labor regulations. According to the supermarket business association there is informality because there is no government willingness to fight it. They claim that it is very simple and cheap to establish the approximate sales of the informal shops. They claim that everyone knows that total sales are usually proportional to sales of certain products like Coca-Cola, beef, oil or dairy products. For instance Coca-Cola sales usually represent 4% of total sales, and there is no way that the shop can hide the Coke sales. Hence you can ask Coca-Cola to report its sales to different firms and from there establish the approximate total sales and compare them to the sales declared when paying gross revenue taxes.

The emergence of informality as a dominant channel (at least until 2006) was caused by a combination of bigger tax and labor market distortions and lower government enforcement of formality since 2001, together with other equally important factors that we describe below. After the crisis of 2001-2002, the traditional channel (self-service and mom-and-pop stores) had gained large market share because of lower prices and informal financing arrangements. The other winners at that time were the small formal chains, which combined top brands, customers' assistance and lower prices than the large modern chains.

The emergence and evolution of the Chinese supermarkets

The Chinese supermarkets developed very fast after the 2001-2002 crisis. They multiplied between 2001 and 2004, helped by the large availability of commercial space for rent after the crisis. Their expansion coincided with the reluctance shown by modern channel firms to expand and to lower prices after the crisis, together with their initial inability to have banks finance customers through credit cards. There was a void that was filled by the Chinese. They were also favored by the government's overlooking their informality. It is believed that this is due to the fact that the president of CASRECH (Cámara de Autoservicios y Supermercados Propiedad de Residentes Chinos de C.A.B.A. y G.B.A.), the Chinese supermarkets association is a diplomat of the Republic of China. It is claimed by many formal chains of all sizes that the approximately 5,000 Chinese supermarkets that are members of CASRECH are actually owned by a small number of Chinese diplomats, and that the purported owners are just name lenders.⁴ The Chinese shops were also granted some lenient treatment by the Government because they agreed to sign price control agreements with the Secretary of Domestic Commerce, which helped report lower inflation. This agreement was not difficult to comply, as their bigger profit margins give them much more room to under-adjust prices. It appears that the reason why the Chinese came to Argentina is related to the facility that there existed (or still exists) to obtain the Argentine citizenship, which then enables them to obtain visas to enter the US.

The lack of compliance with taxes and labour regulations, together with the initially cheap costs of rental allowed the Chinese to compete with very low prices and to steal significant market share from the modern channel. They were also helped by their highstreet/neighbourhood formats and by the demand shift towards 3rd and 4th brands at those times. By 2004 they had become the leading players in the informal self-service channel. They even started to work under some informal cooperative arrangements which increased their bargaining power with suppliers, allowing them to pay more competitive producer prices.

They have currently lost several of these competitive edges, which do not allow them to charge systematically lower prices than the large chains, at least in central locations. In 2006/2007 many Chinese supermarkets shut down because of the rising

⁴ Some interviewees highlighted the supposed influence of the signing of a bilateral agreement between Argentina and China, by which Argentina granted market economy status to China in the expectation of a large (US\$ 20 billion) FDI and financing program by China that never materialized. This agreement supposedly augmented the Chinese diplomatic influence in Argentina, which indirectly benefited the Chinese supermarkets.

costs in rentals. Nowadays the costs of rents stopped going up, and the Chinese shops will stop shutting down. The factors that allow the large chains to charge lower prices are a change in their pricing strategies and the associated improvement in price perception by consumers, together with the subsidies given by banks to clients that use their credit cards to buy in large chains.

The next table shows a small survey that we undertook comparing prices of some products in different types of modern chains (supermarkets, soft-discounts) and in two Chinese supermarkets located in relatively upscale neighbourhoods (we still have to survey the prices of Chinese supermarkets in lower income neighbourhoods). This survey does not reveal systematically lower prices for the Chinese (it may even suggest the opposite).

The Chinese' large market share is not based on bigger sales per shop, but rather on the very large number of highstreet/neighborhood shops that they operate. They are present in the largest urban centers.

	Soft-discount	Large cheap chain	Expensive chain - online	Large chain	Large chain - online	Chinese 1	Chinese 2	Chinese avg / formal avg
Shampoo Sedal Ceramidas S.O.S. X 650cc (tamaño económico)	10,58	8,79	12,93	12,79	13,43			
Shampoo Sedal Ceramidas S.O.S. X 350cc					7,45		7,50	1,01
Desodorante Dove original antitranspirante X 100gr(tapa azul)		8,99	9,9	9,46		13,50		1,43
Desodorante AXE Conviction X 158		6,89	7,9	7,42	7,79	9,75	9,90	1,31
Mayonesa Hellmanns frasco 500 cc	6,22	6,9	6,8	6,22	6,6		4,99	0,76
Aceite de Oliva LIRA lata 500 cc	21,49	20,54	18,99	19,99	23,09		18,00	0,86
Fideos Don Vicente largos al huevo tallarin paquete 500 gr	5,49	4,79	5,03	4,89	5,13	5,50	6,00	1,14
Pan Fargo blanco liviano bolsa 580 g		5,79	7,09	5,79	6,09	6,90		1,11
Pan Lactal							5,50	
Harina Blancaflor leudante 1 kg	3,39		2,74	3,07	3,07	3,00	4,50	1,22
Café La Morenita molido torrado 500 gr		9,92	11,13	10,69	11,23	14,50	13,00	1,28
Leche descremada Sancor sachet 1 litro	2,32	1,79	2,79	2,39	2,53	3,00	2,40	1,14
Salchichas Vienisima X 6		3,07	4,99	4,08				
Papel higienol max 32 mts X 4			6,89			5,75	7,50	0,96
Manteca sancor 200 grs	2,53	3,28		3,69	3,87	5,75	4,40	1,52
Dulce de leche La Serenisima Colonial 400 gr	4,64	3,85	5,47	4,7	5,25	6,25	5,50	1,23
Arroz gallo doble carolina 1kg	7,99		8,55	8,78	9,23		9,50	1,10
Criollitas original X 3 (315 gr)		3,38	3,41	3,32	3,55	4,25	4,50	1,28
Mana livianas sabor vainilla X 3 (393 gr)		4,39	4,4	3,95	4,5	5,25		1,22
Detergente ALA plus limón 50 cc	3,79	4,79		4,79		4,00	3,90	0,89
Jabón para lavar ALA 3kg baja espuma (alamatic, multiacción limpieza activa)	21,47	21,47	25,05	23,75	24,95			
Jabón para lavar ALA 800gr baja espuma (alamatic, multiacción limpieza activa)					7,63	7,25	7,00	0,92

The Chinese still compete because of the advantages of non-compliance (the incidence of labor costs in net sales is half than in formal firms), shop format and lingering perception of price competitiveness, but are expected to lose market share. The Chinese supermarkets currently hurt the small formal chains much less than one year ago. This is due to the fact that price perceptions in favour of the latter are changing. The Nielsen consulting group showed one year ago that the Chinese were already 7% more expensive than the small formal chains, but that the perception of consumers was that the Chinese were cheaper. This perception is currently changing.

The advantages of informality and its implications for sustaining productivity differentials

According to some of the interviewed large chains, the incremental costs from compliance with (local, provincial and government) taxes, municipal operating permits, sanitary and security regulations, and bigger energy costs (unit prices of electricity increase with consumption) can reach up to 40% vis-à-vis the informal supermarkets. To this we must add the bigger labour costs per worker, which are more than 70% bigger for formal supermarkets.

The Chinese supermarkets are much less productive than the modern channel shops and sell much smaller volumes, but have much bigger profit margins because of informality. Their prices are currently comparable to the formal chains (and apparently lower in the less affluent locations), but they do not pay taxes and comply with regulations. The formal chains claim that in the past the prices of the Chinese were lower, but that now the rise in the cost of rental for the Chinese supermarkets and the pricing strategies of the large chains have reversed this outcome. It is still the case, however, that the Chinese exert a competitive effect on the prices of the large chains (especially in the markets and locations where they compete more).

The Chinese derive extra competitiveness from the fact that they merchandise with an imminent void date at a lower price (which modern channel firms do not buy). If product's validity gets void the Chinese supermarkets still keep on selling the void good, whereas the formal supermarkets have to dump it. This way the Chinese supermarket earn more money because of less waste and lower prices paid to suppliers. Some interviewees even claim that at times the Chinese sold stolen products.

A soft-discount shop of 500 m² that sells AR\$ 800,000 earns profits for AR\$ 40,000 whereas a Chinese shop that sells AR\$ 300,000 on a similar surface shop earns between \$30,000 and \$45,000. The Chinese obtain similar profits selling much less.

We next provide some preliminary back-of-the-envelope calculations of the productivity differential that a “representative” formal chain must have to be able to pay the differential labor and output taxes, and to endure the bigger incidence of labor costs on net sales reported by our interviewees. This estimation is based on some strong assumptions and uses the information on the differences between labor cost incidences, labor and output taxes between formal and informal players. We are in the process of obtaining the cost structure of two large formal chains, which was promised to be given to us, but was not yet delivered. To estimate these productivity differentials we first assume that the formal and the informal have the same Cobb-Douglas production function, and then allow for the possibility that the informal operate more labor-intensive technologies.

We present here a sketch of the estimation and leave the details for the Appendix (section A5). What we do is estimate the productivity differentials that allow formal firms to bear a labor costs incidence on net sales that doubles the one observed in informal firms. The preliminary result that we obtain (and which is based on very strong assumptions and some information that may need rechecking) is that TFP in formal firms must be 14% bigger in formal firms.

Once we have made a better estimation of the required productivity gap based on the actual cost structure of supermarkets we will proceed to make back-of-the-envelope calculations of the productivity gains from reducing informality.

4.16. Competitive edge of the modern channel firms

We can now analyze that create competitive advantage for modern channel firms vis-à-vis other modern channel firms and vis-à-vis the informal shops.

The most important one is that operating large volumes and having bigger productivity relative to the informal stores allows them to compensate the bigger labor costs. Informal supermarkets appear to put competitive pressure on the modern channel firms forcing them to become more productive.

Relative sales volumes and productivity also differ among modern channel firms. The other factors of competitiveness are brand recognition, bargaining power with suppliers and adaptation of formats to different consumers’ preferences. Modern channel firms also present important differences among themselves in this regard. Some chains get an extra advantage from their wide regional coverage. Bigger chains also obtain advantages from the bigger willingness of banks to finance their sales with their credit cards. They also differentiate themselves from the traditional and self-service

channels, and among themselves, in terms of product assortment and customer service (delivery, online sales, and store credit card). Modern channel firms also show important differences among them in terms of pricing policies. Some smaller firms take advantage from positioning themselves as leaders with large brand recognition and bargaining power in some regional niches, or in some market niches (like soft-discount).

In a scenario where the informal unfairly compete with modern channel firms, the differences in competitiveness among the latter are bound to erode the market share of the smaller/less productive chains in the modern channel.

The traditional advantages of small chains derive from:

- Location (highstreet/neighbourhood shops) and brand recognition in certain neighbourhoods/districts.
- Customers' loyalty/captive customers' base
- Customer service (in the form of personal closeness between customers' and staff and owners, and the flexibility of the latter to accommodate special requests of customers). This service raises the demand for bigger human capital: more personable staff that works for a long time and develops long-term relationships with customers (like an expanded, formal, modern, mom-and-pop store). Low turnover of staff is a key.
- The specialization in fresh produce (meat, vegetables, fruits, etc.) of higher quality than large chains, which helps ensure customers' loyalty.

They claim that they currently do not have advantages because of financial constraints and the difficulty in competing with large chains in terms of prices and providing banking financing and discounts to customers. They face bigger costs of purchasing merchandise (and no financing from suppliers, and no access to banks and credit cards that finance customers' purchases), and are also subject to rationing when there is scarcity of given products, but they are treated by the tax authority as if they were large chains, which significantly squeezes their profits.

Until one year ago they were in a good position in the market. Customers complained only when there was some lack of product on the shelf. Right now they complain about prices and lack of access to special promotions/sales that large chains offer. Now the "captive" customer makes the large monthly purchases in large chains and uses the SME more like a convenience store, to cover occasional needs. Until one year ago customers did not care about 5-10% price differentials and privileged the SME

because of proximity and services. This changed right now because of the economic crisis, which shifted consumers' preferences towards lower prices above everything.

Nowadays large chains have big price advantages vis-à-vis the formal SME arising from:

- Lower suppliers' prices, due to volume and no distributors' fees, together with access to special promotions set by suppliers.
- Price controls in some products (not so important nowadays).
- Banks' financing of special offers to customers who use credit cards issued by those banks. For instance, some banks offer the possibility that if their credit cards are used to purchase certain days in certain large chains, then they will rebate 15-20% of the total spending to customers. This is done in order to ensure banks' account holders loyalty.
- All these advantages allow customers of large chains to pay net prices that are up to 20% lower than in small supermarkets. The latter are forced to squeeze their profits, which hurts their availability of internal funds for investment purposes.

These advantages of the large chains allow them to compete with the informal too, although they do not appear to be enough yet to reverse the market shares to 1998 levels.

4.17. Preliminary assessment of relevance of different wedges

We cannot undertake a quantitative assessment of the relative relevance of the different wedges. Here we provide a qualitative assessment based on the information and opinions provided by our interviewees. One of our questions was to name and rank the main barriers that they faced for expanding the market shares of their modern channel chains.

The weights assigned to different wedges varied by type of firm (leader/follower; large/small), although some wedges were equally important to all of them.

The main wedge identified by most of the large chains was the unfair competition of the self-service and traditional channels based on tax and labor regulation informality, together with the lack of enforcement of compliance with taxes and regulations by the government. The large and increasing cost of taxes and labor regulations and wages and the implicit subsidy towards the informal shops were highlighted as the major wedges.

The larger most visible firms further complained that distortionary policies discriminated more heavily against them, in terms of the differential tax rates and labour

costs they have to pay, and the more lenient attitude of the government towards competitors.

The smaller modern channel chains were as concerned with taxes and labor regulations as with the rationing they were subject to by concentrated suppliers. The rationing is largely due in turn to the excess demand caused by some price controls. When ranking the disadvantages, the SME consider that the biggest one is the inability to have banks finance (subsidize) price discounts to customers on the purchases made with credit and debit cards issued by those banks. Next there comes the discrimination by suppliers.

Price controls were seen to play an ambiguous role in resource allocation, although they appear to favour the larger modern channel firms. The biggest fear is that these controls main become more intensive and pervasive.

5. Modes of competition and business strategies of modern channel firms

In order to get a fuller picture of where resource allocation is moving to in the supermarkets sector, we now consider the business strategies and mode of competition among the modern channel chains. These strategies are defined in terms of pricing policies, opening of new shops, and product differentiation.

For starters, most of the large chains are increasingly moving towards lower surface formats and towards highstreet/neighbourhood formats to accommodate the trends in consumer preferences.

Some believe that the future gains of market share will come from the informal channel. Others are more sceptical and focus on the modern channel.

Those who are expecting to gain market share at the expense of the informal channel base their optimism on a McKinsey study for supermarkets worldwide that shows that between today and 2015 one billion new customers will move to the modern channel in India, China, Brazil and Russia. In Argentina they are expecting the entrance of 10 million new customers to the modern channel between today and 2020. These chains consider that the participation of the modern channel in total supermarket sales in Argentina should tend to 60-70% both because of expected income growth and expected improvements in terms of regulations, taxes and enforcements. Nevertheless, many of these chains are not taking any specific action to anticipate this capture of market share, and tend to focus on bigger quality and higher prices. For the time being they are investing in some new shops and in improving the adaptability of their formats to changes in consumer preferences and the business cycle, and increasingly moving

towards formats that compete more directly with the traditional and self-service channels.

Those which are not as confident on the possibility of stealing demand from informal shops point out the following. One of the modern channel price leaders in the past two years has been gaining only 0.35% of the total market every year (1% of the modern channel market). In order to truly gain market share it should expand very fast.

The only way for gaining more modern channel share would be to concentrate the market more by purchasing other chains (which they may not be allowed to do because of anti-trust considerations). The latest biggest expansions for individual firms came when Carrefour acquired the Norte supermarket chain and when Jumbo Retail purchased the Disco supermarkets. WalMart, still has a lower than optimal number of stores.

In order to steal share from the traditional and self-service channels they should do it via more competitive prices and the opening of more footage than these other channels, focusing on highstreet/neighbourhood formats. Only two of the large chains appear to be moving in this direction, although they are probably stealing demand from all small chains, both the formal and the informal ones.

The price setting policies in the modern channel appear to work as follows. There are two market leaders which are price-setters, and the other large chains take their prices as benchmarks adapting them to their targeted consumers. One of the leaders charges low prices for all goods all the time, whereas the other combines special offers with higher prices of other goods. WalMart's pricing policy is made possible by a combination of productivity (it is considered to be the more productive in the modern channel), bargaining power and lower profit margins.

The relatively low prices set by the leaders helped improve the customers' perception regarding prices in the modern channel vis-à-vis the other channels. This created a positive externality for the other chains, which helped them to partially recover market share in total consumption between 2003 and 2007.

The Chinese initially surprised the modern channel chains with their aggressive pricing policies, which helped them gain sizable market share. The modern firms did not react very fast, but they finally learned how to react to the prices set by the Chinese.

There thus appears to be some oligopolistic price setting game at work, where there are leaders in the modern channel that play two-stage games with the Chinese and with the other modern channel chains. In this setup, investing in more

highstreet/neighbourhood new shops than the Chinese would act as a commitment device that moves up the reaction curve of the modern channel leaders. On the other hand, bigger distortions and lack of enforcement, together with the opening of new shops, improves the reaction functions of the Chinese.

As a result of this game, and of the increasing concentration at the suppliers' level, the modern channel is becoming increasingly concentrated.

All the interviewees agreed on the importance of having a local management that knows how to adapt strategies to the highly distorted local environment. A common example is that of one leading foreign-owned firm that only started making positive profits ten years after coming to Argentina, when its management started to be based in Argentina and led by nationals who knew how the distorted market works.

In this vein it is worth highlighting that part of the modern channel strategy as a whole has involved showing willingness to comply with the government's requests regarding price controls. Supermarkets usually were blamed for oligopolistic price setting that fuels inflation. With their attitude they ended looking better than suppliers in the eyes of the government, as the latter were less willing to comply with price controls. This attitude gained them some bargaining power with the government (as in the case of vegetable oils, where they convinced the government of setting a higher price than initially proposed). The modern channel firms acted in a coordinated fashion in these negotiations. This coordination was facilitated by the fact that the government always called the same actors to the negotiations.

6. The impact of foreign firms on the supermarkets sector in Argentina

Foreign owned supermarket chains account for 63% of sales in the modern channel (22-25% of total sales). The sectoral leaders in terms of recent expansion and price setting are foreign-owned chains.

Jumbo and Carrefour arrived in 1982. They started without associating to or acquiring local supermarkets. They focused on hypermarkets, which was the most successful format at the time. These formats initially targeted lower income consumers, and started in locations that were not prime areas, but the format later picked up with high end consumers and prime locations. The huge cash flows obtained with the first hypermarkets allowed them to self-finance the expansion. They did not need any special treatment to FDI or trade liberalization to get installed and grow initially. They learned to survive and grow in the distortionary and macroeconomic unstable environment that prevailed in the 1980s.

Small formal local chains aver that even before the MNC entered the market the local supermarkets were always travelling abroad to copy and adapt the innovations developed there, and that the local players were always adapting to changes done abroad. They nevertheless recognize that the entrance of FDI since the 1980s accelerated the pace of technological and commercial in the sector.

One important commercial innovation made by Carrefour in the 1980s was that it taught the others how to bargain with suppliers.

Some small formal Argentine firms consider that the MNC contributed to modernizing the sector, but not according to others. There is a coincidence however in that their entry generated more competition, which created bigger incentives for modernization and accelerated this process. The bigger competition from Carrefour and Jumbo in the 1980s forced the local supermarkets to accelerate the incorporation of technology. This FDI accelerated certain processes.

The deregulation, trade liberalization and pro-FDI regime of the 1990s favored the growth of foreign chains such as Carrefour, Jumbo and Makro (Dutch group that operates in the wholesale channel). A very large inflow of FDI took place at this time. However, what attracted the entry of new foreign firms was not so much the economic liberalization but rather the fact there was a very fast growth in supermarket sales and that sales per m² in hypermarkets in Argentina were US\$ 2,200 in 1993-94, whereas in the US they reached only US\$ 500 per m².

With the 2002 devaluation sales dropped to US\$ 200-250 per m². Such a drop in sales made it impossible to survive without having an ability to adapt to the changes in environment. The foreign firms learned to adapt by themselves, as they did not partner with local chains. One of them lost money until it empowered a local management with bigger abilities to adapt to the local environment in 2005. Before that it was managed from headquarters in the US. Those that could not adapt left the market and its local chains and/or shops were purchased by the remaining foreign chains (WalMart bought Auchan's edge-of-town shops, Jumbo Retail bought Disco from Royal Ahold).

According to the large foreign firms we interviewed, FDI revolutionized the retail sector and made the modern channel attain in 15 years standards that took 40 years to achieve in Europe. They consider that they were highly beneficial for consumers through bigger competition, lower hypermarket prices, bigger assortment, more customers' services, and so on.

The Argentine formal SME affirm that they actually learned from Norte in the 1990s, which was an Argentine chain that was the sectoral leader (it was acquired by Carrefour in the 2000s), and from Coto in the present. They claim that they learn more from the leading national firms, which share with them the fact that they are not backed by foreign headquarters and financing. They cite as an example the fact that Coto is currently making advanced tests of the use of radio frequency labels in the supermarkets. This technology allows scanning all the merchandise placed in the shopping cart without having to scan item per item. It also helps prevent robbery as radio frequency scanners detect all the unchecked items. The problem is that these labels are still very expensive. WalMart in Mexico is using them in expensive items (like certain whiskies and wines) in order to avoid robbery. They claim that if the local supermarkets had had the same financial backing as SME, they would have been able to advance faster on the technological front. They also claim that MNC gained share in the Argentine market helped by financing from abroad and by Argentine tax exemptions.

The economic freedom prevailing in the 1990s facilitated investments that were crucial to modernize the sector. For instance all these chains introduced a common system of product codification and packaging standardization that resulted from an agreement between the big chains. One very important improvement was the adoption of the EAN, a European bar code system, to which Argentina had adhered in 1985, but which was only adopted across the board in the following decade.

More generally, the entry of foreign chains increased competitiveness and improved all the systems. In the case of one of the foreign-owned leaders the contribution was to adopt standard processes in global networks, which demanded that suppliers improved and standardized processes as well. This process upgrading and standardization permitted a joint growth of this chain and its suppliers. The latter had to adapt especially in the areas of quality assurance and control and packaging.

Some foreign chains that bought major national modern channel firms found out that these national supermarkets did not always comply with many norms, which granted them an unfair competitive edge. Following acquisition they had to invest in improving compliance, at the cost of losing competitiveness vis-à-vis the informal shops. They also found out that some of the acquired major national chains did not standardize processes, customers' services and special offers. This was especially so when the national chains had been previously acquiring other domestic regional chains. As a result the national chain was an odd assortment of shops that differed vastly in

terms of quality, targeted niches and productivities that only shared a common brand name. The acquiring foreign chain had to invest in standardization.

Focusing on the present, some domestic regional players and the small formal chains believe that the foreign chains are bound to control the market through bigger concentration within the modern channel. They perceive that some foreign chains are saturating the modern channel market opening more shops. They also perceive that through this strategy they crowd out the smaller modern channel chains instead of the informal shops, and that they can pursue this strategy because they have bigger capacity to self-finance.

Looking at what each major foreign chain has been doing recently it was observed that two sectoral leaders are opening many shops with different formats in the interior of the country. Another important foreign-owned chain is improving its adaptability to changes in macroeconomic environment and in preferences through its strategic transformation of shops. Another foreign-owned chain is moving towards exploiting the complementarities between hypermarkets and shopping malls.

On the other hand, the only major modern channel large national chain is maintaining its traditional format. It is focusing on opening shops in the Province of Buenos Aires that exploit the regulations regarding the maximum footage and number of stores, and on incorporating technology and striking deals with the government regarding price controls.

7. Maturity of the industry

The modern channel is considered to be at a very mature stage, although there is still room for improvement. The supermarket sector as whole is far from mature because of the large market shares of the self-service and traditional channels. The sector appears to be more mature in the Greater Buenos Aires area than in the interior of the country, where there is more room for improvement in terms of formality. Even in the Greater Buenos Aires area there is room for improving. There are some districts in this area that the modern channel does not target because of the unfair competition of the informal shops.

The modern channel is deemed to be close to international standards in the areas of systems, technology, commercialization and logistics. For instance one of the leading large chains uses the same operational standards as in the rest of the world. The rest of the major modern channel supermarkets are also alright. There is still some room for

improvement in the area of environmental standards. The problem is that the modern channel represents only 35% of all sales.

The modern channel is quite mature in terms of product differentiation, operating hypermarkets, supermarkets, highstreet/neighbourhood shops and soft discount shops, but true hard discount and “category killer” shops and chains are still missing.

There are a few hard discount chains (like Eki and Día), which do not function well because they cannot compete with the informal segment. This happens because the hard discount shops sell second-brand products at low prices, while the informal shops sell top-brand products at low prices. The introduction of price controls on some top selling products in the regular modern channel supermarkets also hurt the hard discount stores. The concentration of suppliers also hurts them dearly, because it restricts the possibility of having store brands to sell at lower prices.

8. Recent entry and exit patterns

Because of all the above discussions, there is no expectation that new formal large modern channel chains will enter the market. It is actually expected that there may be more concentration, following the recent trend of acquisition of Norte by Carrefour and Disco by Jumbo Retail. The last wave of entry of foreign-owned chains was in the late 1990s. This scenario contrasts with other Latin American countries, where they covet the entry of large modern channel chains granting red carpet treatment. Hence there is no entry at the firm level for large chains in the modern channel. We do observe some relevant entry at the establishment (shop) level, which is associated to the business cycle.

On the other hand there is a continuous entry and exit of new small actors in the traditional and self-service channels. This big turnover is actually inflated by some artificial entry and exit done by the Chinese supermarkets. These shops register as “monotributistas,” which is a tax category that charges low taxes that are not proportional to income or value added, as long as total revenues within a certain period do not exceed a certain threshold that is relatively low and easy to trespass for a supermarket. If they exceed this threshold, the firms become liable to pay value added and corporate income taxes, along with other taxes; they also become candidates for fiscal audits by the tax authority. To avoid this change of status, the Chinese supermarkets change their legal name (“razón social”) every six months; i.e., every six months they legally close shop and open a new shop, even though nothing changed

from an operational point of view. These actors know well how to exploit the available legal loopholes.

9. Preliminary conclusions

DISCUSS WHY SMALL CHAINS SHOULD EXIST (DISTRIBUTION OF PRODUCTIVITY, COMPETITIVE EFFECT, IF MORE CONCENTRATION PROBABLY LESS INCENTIVE TO INNOVATE, IF WE CONSIDER THE EFFECT THAT COMPETITION FROM FDI FORCED ON LOCALS), AND WHAT THE ACTUAL WEDGES ARE...

The supermarkets sector in Argentina offers a very rich story in terms of how distortionary policies that apply differently to different firms in an industry leads to a resource misallocation that lowers productivity. These distortions also prevent small firms from adopting more productive technologies with bigger scale economies. This sector appears to have experienced large productivity declines on average, which were caused mostly by a reallocation of resources away from the most productive firms.

The most important feature of the Argentine supermarket sector and the discriminatory policies that affect the more productive firms in the sector is the presence of large and growing informality, especially in the areas of tax evasion and non compliance with labor regulations. This wedge has led to a reallocation of resources away from the more productive modern channel supermarket chains and towards informal and less productive small shops during the past 10 years. A big part of the wedge is caused by the lack of enforcement of formality by the government.

This reallocation and distortions largely coincided with the 2001-2002 crisis. While reallocation patterns only partially reversed thereafter, discriminatory policy distortions continued to intensify. The temporary return of macroeconomic stability and economic growth between 2003 and 2007 allowed a certain recovery of market share by the most productive firms, together with changes in their pricing policies and other factors such as the access to banks financing and subsidizing customers. The gain in market share of the informal outlets, especially the Chinese supermarkets, appears to have stopped since 2006 due to the large chains strategies and to the steep rise in the cost of rental space that the Chinese supermarkets use.

The growing labor and tax distortions, which discriminate against the modern channel productive firms, and the lack of enforcement of formality make it difficult for the more productive formal firms to gain bigger market share at the expense of informal

shops. Without lowering distortions and fighting informality, no big resource reallocation towards the more productive firms can be expected.

It is still an open question how resource allocation will evolve in the current phase of economic downturn, although it is possible to predict that more small firms will move into informality, and that small formal chains will lose market share vis-à-vis the large ones. Large chains are now readier and more capable to compete price-wise with the informal outlets, although consumers may start again switching towards cheaper 3rd and 4th brands sold in the informal outlets.

Most of the decline in productivity during the past ten years can be explained in terms of *between* effects. There may have been some marginally negative *within* effects for the large modern firms arising from regulations on maximum footage in certain districts. However, informal shops with their competitive pressure force modern firms to be more productive (positive within effect for some firms) to compete. However, this does not translate into a bigger sectoral productivity because of resource misallocation. It does not necessarily translate either into lower prices and bigger welfare because of the effect of distortions. Additional negative within effects arise from the effects of distortions, especially financial constraints and suppliers' concentration, on the small modern chains, preventing them from adopting more productive technologies.

The unfair competition of the informal shops and the rising distortions are leading to a bigger concentration in the modern channel. This outcome was also favored by the increasing concentration at the suppliers' level that followed the 2002 crisis, and by price controls and subsidies that led to a deleterious rationing of delivery to the smaller modern channel chains. The banks preferential treatment of large chains also contributes to this outcome.

A case can be made in favour of eliminating or alleviating the distortions that tax the small modern chains, allowing them to expand and improve their productivities. While bigger concentration within the modern channel would probably raise productivity because of the *between* effects, it is also the case that it would reduce competition, which in the past was seen to be a driver of positive *within* effects.

Hence there appears to be a competition for market share mostly among modern channel firms, and only marginal gains of market share vis-à-vis the informal, driven by improved price perception, improved pricing policies, and by moving to highstreet/neighbourhood formats. There is a large potential for stealing market share from the informal/traditional as long as the government fights informality.

Furthermore, the distortions and unfair competition by the informal shops have deterred the entry of new FDI. Most of the entries in the modern channel are done through the opening of new shops by incumbent firms. The sector is now populated by players that have adapted to “regulated” markets.

In the presence of lower distortions and bigger enforcement of formality, the modern channel would most likely crowd out the informal shops, sectoral productivity would go up, and the modern sector would become less concentrated. Prices would probably go down because of bigger competition and of the lower distortions. The *within* effect would probably be uncertain and would depend on whether the competitive pressure among the modern chains forces more innovation or not. Both the enforcement of formality and the bigger price competitiveness of modern channel firms would reduce the profit margin advantage for informal shops, which would be less able to compensate their lower productivities.

There is an interesting lesson to be drawn regarding the association between TFP declines during economic downturns. We often observe how TFP falls dramatically during big downturns. These negative productivity shocks are hard to explain based on technological shocks. They are easier to explain based on negative reallocation shocks, combined with new distortionary policies. The supermarkets sector in Argentina is a good example in this regard. The 2001-2002 crisis caused and/or facilitated a major reallocation towards less productive firms. The persistence of distortionary policies and lack of enforcement of formality in the self-service and traditional channels then prevent correcting this misallocation and the recovery of productivity.

The literature on creative destruction highlights the cleansing effect of recessions via the exit of less efficient production units and the entry of more technologically advanced new actors. The case we analyzed here shows that when the government interferes with this process with distortionary policies and lack of enforcement of formality, the outcome can actually go in the direction of promoting the entry and gain of market share of less efficient firms, and to their survival over time.

Bibliography

De Vries, G. (2008), “Productivity Dynamics in the Distributive Trade Sector of Brazil, 1995-2004,” unpublished mimeo, July.

Griffith, R., and H. Harmgart (2004), “Retail Productivity,” The Institute for Fiscal Studies WP05/07, December.

Hopenhayn, H., and A. Neumeyer (2008), “Productivity and Distortions,” mimeo, October.

Hsieh, C., and P. Klenow (2008), “Misallocation and Manufacturing TFP in China and India,” unpublished mimeo, July.

Javorcik, B., W. Keller, and J. Tybout (2006), “Openness and Industrial Responses in a Wal-Mart World: A Case Study of Mexican Soaps, Detergents and Surfactant Producers,” *NBER WP* 12457, August.

Sánchez, G., and I. Butler (2008), “Competitiveness and Growth in Argentina: Appropriability, Misallocation or Disengagement?,” Country Studies Initiative 147, IDB, August.

A. Methodological Annex

A1. Design of interviews

We base our analysis on the interview methodology proposed by Javorcik, Keller and Tybout (2006). Interviews are conducted on the basis of topic modules. Although we have a standardized set of questions we want answered, the interviews are carried out as much as possible in a conversational manner, with interventions on our part to set the topics (change modules), to motivate further comments when the information is relevant to or in line with the objectives of the study, and to change the focus within a topic when the conversation veers off course. The interview ranges from general topics to more specific topics and from “easy” topics to “more difficult” ones.

The questionnaire is structured in a way that it first provides background information (history, business strategy, cost structure, financing mechanisms, human capital requirements, technology used, and risks and vulnerabilities faced) on the interviewed firm that will help understand better how the different wedges arising from government and market failures may affect its output/price, scale and technology choices. This part of the questionnaire also includes some questions regarding how some distortions affect the decision making of the firm.

The second part of the questionnaire seeks to extract information on the sector where the firm operates: What is its industrial organization? What is the role of FDI? Are there barriers to entry? What type of competition prevails? Do some firms get special (positive or negative) policy treatment?

The third part focuses on the impact of government policies and regulations on the performance of the firm and the sector.

The questionnaire and the approach to the interviews are set so as to induce the interviewee to provide non-strategic answers to difficult questions. Direct questions are used only towards the end of the interview so as to obtain answers that are not offered during the conversation, or to shed light on unmentioned aspects or to test specific hypotheses.

The specific questionnaire is presented next:

I. Information on the firm

1. Company's history, structure and business model

- 1.1. What is the ownership structure of the firm? (National or foreign; number of owners; family firm; public offer firm; state-owned company; structure)
- 1.2. What is its main market? (Domestic or foreign; national or regional; type of consumers targeted)
- 1.3. What is its business structure? (Vertical or horizontal integration; alliances with suppliers or retailers; technological alliances; outsourcing; etc)

2. Company's strategy and product differentiation

- 2.1. What is the firm's place within the market?
- 2.2. What are the firm's main advantages with respect to its competitors? What are the main disadvantages?
- 2.3. Which internal, external and policy aspects are behind the firm's advantages/disadvantages?

3. Cost structure of the firm

- 3.1. Which are the costs that weigh in more heavily in the cost structure of the firm?
- 3.2. Are there significant fixed and sunk costs?
- 3.4. How important are transportation and distribution costs?
- 3.5. Are there economies or diseconomies of scale?
- 3.6. How important are interest rates?
- 3.7. Are tax costs significant?

4. Financing mechanisms and structure

- 4.1. How is the financing of the company structured?
- 4.2. Has the company access to the capital market?
- 4.3. Has it access to credit –domestic, foreign, public- or does it finance itself with its own resources (equity, cash flow)? Why?
- 4.4. Does it reinvest all its profits?
- 4.5. Is financing an important issue? Does the company face financial constraints on investment or innovation?

5. Human Capital

- 5.1. Is access to human capital a major concern?
- 5.2. Is it part of the core business?
- 5.3. Does the company invest in training employees? Why or why not?
- 5.4. Is it a bottleneck for expansion?
- 5.5. Is it scarce in the market?
- 5.6. What proportion of employees needs industry-specific training?
- 5.7. Do companies steal each other's human resources?
- 5.8. How do the company's salaries compare to those of its competitors?
- 5.9. How does labor market informality in the sector affect the availability of skilled workers?

6. Technology

- 6.1. How does the technology employed by your firm and/or the quality of your products and services compare to the rest of the sector and to foreign competitors?
- 6.2. What is the main source of acquisition of technology by your firm?
- 6.3. Are there important barriers to technology acquisition?

7. Vulnerabilities and Risks

- 7.1. How important is the domestic economic cycle to the company's revenues?
- 7.2. Is political instability an issue?
- 7.3. Is security an issue?
- 7.4. Are there any risk-related barriers to growth?
- 7.5. Are there fears of expropriation?
- 7.6. Are financial risks significant?
- 7.7. Are there institutional risks?
- 7.8. Is policy credibility an important issue?

II. Information on the sector

8. Competition

- 8.1. Has the industry reached its mature state?
- 8.2. Are products significantly differentiated?

- 8.3. Are there various market niches?
- 8.4. Are there economies of scope?
- 8.5. Is foreign competition important? Is it complementary? How important is the domestic market?
- 8.6. Are barriers to entry important and effective?
- 8.7. Are multinational firms important within this industry? Are they trendsetters?
- 8.8. Does the industry association play a major role?
- 8.9. Do firms have communications channels among them and with the government?
- 8.10. Are there firm-specific government support policies (e.g. small firms, exporters, multinationals) and/or differences in access to financing that may hinder competition?

III. Incidence of government policies and regulations on the firm and sector

9. Government intervention and the firm

- 9.1. Has the company used horizontal industrial policies such as investment tax exemption regimes? Subsidized credits?
- 9.2. Has the company benefited from sector-specific government policies? Subsidies? Credits?
- 9.3. Has the company benefited from tax exemptions/deductions/incentives?

10. Treatment and impact of foreign competition and FDI

- 10.1. Is there foreign competition and/or foreign direct investment?
- 10.2. Has this competition been beneficial for the market and, if so, through which channels?
- 10.3. Have supply chains and distribution chains evolved?
- 10.4. Has there been an impact from the entry of large retailers?
- 10.5. What is the effect of foreign competition on the restructuring of the industry and the performance of local competitors?

11. Goods and factor markets regulations and policy interventions

- 11.1. Do labor market regulations prevent the achievement of optimal employment and scale of the company?
- 11.2. Do labor, tax and regulatory informality hurt the returns on investment?
- 11.3. What other regulations hurt your competitiveness? How? How much?
- 11.4. Are these regulations applied equally to all firms in the sector?
- 11.5. Do regulations promote bigger informality?

A2. Implementation of interviews

Most of the interviews were done personally and few of them over the phone. We usually had sufficient time to go through the entire questionnaire, although at times we had to give priority to some questions due to lack of time. This was especially the case in the telephonic interviews.

Most of the interviews followed the order presented in the questionnaire. We first explained to the interviewees that the goal of the research was to understand the determinants of “efficiency” and “competitiveness” of the supermarket sector and how it is affected by market and policy distortions. We never asked the full set of questions presented in each of the sections of the questionnaire. We rather invited the interviewees to discuss the general topic of each section. We asked them some of the more specific questions when they were not addressing them, or when they were veering away from the subject. The full set of questions was used to organize the answers obtained.

Our interviews were well received in the majority of cases, and interviewees were enthusiastic to provide the required information. In some cases it was not possible to obtain some quantitative information due to corporate regulations. There was one conspicuous case where the interviewee was not willing to discuss much the issue of distortions, probably because it benefited its firm.

A3. Processing of the interviews

To be completed.

A4. Choice of interviewed firms

To be completed.

A5. Quantitative assessment of the competitive advantages from informality and of the productivity gap it allows

We hereby provide back-of-the-envelope calculations for the productivity differential between a typical large formal chain and a typical Chinese supermarket that allows the former to bear a much bigger incidence of labour costs on net sales.

Here are the analytical bases for our estimation. We assume that the production function for a typical supermarket is given by a Cobb-Douglas technology:

$$(A5.1) Q_i = A_i K_i^{\alpha_i} L_i^{1-\alpha_i}$$

Where the sub-index $i = F, I$ denotes the type of firm (formal or informal).

The value of output of a supermarket is the value added to the merchandise that it purchases from its suppliers.

$$(A5.2) P_i Q_i = P_i Y_i - M_i$$

Where P_i is the price set by supermarkets, Y_i is the volume of sales and M_i is the value of the merchandise purchased from suppliers.

For our estimations we need to work with the labor-intensity coefficient that obtains from cost minimization:

$$(A5.3) L_i / Q_i = A_i^{-1} (w_i / (1 - \alpha_i))^{-\alpha_i} (r_i / \alpha_i)^{\alpha_i}$$

Where w_i denotes the wage and non-wage labor costs per worker that supermarket i has to pay (i.e., it includes the labor wedge), and r_i denotes the cost of capital including the capital tax that the firm has to pay.

We can transform the previous equation into one that measures the incidence of labor costs on the value of output:

$$(A5.4) w_i L_i / P_i Q_i = (P_i A_i)^{-1} (w_i)^{1-\alpha_i} / (1 - \alpha_i)^{-\alpha_i} (r_i / \alpha_i)^{\alpha_i}$$

Our interviewees have reported the incidence of labor costs on final sales, $w_i L_i / P_i Y_i$, such that:

$$(A5.5) w_F L_F / P_F Y_F = 0.10$$

$$w_I L_I / P_I Y_I = 0.05$$

We will use this information to retrieve the A_I / A_F that allows the formal chains to bear this bigger labor cost incidence. To this end we first want to retrieve the values of $w_i L_i / P_i Q_i$ from A5.5. We use A5.2 to rearrange A5.5 as:

$$(A5.5') \quad \begin{aligned} (P_F Y_F - M_F) / w_F L_F &= 10 \\ (P_I Y_I - M_I) / w_I L_I &= 20 \end{aligned}$$

We need to estimate $M_i / w_i L_i$. For this we will use the following reported information:

$$(A5.6) \quad \begin{aligned} w_F L_F / Total\ costs_F &= 0.50 \\ w_I L_I / Total\ costs_I &= 0.80 \end{aligned}$$

In our estimations we will make the strong assumption that $Total\ costs_i = w_i L_i + r_i K_i$. This assumption allows us to use the reported profit rates to retrieve $M_i / P_i Y_i$. We will also use the reported profit rates:

$$(A5.7) \quad (P_F Y_F - (w_F L_F + r_F K_F - T) - M_F) / P_F Y_F = 0.03$$

We can substitute in (A5.7) the values for $(w_F L_F + r_F K_F - T) / P_F Y_F$ using (A5.5) and the (strong) assumption that $w_F L_F = r_F K_F$ (i.e. that labor and capital costs have a similar incidence in total costs. Hence,

$$(A5.8) \quad (w_F L_F + r_F K_F) / P_F Y_F = 0.20$$

We additionally know from the interviews that for some large formal chains:

$$(A5.9) \quad T_F / P_F Y_F = 0.025$$

Substituting A5.8 and A5.9 into A5.7, we obtain:

$$(A5.10) \quad M_F / P_F Y_F = 0.745$$

We can plug A5.10 into A5.5' to obtain:

$$(A5.11) \quad w_F L_F / P_F Q_F = 0.39$$

We can do a similar exercise for the informal firms, to which end we use the following reported information:

$$(A5.12) \quad (P_I Y_I - (w_I L_I + r_I K_I - T_I) - M_I) / P_I Y_I = 0.03$$

where $w_I L_I = 4 r_I K_I$ (from A5.6), $(w_I L_I + r_I K_I) / P_I Y_I = 0.0625$ (from A5.5 and A5.6), and $T_I = 0$ (because of informality), which yields:

$$(A5.13) \quad M_I / P_I Y_I = 0.8375$$

Plugging (A5.13) into A5.5' we get:

$$(A5.14) \quad w_I L_I / Q_I Y_I = 0.308$$

We can then use A5.4, A5.11 and A5.14 to retrieve A_I / A_F . To this end we also use the reported labor cost differential across formal and informal firms:

$$(A5.15) \quad w_F = 1.7 w_I$$

We are not too sure regarding the capital wedge that favors formal firms. We conservatively assume that $r_F = 0.85 r_I$. We also assume, following Hsieh and Klenow (2008), that $\alpha_I = 0.3$. With this information and assumptions we obtain:

$$(A5.16) \quad P_I A_I = 0.88 P_F A_F$$

If $P_I = P_F$ (a reasonable assumption in current times), then $A_F = 1.14 A_I$.

If we assume instead that informal firms operate more labor intensive Cobb-Douglas technologies than the formal firms, such that $\alpha_F = 0.5$ and $\alpha_I = 0.2$, then this calculation of productivity differentials yields the following indeterminate result:

$$(A5.17) \quad P_I A_I = 0.59 (w_I / r_I)^{0.3} P_F A_F$$

A6. Back-of-the-envelope calculations of the productivity gains from reducing informality

To be completed.