

Liberalization of FDI in Retail Services: a Fast Death Instrument for India?

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June 2012

Abstract

In order to address the significant increase in importance of FDI and of MNC-related policies, we develop an extended GTAP model and associated global database that accounts for both foreign direct investment and multinational companies differentiated by the region of ownership. The model is calibrated on the GTAP v8 database complemented with global foreign affiliate statistics data described in detail in Fukui and Lakatos (2012) and the FDI stocks data Boumellassa et al. (2007). To illustrate the model's behaviour, we examine the recent policy debate with respect to allowing foreign direct investment in multi-brand retailing in India.

JEL Classification: **F23 C68**

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1 Introduction

Nationwide protests erupted in December 2011 in India against the government's decision to allow 51% foreign direct investment (FDI) in multi-brand retailing, labelling FDI among others as a "fast death instrument" for the Indian economy. As a result of the intense political and social pressure, the Government of India revoked its decision to allow global supermarket chains such as Wal-Mart, Carrefour or Tesco to set up business in India and as of April 2012, FDI in multi-brand retailing is again prohibited.

The debate over liberalising barriers to foreign investment in India is not a new-found one. Foreign investment policy changed drastically with the economic reforms of 1991 which liberalised many of the highly protected public sectors by removing entry barriers to private participation and by allowing foreign investment in 35 high-priority manufacturing sectors. While these measures managed to attract foreign investment and technology in manufacturing sectors it capped foreign ownership at 51% and left most of the services sectors among which retailing highly protected. Since 1991, barriers to foreign investment were further relaxed by progressive de-licensing and allowing 100% foreign ownership in certain sectors.

FDI in "cash and carry" and wholesale trading allowing 100% foreign ownership was first authorised in 1997. Single brand retailing was also opened up to foreign investment in 2006 but the rate of foreign participation was capped at 51%. This limitation was finally removed in November 2011 at the same time the government attempted to allow 51% ownership in multi-brand retailing. As pointed out above, this measure was met with strong opposition of the different stakeholders and was revoked only after four months.

On the one hand, allowing foreign retailers is seen to threaten the existence of millions of small traditional stores and street vendors that dominate the Indian retailing industry. On the other hand, corporate retailers can lower prices for Indian consumers and improve the efficiency of the retail services industry while bringing investment and know-how.

The goal of this study is to shed light on whether opening up multi-brand retailing and more generally trade to foreign investors in India would indeed be a "fast death instrument" for India. We quantify the economic impacts of the removal of barriers

to foreign investment in a comparative static computable general equilibrium (CGE) framework developed exclusively for better representing multinationals and FDI. More specifically, we develop an extended GTAP model and associated global database that accounts for both foreign direct investment and multinational companies differentiated by the region of ownership which use different production technologies to produce a given a good. The model is calibrated on the GTAP v8 database complemented with global foreign affiliate statistics data described in detail in Fukui and Lakatos (2012) and the FDI stocks data Boumellassa et al. (2007).

The rest of the paper is organised as follows. Section 1 introduces the paper and Section 2 reviews some of the existing literature on the advantages and disadvantages of allowing FDI in multi-brand retailing. Section 3 and Section 4 describe in detail the modelling framework and the databases used in calibrating the model. Section 5 provides details about the design of the simulations carried out in the paper while Section 6 analyses the economic impact of the elimination of the barriers to FDI in retailing in India. Finally, Section 7 concludes.

2 FDI in retailing: pros and cons

Trade, including both wholesale and retail, is one of most important sectors of the Indian economy accounting for 16% of GDP and 14% of total employment¹ and consequently liberalisation measures can have a significant impact on all agents of the economy from farmer-producers, intermediaries, retailers to final consumers.

Economic theory tells us that liberalisation is a positive sum game, that is, it provides sufficient gains for winners in order to compensate losers. From a policy point of view it is thus important to identify these categories in order to achieve a socially equitable distribution of gains.

One of the major concerns with regards to opening up multi-brand retailing relates to labour displacement and wages. The retail sector is the second largest employer after agriculture accounting for 7.2% of the labour force or 33.1 million persons (DIPP,

¹Central Statistics Office estimates for 2008-2009

2010). Research indicates that each Wal-Mart worker replaces approximately 1.4 retail workers (Chari and Raghavan, 2012) while pushing down wages.

While on the one hand, allowing giant multinational retailers to set up business in India will create increased competition which could in turn threaten the very existence of traditional small retailers that dominate the Indian retail market, competition could also be the driver of improvements in the productivity of the retail sector. Compared to domestic capital, the added benefit of FDI can be greater in closing the productivity gap of the domestic retail industry given that multinationals and foreign capital are associated with technology and know-how spill-overs and increased innovation. In addition, opening up the retail sector to foreign investment may stimulate productivity growth in upstream manufacturing suppliers and downstream buyers.

Supporters of FDI in retail trade argue that liberalisation will benefit multiple economic agents along the supply chain.

Farmers may benefit from having the option of selling directly to organised retailers. The prevalence of intermediaries that make the link between farmers and (unorganised) retailers inflates prices and reduces transparency along the supply chain. Allowing farmers to sell directly to organised retailers reduces the role of intermediaries and increases profit margins for both farmers and retailers. Indirectly, farmers will also gain from the much needed investments aimed to improve the efficiency of the marketing system such as investment in post-harvest cold-chain and storage infrastructure in a context in which at the present time post-harvest waste and loss are significant due to the lack of adequate facilities.²

Finally, consumers are expected to be the main beneficiaries of the liberalisation of foreign entry in the retail sector through improvements in price and quality and access to a wider range of varieties. Existing research found that with entry of foreign firms in organised retail overall consumer spending increases and while all income groups improve their purchasing power, lower income consumers benefit the most (Joseph et al., 2008).

While multi-brand retailing is still prohibited, multinational retailers find ways

²It has been estimated that 25-30% of fruits and vegetables and 5-7% of food grains in India are wasted (DIPP, 2010).

to cater to the growing Indian market. For instance, Wal-Mart created access to the Indian wholesale market by entering into a successful joint-venture with Bharti Enterprises Ltd. As a result, liberalisation of the multi-brand retail industry to foreign retailers would not be as much of a shock therapy for India as many critics claim.

3 Modelling Framework

On the one hand, FDI is associated with the international mobility of capital and on the other hand, FDI implies firms operating across national borders. Modeling FDI in CGE should cover both of these aspects.

The pioneering work of Petri (1997) has defined the way many renowned CGE models represent foreign direct investment. The Petri model first considered foreign commercial presence in CGE and employed the Armington assumption to distinguish between product varieties differentiated not only by the firm location but also by firm ownership. In addition, Petri defines investor preferences as a nested imperfect transformation function that allocates a given investment budget across destinations (sectors and regions). Examples of CGE models that use this (or a very similar) specification of FDI are FTAP (Hanslow et al., 2000), the Michigan model (Brown and Stern, 2001) MIRAGE (Bchir et al., 2002) and WorldScan (Lejour et al., 2006). The FTAP model is a comparative static version of the GTAP model which incorporates FDI based mostly on the assumptions of Petri. Brown and Stern (2001) also use a modified Petri assumption to incorporate FDI in the Michigan Model of World Production and Trade. Lejour et al. (2008) use the same framework to analyze the liberalization of the EU services market with the WorldScan model. The specification of FDI we propose follows closely that of Petri (1997) and Hanslow et al. (2000). The next subsections describe the structure of investor preferences and the structure of consumer and industry demand.

3.1 Mobility of capital

The lack of bilateral data on foreign assets and liabilities often compels CGE modelers to employ a somewhat artificial representation of foreign investment. Indeed, for

instance in the standard GTAP model the "global trust" collects the savings of all the regional households and allocates it to regional investment on their behalf. GTAP is a real assets model, i.e. investment is only associated with equity: the regional households (shareholders) own equity in the firm equal to the value of physical capital and earn income (dividends) corresponding to their ownership share - there are no financial markets and no differentiation between debt and equity.

For the specification of the supply of FDI we propose the same imperfect (constant elasticity of) transformation function as in Petri (1997). The capital owner's goal is to maximize the net of his wealth subject to diversification constraints. Total wealth is distributed across destinations (sectors and regions) as a function of relative rates of return subject to the diversification constraints imposed by a constant elasticity of transformation function (CET).

Note that we do not represent explicit dynamics as this specification implies intrinsic dynamics of savings and capital accumulation. McDougall (1993) derives accumulation equations that express end-of-period wealth as a function of the saving ratio, real income and prices. In addition, total supply of capital in region r is then allocated to domestic/foreign and sectors based on a constant elasticity function determined by relative rates of return. Average rate of return is a weighted sum of rates of return on assets across destinations. Rates of return are the ratio between the rental price of capital and the price of capital goods.

3.2 Foreign commercial presence

The traditional Armington assumption used in most CGE models to specify international trade flows implies that products are differentiated by the country of origin of that product. The surge in FDI flows has however been accompanied by the surge in the activities of multinational firms that operate across national borders. Thus the distinction between firm location and firm ownership becomes important in when considering the specification of FDI.

The novelty in our specification of foreign commercial presence lies in that we move away from the representative firm assumption as we are able to explicitly represent firms differentiated by the region of ownership that use different production technolo-

gies in producing a good.

3.2.1 The structure of demand

Suppose Figure 1 describes the structure of consumer demand for cars in the US. In a first stage, consumers allocate expenditure between domestically produced and imported cars. Then, in a second stage, expenditure on imported cars is allocated across varieties produced by each trading partner. Finally, domestically produced and imported cars are allocated across ownership categories to various multinationals. Note that this specification implies that from the point of view of a US consumer, a car produced by a Korean multinational located in the US (such as Hyundai or Kia) is a closer substitute for a car produced by a domestic US company (Ford or GM) than it is for a car produced by a Korean firm for the Korean market. As pointed out by Hanslow et al. (2000), this is a reasonable assumption given that firms operating in a given market tailor their products and services to the preferences of markets where they operate. Modifications to the GTAP model and database would imply extending the current structure of final demand with an additional level of nesting corresponding to the region of ownership based on a CES specification.

3.2.2 The structure of supply

Compared with the standard GTAP model where in a given region there is one representative firm that produces a single consumption good, in the GTAP model with FDI we differentiate between domestic firms and foreign owned affiliates of multinational companies that produce a composite consumption good. As represented in Figure 2, for instance domestic supply of cars in the US is a composite output of both domestic (Ford, GM or Chrysler) and foreign owned firms located in the US. Foreign owned firms located in the US are further differentiated by the country of ownership (affiliates of Japanese MNCs such as Honda or Toyota, affiliates of Korean car manufacturers such as Kia or Hyundai, etc. that operate in the US). Further, each of these firms combine value added and intermediate inputs using a Leontief technology to produce a good. Our proposed specification implies that intermediate inputs (just as final demand) are differentiated not only by the regions of firm location, but also by the region of firm

ownership.

From a modeling point of view, this implies the following modifications to the specification of the supply side. Instead of one representative firm that produces a commodity i combining intermediate inputs and value added, in this specification total output is a composite of the output of domestic and foreign affiliate firms. Further, the output of foreign affiliates in region r is a composite of the output of different firms owned by different regions s . Firms' technology differ by value added intensity.

4 Data Sources

Overall, the specification of FDI described here requires the following data:

- capital stocks disaggregated by region of ownership/location and sector
- cost and sales structure of domestic firms and foreign affiliates

Bilateral and sector specific FDI stocks data is available at the GTAP sector/region aggregation (Boumellassa et al., 2007). Data on the cost and sales structure of foreign affiliates originates from (Fukui and Lakatos, 2012).

The lack of available data on the activities of foreign affiliates has often compelled researchers to use FDI data as a proxy for foreign affiliate operations data. Many existing CGE studies use FDI stocks/flows data to infer structural information about the production characteristics of foreign firms as well as their sales patterns. Nevertheless, as pointed out in Beugelsdijk et al. (2010), FDI stocks are a biased measure of FAS as the degree to which they over- or underestimate the activity of multinational varies with host-country characteristics. More specifically, FDI statistics measure only movements of capital between direct investors and their affiliates, and not funds from unaffiliated persons. This can lead to an underestimation of the activity of foreign affiliate activity in countries with well-developed financial markets. In addition, FDI in countries that are tax havens generate no actual productive activity - leading to an overestimation of the activity of foreign affiliates in these countries. Finally, variation in labor productivity across countries leads to an overestimation of affiliate activity in countries where labor is more productive and underestimation where labor is relatively less productive.

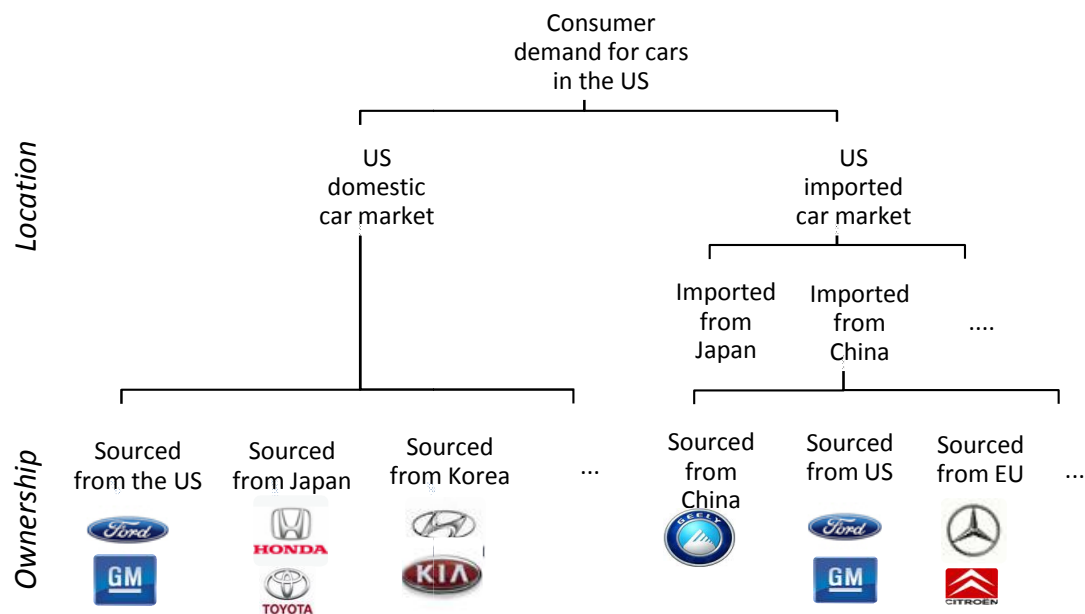


Figure 1: The structure of demand with foreign commercial presence

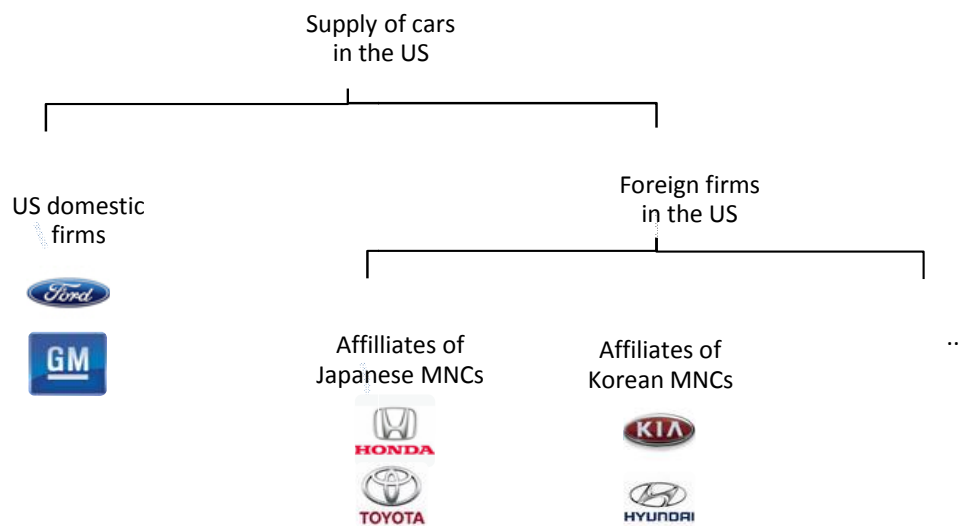


Figure 2: The structure of supply with foreign commercial presence

The data collection/estimation and building efforts with respect to the activities and technology used of foreign affiliates by Fukui and Lakatos (2012) now allows us to significantly improve on existing modelling specifications of MNCs in CGE. As a result, we now produce a GTAP database that is disaggregated to include not only capital stocks disaggregated by industry, host and source country but also domestic and foreign firms disaggregated by region of ownership and use heterogeneous production technologies.

In the next sections, we provide further details about the structure of the data used to disaggregate the GTAP database at the level of aggregation chosen for our simulations.

4.1 FDI stocks data

FDI data documented in Boumellassa et al. (2007) is used to disaggregate capital stocks by industry, host and source country in the GTAP database.

A closer look at the data reveals interesting findings. As illustrated in Table 1, aggregate world FDI stocks amounted to \$12.4 trillion in 2004. As a region, the EU27 is the most significant host and source of FDI with 53% and 47%, respectively followed by the US and the rest of the world. With respect to the distribution sector (Table 2), the pattern follow that of the global FDI stocks. A sectoral decomposition of the data further shows that distribution services account for 6.7% of total FDI stocks.

India as a host attracted FDI stocks worth \$43 billion but it is not a significant source of FDI (\$10 billion).

4.2 Foreign affiliates' turnover (sales) data

Table 1 reports the structure of total turnover of foreign affiliates by host and source country in all sectors of the economy. Aggregate turnover of all affiliates is shown to be \$21.29 trillion. Overall, most important source countries are the EU27 and USA accounting for 41% and 25% of the total outward turnover of foreign affiliates. On the other hand, EU27 countries are host to 36% of the total inward turnover of foreign affiliates followed by the ROW (26%) and the US (20%).

Table 1: FDI stocks and turnover of affiliates: a comparative view (USD million)

	Total by host			Total by source		
	Turnover	FDI stocks	Share	Turnover	FDI stocks	Share
USA	3,616,247	2,751,935	0.76	5,522,695	3,215,075	0.58
China	530,903	523,856	0.99	151,551	52,370	0.35
India	157,370	43,103	0.27	54,141	10,084	0.19
East Asia	1,745,425	679,587	0.39	2,277,923	895,024	0.39
ASEAN	1,047,444	318,293	0.30	440,208	127,121	0.29
AusNz	671,009	312,270	0.47	572,950	216,800	0.38
EU27	7,838,070	5,938,146	0.76	8,741,512	6,685,702	0.76
ROW	5,686,533	1,866,477	0.33	3,532,020	1,231,493	0.35
Total	21,293,000	12,433,667	0.58	21,293,000	12,433,668	0.58

Source: Boumellassa et al. (2007) and Fukui and Lakatos (2012). FDI stocks data reflect 2004 values, while turnover data are averages for the period 2004-2007

Table 2: FDI stocks and turnover of affiliates in the distribution sector (USD million)

	Total by host			Total by source		
	Turnover	FDI stocks	Share	Turnover	FDI stocks	Share
USA	1,125,588	202,879	0.18	1,247,561	206,751	0.17
China	43,474	23,494	0.54	21,280	2,401	0.11
India	10,851	1,903	0.18	19,623	442	0.02
East Asia	448,843	49,158	0.11	53,135	64,182	0.09
ASEAN	173,504	17,534	0.10	159,380	6,533	0.04
AusNz	66,590	29,756	0.45	42,493	15,083	0.35
EU27	2,677,116	392,989	0.15	2,294,176	425,303	0.19
ROW	765,427	110,439	0.14	773,746	107,457	0.14
Total	5,311,393	828,152	0.16	5,311,393	828,152	0.16

Source: Boumellassa et al. (2007) and Fukui and Lakatos (2012). FDI stocks data reflect 2004 values, while turnover data are averages for the period 2004-2007

As shown in Table 2, the distribution sector accounts for a significant share of the global turnover of foreign affiliates with \$5.3 trillion or 24.9%. EU27 and US foreign affiliates add up to 50% and 21% of total inward sales and 43% and 23.5% of total outward sales, respectively.

As for FDI stocks, India is not a significant host or source of foreign affiliates sales in the global economy. Further, we find that distribution only accounts for only 6% of total inward affiliate sales in India - significantly below the world average of 24.9%. This finding points toward the fact that India is among the most highly protected economies in distribution services in the world only topped by Tunisia, Jordan and Indonesia (see Figure 3).

4.3 Foreign affiliates value added data

Apart from using affiliates' sales data to disaggregate production and sales in the GTAP database, we also use information about labour and capital shares in order to make inferences about the production technology of foreign affiliates.

The construction of the value added database is described in detail in Fukui and Lakatos (2012). The database provides information about labour (and implicitly capital) shares in total value added by industry, host and source country. As illustrated in Table 3 for instance, the share of labour in total value added varies significantly by host and source country in the distribution sector ranging from 31.6% for US affiliates located in ASEAN countries to 65.5% for ROW's affiliates located in Australia and New Zealand.

Representing heterogeneous production technologies for foreign affiliates is a novel approach that is first employed in this paper (as far as we are aware) and is a significant improvement on the existing modelling techniques.

5 Simulation design

The model is calibrated on the GTAP v8 database complemented with global foreign affiliate statistics data described in detail in Fukui and Lakatos (2012) and the FDI stocks data Boumellassa et al. (2007). For the purposes of this paper, regions have been

Table 3: Share of labor in total value added in the trade sector

host/source	USA	EU27	China	India	East Asia	ASEAN	AusNz	RoW
USA	-	0.609	0.575	0.575	0.558	0.568	0.535	0.568
EU27	0.275	-	0.452	0.543	0.538	0.611	0.54	0.613
China	0.369	0.469	-	0.417	0.469	0.43	0.475	0.435
India	0.423	0.394	0.357	-	0.394	0.355	0.4	0.36
East Asia	0.385	0.658	0.621	0.606	-	0.619	0.664	0.624
ASEAN	0.316	0.461	0.423	0.408	0.46	-	0.466	0.426
AusNz	0.209	0.69	0.652	0.637	0.689	0.65	-	0.655
RoW	0.409	0.487	0.449	0.435	0.486	0.448	0.492	-

Source: Fukui and Lakatos (2012)

aggregated into 8 composite ones comprised of India, United States, China, EU27, East Asia, ASEAN, Australia and New Zealand, and the Rest of the World. The sectoral aggregation is built around 6 sectors of interest: agriculture, mining, manufactures, distribution services, transportation, and other services.

To simulate the impact of the removal of barriers to FDI foreign commercial presence in the distribution sector we develop few potential scenarios of liberalisation:

- unilateral liberalisation (75% of existing barriers³) of barriers to foreign commercial presence in the distribution sector in India examined in three progressively representative scenarios:
 - **Scenario 1a (S1a)**: unilateral liberalisation of barriers to foreign commercial presence in the distribution sector in India;
 - **Scenario 1b (S1b)**: S1a + an accompanying productivity spillover to the domestic distribution sector in India;
 - **Scenario 1c (S1c)**: S1b + an associated productivity gain in upstream supplying industries (agriculture) in India;

³We start from the assumption that full liberalisation of the distribution sector would be politically and socially infeasible.

- multilateral liberalisation (75% of existing barriers) of barriers to foreign commercial presence in the distribution sector worldwide: **Scenario 2 (S2)**.

5.1 The nature of barriers to FDI and MNCs

While restrictions on the international movement of capital and operations of multinational companies have been declining over the years, there are still significant barriers that remain.

Internationally, FDI is mostly regulated by an extensive web of preferential investment treaties: as of 2010 the number of international investment agreements (IIA) reached a total of 6,092, among which there were 2,807 bilateral investment treaties (BITs), 2,976 double taxation treaties (DTTs) and 309 free trade agreements (FTAs) with provision with respect to liberalisation of FDI (UNCTAD, 2011).

Based on the classification developed by UNCTAD (1996) we distinguish three broad categories of measures that have an impact on foreign investment and the operations of MNCs:

- measures relating to entry and establishment such as closing certain sectors to FDI; minimum capital requirements; screening, authorisation and registration of investment or restrictions on forms of entry (mergers and acquisitions might not be allowed) etc.
- measures relating to the ownership and control would include barriers such as restrictions on foreign ownership; compulsory joint ventures; restrictions on foreign shareholders' rights; restrictions on the licensing of foreign technology etc.
- measures relating to ongoing operations of multinational companies such as restrictions on employment of foreign personnel, restrictions on imports of capital goods; rules of origin; ceilings on royalties and technical assistance fees etc.

As suggested by the examples above, most of the restrictions are of NTM (non-tariff measure) type and thus in comparison with restrictions on trade flows they are difficult to quantify. FDI restrictiveness indexes are among the most common measures that are used to summarise the overall (relative) restrictiveness of a given sector and/or economy.

In this paper, our starting point for quantifying the impact of barriers to FDI and MNCs is the FDI restrictiveness index developed by OECD (Kalinova et al., 2010). The database provides information on the relative restrictiveness of OECD and other G20 countries decomposed by sector. Individual measures are scored based on their degree of restrictiveness and weighted. The four types of measures covered by OECD's FDI Restrictiveness Index are foreign equity restrictions, screening and prior approval requirements, rules for key personnel and other restrictions.

As shown in Figure 3 the countries with the highest FDI restrictiveness index in distribution services are Tunisia (0.625), Jordan (0.56), Indonesia (0.435) and India (0.394). On the other extreme, there are numerous countries that are shown to have no restrictions on FDI in retail and wholesale among which there are 19 EU countries, United States, Chile, Argentina, Egypt and Morocco.

5.2 Quantifying the effect of FDI restrictions

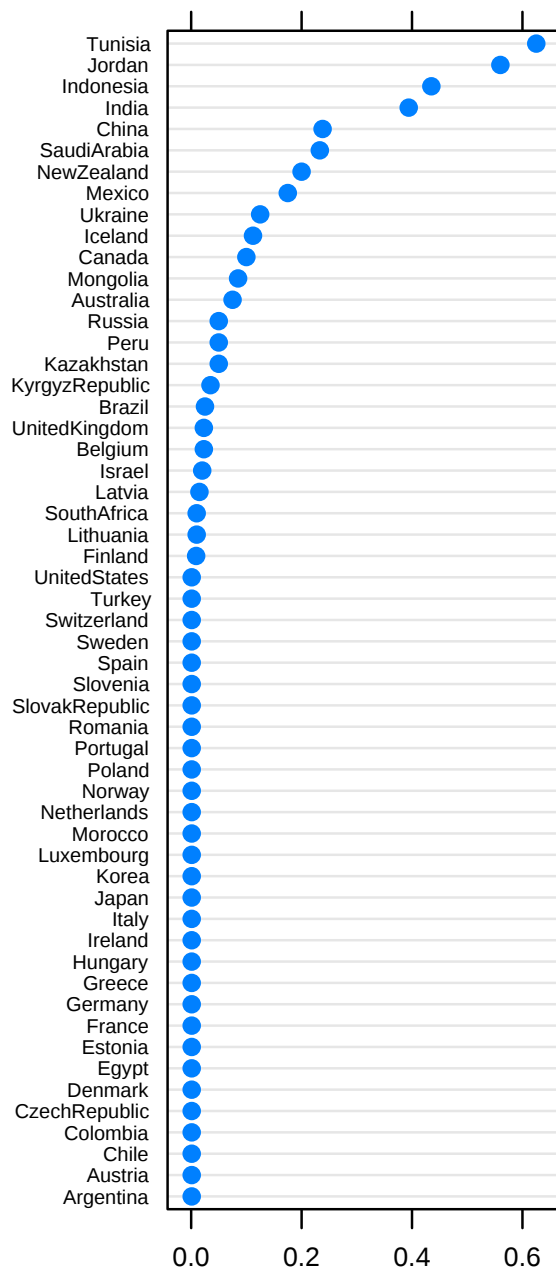
While the OECD FDI restrictiveness indexes provide a measure of the relative restrictiveness of a sector/country, for the purposes of this paper we need to develop ad-valorem equivalents of these barriers.

The estimation methodology, data sources and results are discussed in detail in Fukui and Lakatos (2012). The gravity-like econometric specification allows us to quantify the effects of FDI restrictions on the sales of foreign affiliates. The estimate of interest in the equation below is $\beta_5 = -0.55$, representing the elasticity of foreign affiliate sales with respect to the FDI restrictiveness index. As expected, we find that there is a negative relationship between restrictiveness and foreign affiliates sales.

$$FAS_{ihst} = \beta_0 + \beta_1 Y_{iht} + \beta_2 Y_{st} + \beta_3 Ypc_{ht} + \beta_4 Ypc_{st} + \beta_5 Row_{rst} \\ + \beta_6 EFWt_{iht} + \beta_7 FDIr_{iht} + \beta_8 SK_{hst} + \gamma_t$$

- FAS_{ihst} log of foreign affiliate sales in sector i, host country h, source country s, at time t
- Y_{iht} log of output of sector i, in host country h, at time t
- Y_{st} log of GDP of source country s at time t
- Ypc_{ht} log of GDP per capita of host country s at time t

Figure 3: FDI Restrictiveness Index in Distribution Services



Source: OECD

- Ypc_{st} log of GDP per capita of source country s at time t
- $Yrow_{rst}$ log of the GDP of the rest of the world
- $FDIr_{iht}$ FDI restrictiveness index (OECD) in sector i, host country h, at time t
- $EFWt_{ht}$ trade openness index of host country h, at time t
- SK_{hst} the ratio of skilled to unskilled workers of host country h relative to that of source country s at time t

Given $\beta_5 = -0.55$ we can further calculate the ad-valorem tax equivalents of barriers to FDI on foreign affiliate sales. Results are reported in detail in Table 4. We find for instance that full liberalisation of barriers to FDI would lead to a 21.67% increase in the sales of foreign affiliates in India.

Table 4: Tax equivalents of barriers in the distribution sector

	Index	AVE
USA	0	0%
EU27	0.013	0.71%
China	0.238	13.09%
India	0.394	21.67%
East Asia	0.087	4.79%
ASEAN	0.158	8.68%
AusNz	0.099	5.43%
ROW	0.075	4.15%

Source: OECD and authors' own calculations

6 Economy wide impacts of the liberalisation of the distribution sector

The distribution sector plays an crucial role in the economy with strong intra- and inter-industry linkages both upstream and downstream. Overall, it accounts for 9% of

total world output, 11% of consumer spending and 11% of total sectoral value added (see Table 5). In India, the importance of the distribution sector is even more pronounced than the world average with 10% (\$227 billion) and 14% (\$100 billion) of total output and consumer spending, respectively and 14% of sectoral value added. As such, any policy measure that directly impacts the functioning of the distribution sector will trickle down to consumers, suppliers upstream and downstream and internationally through trade flows and commercial presence. It is important to note that

Table 5: An overview of distribution sector (USD billion, 2007)

	Output	Share	Exports	Share	Value added	Share	Consumption	Share
USA	2895	12%	17	1.2%	1693	13%	1592	16%
China	450	5%	22	1.8%	219	7%	153	13%
India	227	10%	3	1.1%	161	14%	100	14%
East Asia	1438	12%	77	4.8%	830	15%	725	22%
ASEAN	309	11%	18	2.1%	171	14%	120	18%
AusNz	253	13%	7	3.3%	109	13%	135	27%
EU27	2580	8%	130	2.2%	1118	7%	1780	20%
ROW	2071	10%	38	1.1%	1310	13%	1017	16%
World	10224	9%	311	2%	5610	11%	5622	18%

Source: GTAP v8 database

the distribution sector relies heavily on establishing commercial presence abroad as mode of delivering services to international markets. As a result, it is not surprising to find that the share of exports of distribution services in total trade is not significant (2% world average). The global database on foreign affiliate sales (Fukui and Lakatos, 2012) allows us to further decompose the regional and sectoral distribution of foreign affiliates worldwide. We find that distribution services account for 25% of global foreign affiliate sales (\$5.3 trillion) with 34% in EU27 countries, 31% in the United States. In India, due to prohibitive barriers to entry foreign affiliate sales in distribution are only 6% of total while manufacturing and other services are important destination sectors for foreign affiliates.

Table 6 reports the share of foreign affiliates in each host country for distribution

services and all sectors of the economy. As expected, the regional distribution of source countries is quite concentrated in favour of EU27 and US. For instance, we find that in distribution services US and EU27 affiliates capture 99% of the Indian market with 69% and 30%, respectively. With respect to the economy as a whole, there the concentration of source countries is less pronounced. Despite the fact that

Table 6: Foreign affiliates in the world economy (share in total host)

Host/Source	USA	China	India	EAsia	ASEAN	AusNz	EU27	ROW	Total
Distribution services									
USA	0.00	0.00	0.06	37.09	4.58	0.00	28.14	30.13	100
China	40.95	0.00	0.00	0.25	0.04	0.02	58.51	0.22	100
India	68.84	0.02	0.00	0.50	0.17	0.08	29.93	0.46	100
East Asia	31.03	3.58	0.74	9.63	7.80	5.54	28.02	13.67	100
ASEAN	86.40	0.01	0.00	0.97	0.15	0.17	12.14	0.16	100
AusNz	46.79	0.02	0.01	0.56	0.16	0.29	51.81	0.36	100
EU27	17.70	0.19	0.59	10.79	2.70	0.62	53.63	13.78	100
ROW	55.94	0.01	0.00	0.17	0.03	0.06	43.32	0.48	100
All sectors									
USA	0.00	2.09	0.05	26.45	3.22	4.98	36.30	26.91	100
China	27.61	0.00	0.02	15.58	3.37	4.11	39.70	9.63	100
India	33.77	0.03	0.00	20.47	0.19	2.48	42.37	0.70	100
East Asia	29.32	2.69	0.21	11.01	6.12	10.24	23.25	17.17	100
ASEAN	40.64	0.03	0.01	9.11	0.52	3.41	42.24	4.03	100
AusNz	25.01	0.04	0.01	23.85	3.20	0.39	37.09	10.41	100
EU27	26.01	0.35	0.60	5.44	2.09	0.60	49.70	15.22	100
ROW	38.31	0.01	0.02	5.85	0.15	1.82	37.97	15.87	100

Source: Fukui and Lakatos (2012)

the international delivery of distribution services takes places mainly through Mode 3 of GATS, i.e. establishing commercial presence abroad, barriers as quantified in Table 4 are still significant. In this context, we proceed with examining the impacts of the removal of these barriers in unilateral and multilateral liberalisation scenarios in distribution services in India and worldwide.

6.1 Unilateral liberalisation of distribution services in India

Despite the recent controversy about opening up the distribution sector to foreign retailers, there is political will that remains in favour of pushing through the reforms in India.

The present section describes the impacts of unilateral liberalisation of the distribution sector in following three progressive scenarios:

- scenario 1a (S1a): removal of 75% of existing barriers to foreign commercial presence in the distribution sector in India;
- scenario 1b (S1b): S1a + 3.8% productivity growth in the domestic distribution industry in India;
- scenario 1c (S1c): S1b + 3.8% productivity growth in agriculture in India

In scenarios S1b and S1c we consider additional productivity spillovers in the domestic Indian retailing industry and upstream food supplying sectors in order to provide a more holistic impact assessment of the associated results of liberalisation not explicitly considered in our existing CGE framework. The productivity spillovers considered here are in line with existing research that has shown that FDI and the presence of multinationals are sources of positive productivity spillovers for domestic economies. More specifically, Javorcik and Li (2008) find that the presence of foreign chains in the retail industry in Romania increases total factor productivity (TFP) of food supplying sectors by 3.8-4.7%. In addition, there is evidence that foreign direct investment leads to productivity spillovers in upstream and downstream industries but also increases the productivity of domestic firms in the same sector (Javorcik, 2004).

As a first step, we consider the changes in output in distribution services and agriculture as a result of unilateral liberalisation across different scenarios as shown in Table 7. Note that foreign affiliates of different countries have differentiated responses even if the degree of liberalisation is assumed to be homogeneous for each source country, i.e. we assume that barriers are in line with MFN treatment. As pointed out previously, EU27 and the US are the single most important investors in the distribution sector in India and as a result of liberalisation they increase output by 172% and 295%, respectively. The output of domestically owned distribution firms in India

does not change in scenario S1a as we assume that barriers are discriminatory toward foreign firms only. As a result of the productivity spillover to domestically owned distribution sector, we find an increase in output of 2.5% in scenario S1b while the output of foreign affiliates does not change significantly relative to the first scenario. Finally, the productivity increase simulated in scenario S1c in agriculture results not only in the growth in output of this sector but also an additional expansion of the domestically owned distribution sector in India. We proceed with the analysis of

Table 7: Unilateral liberalisation: output in India (% change)

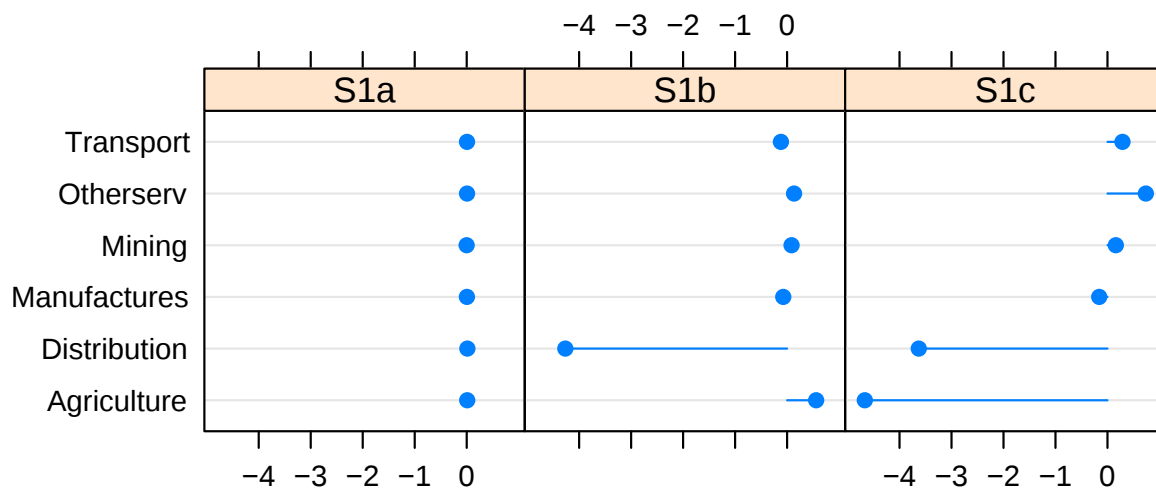
Source/Sector	Distribution			Agriculture		
	S1a	S1b	S1c	S1a	S1b	S1c
USA	295.84	295.66	295.82	0.00	-0.05	9.05
China	47.70	47.55	47.69	0.00	-0.03	13.67
India	0.00	2.50	3.01	0.00	0.11	3.85
East Asia	163.00	162.78	162.95	0.00	-0.05	9.67
ASEAN	55.56	55.37	55.49	0.00	-0.02	9.31
AusNz	431.98	431.63	431.75	0.00	-0.04	9.10
EU27	172.00	171.75	171.91	0.00	-0.05	10.23
ROW	48.64	48.54	48.65	0.00	-0.05	9.02

Source: Authors' simulations

unilateral liberalisation on consumers in India as depicted in Figures 4 and 5. As output in the distribution sector expands, consumers reap the benefits of liberalisation through increased consumption and lower prices. In S1a the magnitude of changes are not significant for consumers given that the share of foreign affiliates in the distribution sector is small. Nevertheless, as we simulate the impact of additional productivity spillovers in the domestically owned distribution sector consumption in India increases by 2.3% while average consumer price in the distribution sector fall by 4.26%. Given that the distribution sector has important inter-industry linkages across the economy, other sectors also benefit from the liberalisation and the spillovers. Finally, in scenario S1c we find that agricultural consumer prices fall by 4.6% and consumption increases

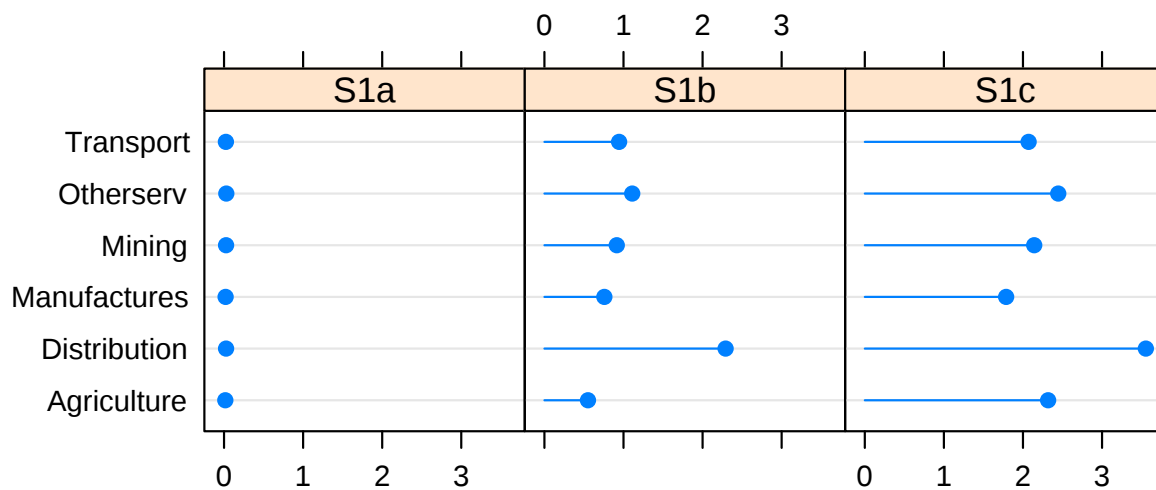
by 2.3%.

Figure 4: Unilateral liberalisation: consumer prices in India (% change)



Source: authors' simulations

Figure 5: Unilateral liberalisation: consumption in India (% change)



Source: authors' simulations

Liberalisation has an impact on investment in India through the price of capital

goods and the rental price of capital. As different foreign affiliates expand their output, overall foreign direct investment in the distribution sector in India expands by 11.9% and at the same time domestic investment falls as Indian distributors become less competitive. The productivity spillover in agriculture in S1c leads to the expansion of both domestic and foreign investment by 0.06% and 2.25%, respectively.

Table 8: Unilateral liberalisation: investment in India (% changes)

	Domestic investment			Foreign investment		
	S1a	S1b	S1c	S1a	S1b	S1c
Agriculture	0.00	0.06	-0.10	0.00	-0.07	2.25
Mining	0.00	-0.06	-0.01	0.00	-0.06	0.04
Manufactures	0.00	0.06	0.29	0.00	-0.08	-0.01
Distribution	-0.01	-0.22	-0.02	11.90	11.83	11.91
Transport	0.00	0.02	0.18	0.00	-0.08	0.00
Other services	0.00	0.00	0.13	0.00	-0.08	0.00

Source: Authors' simulations

In terms of aggregate impacts on the economy as a whole we find that real GDP decreases slightly in S1a by -0.0016%, but increases in S1b (0.75%) and S1c (1.65%) as the associated productivity spillovers are taken into consideration.

6.2 Multilateral liberalisation of distribution services

The multilateral liberalisation of services trade, including that of distribution services, is internationally regulated by the General Agreement on Trade in Services (GATS) negotiations that began in 2000. Distribution services attracted a relatively low level of commitments from 68 WTO member countries and there are still some product exclusions and exemptions from MNF (Most Favourite Nation) that remain (WTO, 2010). India and other WTO members that still impose significant barriers to distribution services did not take any commitments in this sector.

In this section, we consider the multilateral removal of 75% barriers to distribution

services worldwide.

We first consider the impacts of multilateral liberalisation on the output in the distribution sector decomposed by different host and source countries in Table 9. Note that the reaction of foreign affiliates in India is very similar to that found in S1a in the unilateral liberalisation scenario. One significant difference we find is that in the case domestically owned Indian distributors increase their output by 0.05% as well. Otherwise, the distribution of changes in output is as expected: countries with the highest initial barriers gain the most. Given that in the US barriers to establishing foreign commercial presence in distribution services are assumed to be zero in the initial database, we find that output of both domestically and foreign owned firms decreases.

Table 9: Multilateral liberalisation: output in the distribution sector (% changes)

Host/Source	USA	China	India	EAsia	ASEAN	AusNz	EU27	ROW
USA	-2.14	-0.51	0.18	-0.07	-0.58	-3.17	-1.09	-4.42
China	104.24	-0.59	15.24	69.07	26.90	134.71	69.67	18.49
India	283.59	46.54	0.05	162.34	54.19	405.67	167.54	40.27
East Asia	24.86	7.01	5.14	-0.13	8.01	29.64	18.40	2.87
ASEAN	55.16	13.93	9.48	39.10	-0.72	68.40	38.81	9.52
AusNz	29.19	8.07	5.82	22.07	9.24	-3.19	21.40	3.90
EU27	1.06	0.43	0.81	2.28	0.50	0.63	-1.14	-3.50
ROW	20.57	5.78	4.29	16.12	6.63	-3.37	15.33	1.76

Source: Authors' simulations

Changes in domestic and foreign investment by host and sector are depicted in Table 10. As expected, the distribution sector attracts the most investment as result of the liberalisation of the sector. However, we find that sectors that are downstream suppliers (agriculture and transportation) and upstream sectors (manufacturing and other services) that have important backward and forward linkages with the distribution sector benefit from its multilateral liberalisation.

We conclude our analysis with examining the impacts of the multilateral liberal-

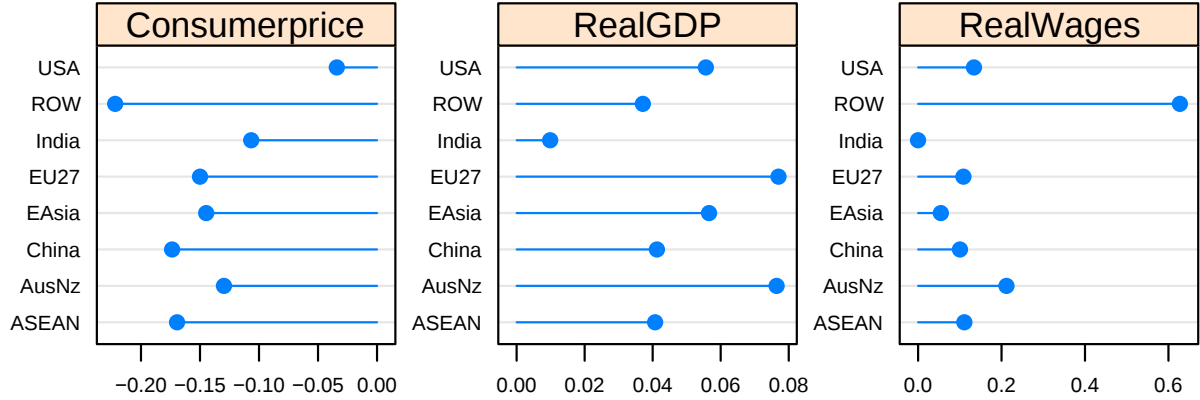
Table 10: Multilateral liberalisation: investment by host and sector (% changes)

Host/Sector	Agric	Mining	Manuf	Distrib	Transp	OServ
Domestic investment						
USA	0.11	0.04	0.10	0.00	0.13	0.15
China	0.11	0.01	0.09	0.00	0.10	0.08
India	0.09	-0.01	0.05	0.06	0.07	0.05
East Asia	0.12	0.02	0.11	0.09	0.12	0.11
ASEAN	0.06	0.00	0.06	-0.06	0.06	0.03
AusNz	0.11	0.05	0.12	-0.11	0.13	0.12
EU27	0.11	0.04	0.09	0.00	0.12	0.10
ROW	0.04	-0.03	0.05	0.23	0.05	0.02
Foreign direct investment						
USA	0.15	0.09	0.15	-0.15	0.16	0.13
China	0.10	0.01	0.09	5.36	0.10	0.09
India	0.06	-0.01	0.05	11.62	0.06	0.06
East Asia	0.13	0.06	0.12	1.14	0.14	0.11
ASEAN	0.05	-0.02	0.04	3.40	0.06	0.04
AusNz	0.13	0.05	0.11	1.90	0.14	0.12
EU27	0.12	0.05	0.12	-0.05	0.13	0.11
ROW	0.02	-0.06	0.00	1.32	0.02	0.01

Source: Authors' simulations

isation of the distribution sector on macroeconomic aggregates (see Figure 6). All countries experience a real GDP growth, however the magnitude of changes is small. These small impacts are expected given that foreign ownership in the distribution sector is still relatively small across the liberalising countries ranging from 30% in ASEAN countries, 13% in China to 10% in EU27 and US and 8% in East Asian countries. Thus, we find that as a result of multilateral liberalisation real GDP increases most in EU27 countries and Australia and New Zealand (0.07%). Consumers reap the benefits of multilateral liberalisation as the consumer price index falls in all regions while real wages increase slightly. India also benefits from multilateral liberalisation with an 0.009% increase in real GDP and an overall fall of 0.1% in consumer prices.

Figure 6: Multilateral liberalisation: macro indicators (% change)



Source: Authors' simulations

7 Conclusions

Delivering services to international markets through Mode 3 under GATS, i.e. establishing commercial presence abroad is still subject to significant barriers in general and in distribution services in particular. This paper is aimed to highlight the features of a new CGE model that considers explicitly not only FDI but also the foreign affiliates differentiated by the region of location and ownership and thus is a significant improve-

ment on existing tools for quantifying the removal of barriers to services trade. To illustrate the model's behaviour, we examine the unilateral and multilateral removal of barriers to foreign commercial presence in the distribution sector in the light of the recent policy debate in India.

References

- Bchir, M., Y. Decreux, J. Guérin, and S. Jean (2002). MIRAGE, a Computable General Equilibrium Model for Trade Policy Analysis. *CEPII, Document de travail 17*.
- Beugelsdijk, S., J. Hennart, A. Slangen, and R. Smeets (2010). Why and How FDI Stocks are a Biased Measure of MNE Affiliate Activity. *Journal of International Business Studies* 41(9), 1444–1459.
- Boumellassa, H., C. Gouel, and D. Laborde (2007). A Multisector, Multicountry FDI database for GTAP. 10th Annual GTAP Conference Paper.
- Brown, D. and R. Stern (2001). Measurement and Modeling of the Economic Effects of Trade and Investment Barriers in Services. *Review of International Economics* 9(2), 262–286.
- Chari, A. and T. C. A. M. Raghavan (2012). Foreign Direct Investment in India’s Retail Bazaar: Opportunities and Challenges. *The World Economy* 35(1), 79–90.
- DIPP (2010). Foreign Direct Investment (FDI) in Multi-Brand Retail Trading. Discussion paper, Ministry of Commerce and Industry Government of India.
- Fukui, T. and C. Lakatos (2012). A Global Database of Foreign Affiliate Activity. *GTAP Conference Paper*.
- Hanslow, K., T. Phamduc, and G. Verikios (2000). The Structure of the FTAP Model. *Economic Analysis* 27, 30.
- Javorcik, B. (2004). Does foreign direct investment increase the productivity of domestic firms? in search of spillovers through backward linkages. *The American Economic Review* 94(3), 605–627.
- Javorcik, B. and Y. Li (2008). Do the Biggest Aisles Serve a Brighter Future: Global Retail Chains and Their Implications for Romania. *World Bank Policy Research Working Paper 4650*.

- Joseph, M., N. Soundararajan, M. Gupta, and S. Sahu (2008). Impact of Organized Retailing on the Unorganized Sector. Technical report, Indian Council for Research on International Economic Relations.
- Kalinova, B., A. Palerm, and S. Thomsen (2010). *OECD's Foreign Direct Investment Restrictiveness Index: 2010 Update*. OECD Working Papers on International Investment.
- Lejour, A., H. Rojas-Romagosa, and G. Verweij (2008). Opening Services Markets within Europe: Modelling Foreign Establishments in a CGE Framework. *Economic Modelling* 25(5), 1022–1039.
- Lejour, A., P. Veenendaal, and N. Verweij, G. and van Leeuwen (2006). WorldScan: A Model for International Economic Policy Analysis. CPB Netherlands Bureau for Economic Policy Analysis.
- McDougall, R. (1993). *Incorporating International Capital Mobility Into SALTER*. Australia Industry Commission.
- Petri, P. (1997). Foreign Direct Investment in a Computable General Equilibrium Framework. Conference, Making APEC Work: Economic Challenges and Policy Alternatives.
- UNCTAD (1996). *World Investment Report 1996: Investment, Trade and International Policy Arrangements*. United Nations.
- UNCTAD (2011). *World Investment Report 2011: Non-Equity Modes of International Production and Development*. United Nations.
- WTO (2010). Distribution Services, Background Note by the Secretariat. *S/C/W/326*.