Competition between traditional food traders and supermarkets in Indonesia

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Abstract

In Indonesia's urban centres, supermarkets have multiplied recently. With cheaper higher-quality commodities and better services, supermarkets have the potential to drive traders in traditional markets out of business. This paper evaluates whether that is happening. It finds that traditional traders experienced declines in their business. However, both qualitative and quantitative findings indicate that the main cause of decline is not supermarkets. Instead, traditional markets are plagued with internal problems and face increasingly bitter competition from street vendors. The paper recommends policy to strengthen traditional traders and tackle the problem of street vendors.

Competition between modern and traditional retailers has been taking place in developed countries for many years. In the United States, for example, many studies find that Walmart adversely affects existing retailers (Artz & Stone 2006) and the local labour market (Basker 2005), while consumers generally benefit through the lower prices, arrival of new brands, and differentiated products that result from the competition (Hausman & Leibtag 2007).

Towards the last decade of the previous millennium, the battleground expanded to developing countries, where deregulation in the retail sector, aimed at increasing foreign direct investment, resulted in the proliferation of supermarket chains (Reardon & Hopkins 2006; Minten 2008). Reardon et al. (2003) found that, as of 2003, supermarkets' share of the retail food sector in several emerging economies, such as Thailand, Mexico, and Poland, had reached 50%. In Brazil and Argentina, where the proliferation began earlier, the share was around 60%. Traill (2006) has used various assumptions and predicted that supermarkets' share of the retail food market will reach 61% in Argentina, Mexico and Poland; 67% in Hungary; and 76% in Brazil by 2015.

The onset of supermarkets in developing countries, bringing with it higher quality products at lower prices, would theoretically be beneficial to consumers, especially those who are poor. At the same time, however, the increased competition may force traditional retailers, many of whom are also vulnerable to poverty, out of business. According to Reardon & Hopkins (2006) and Minten (2008), the war between supermarkets and traditional retailers in developing

countries takes place on several fronts, such as price, convenience, quality of the products, and safety.

Other than descriptions of the number of traditional retailers that have closed down since the onset of supermarkets, or comparisons of their growth rates, there is yet to be any study that conducts an impact evaluation of the effect of supermarkets on traditional retailers in developing countries. Furthermore, studies that use micro-level data of traditional retailers are still very rare, even in developed countries. In a case study in Portugal, Farhangmehr et al. (2001) measure traditional retailers' perception of supermarkets and unsurprisingly find a negative perception.

In this paper, we measure whether supermarkets adversely affect the traditional retailers. We use the data from a survey of traditional retailers that was precisely designed for this purpose. This article focuses on traditional retailers inside traditional markets, as opposed to local shops, for two reasons. Firstly, the majority of traditional retailers are located in these markets. Secondly, the commodities sold by these retailers are fresh fruit and vegetables, meat, and basic necessities. These commodities also make up a large part of the supermarkets' product line (Krishnamurti & Fauzia 2004). Hence, these traders are the supermarkets' main competitors.

Food retail trade in Indonesia

Supermarkets have been around since the 1970s in Indonesia, although they were only concentrated in large urban centres. Foreign supermarkets began entering the market in the late 1990s as foreign direct investment in the retail sector was opened in 1998. Table 1 shows the top five modern retailers in

Table 1. Five largest supermarket operators in Indonesia

Top five retailers	2004–05 (no. of stores; sales)	2010 (no. of stores; sales)
Carrefour (1998), currently 60% foreign	22 hypermarkets; A$551 million	67 hypermarkets, 16 supermarkets (including acquisition of Alfa in 2008); A$1.4 billion
Hero (1970s), currently 94% foreign	16 hypermarkets, 99 supermarkets; A$428 million	38 hypermarkets, 120 supermarkets; A$867 million
Matahari (1995), currently 0% foreign	17 hypermarkets, 37 supermarkets; A$281 million	38 hypermarkets, 29 supermarkets; A$338 million
Alfa (1989), acquired by Carrefour in 2008	33 total hypermarkets & supermarkets; A$371 million	–
Superindo (1997), currently 51% foreign	41 supermarkets; A$111 million	73 supermarkets; A$152 million

Indonesia, their establishment date, current ownership structure, and growth rates over the past 5 years.

In contrast to the relatively recent establishment of supermarkets, traditional markets have been supplying food over the past several decades. A traditional market usually consists of between 150 and 680 stalls or counters owned or leased by small traders. City governments own most traditional markets and manage them under the Office of Market Management. This office manages the markets either entirely on its own or in cooperation with private companies. The latter involves giving the private companies a permit to build and/or operate a traditional market under a build, operate, and transfer scheme, with the private companies making a set payment to the office each year. There is no information on the number of traditional markets in Indonesia. Despite a declining market share, latest estimates show that traditional markets still command about 50% of the total food market in the country (Natawidjaja et al. 2006).

Survey design and research methodology

The majority of supermarkets in Indonesia are located in urban areas. Moreover, the mushrooming of supermarkets happened around 2003, 5 years after the food retail sector was opened to foreign direct investment. Given those conditions, our goal is to compare the performance of traditional traders before and after the explosion of supermarkets. This section describes the design of the survey and the research methodology.

We conducted the survey in urban areas with the highest supermarket density: that is, Greater Jakarta and Bandung. Greater Jakarta comprises Jakarta, Bogor, Tangerang, Depok and Bekasi.

The traditional markets that form the treatment group were chosen deliberately, based on the following conditions: there is a supermarket within a 5-kilometre radius of the traditional market; the supermarket must have been opened between 2003 and 2006, or if there are several supermarkets, they all must have opened within that period; the traditional markets should be located in the same district as the traditional markets in the control group; and the traditional market must not have been renovated after 2003. However, the final condition turned out to be quite irrelevant since the majority of traditional markets in Greater Jakarta and Bandung have not been renovated since 2003.

For the control group, we chose traditional markets according to the following conditions: the traditional market should be located in the same district as those in the treatment group; there is no supermarket within a 5-kilometre radius of the traditional market; there was going to be a supermarket opening near the traditional market in 2007; and the traditional market must not have been renovated after 2003. Traditional markets that had a supermarket opened near them in 2007 were specifically chosen because a traditional market serving areas that do not interest supermarkets may not be comparable to traditional markets in the treatment group.

There were 98 traditional markets in Greater Jakarta and 20 traditional markets in Bandung. There were approximately 188 supermarkets in Greater Jakarta and

80 in Bandung. Only supermarkets built between 2003 and 2006 were kept in the sampling frame. The locations of the traditional markets were then overlaid with the locations of the supermarkets.

Using our sampling frame, we found two traditional markets in Depok, and three in Bandung. Traders in these markets formed our treatment group. Two additional traditional markets, one each in Depok and Bandung served as the control group. Given our sampling frame, these markets were representative of the traditional markets in these urban centres in Indonesia.

The traders interviewed were limited to those who had been trading for more than 3 years. Moreover, only those whose merchandise was fresh fruit and vegetables, meat, or other basic foodstuffs were enumerated, as they made up the majority of traditional retailers. The respondents were then randomly chosen on a probability-proportionate-to-size sampling method basis. The survey began in October 2006 and was completed in November 2006. In total, we gathered data on 249 traders from the treatment markets and 151 traders from the control markets.

The questionnaire that we used in the survey asked traditional traders about their business practices and condition in 2003 and 2006. We chose 2003 because information that required a longer recall period would be increasingly noisy. Moreover, in order to ensure relative objectivity, the questions were arranged such that the traditional traders had no prior knowledge of the purpose of the study. Informing the respondents of the real purpose of the study would bias their answers negatively, as was proven by the study in Portugal (Farhangmehr et al. 2001).

In addition to the questionnaires, we also conducted in-depth interviews with several traditional traders, traditional market managers, supermarket officials, the Traditional Traders' Association (APPSI), the Modern Retailers' Association (APRINDO), and officials from relevant local government agencies. In total, we conducted 37 in-depth interviews.

To check whether our treatment and control markets had comparable baseline characteristics, Table 2 shows the traders' characteristics in 2003. Mean testing shows that traders in the two market types were not significantly different in most characteristics, with the exception that there were significantly more rice traders in the treatment markets.

The effect of supermarkets on traditional food traders

Given that we have a panel dataset, we use fixed effects estimation. Since we have a two-period panel dataset, the estimated effect using this method would be the same by a difference-in-difference estimation technique. In addition, fixed effects estimation removes bias caused by time invariant unobserved heterogeneity. The basic equation that we estimate is:

$$P_{it} = \beta_1 S_{it} + \beta_2 X_{it} + \alpha_i + \nu_{it} \quad , \tag{1}$$

where P_{it} is the performance of trader i at time t, where t = 1,2. We use two measures of performance: log of average daily revenue and log of average daily

Table 2. Mean characteristics of traders in the treatment and control markets in 2003

Trader characteristics	Treatment	Control	Difference	Dummy
Trader				
Female	0.46	0.54	–0.08	Yes
Experience (years)	11.90	12.62	–0.72	
Finished at least 9 years of education	0.62	0.64	–0.02	Yes
Trading space				
Total size (sq. metres)	8.28	8.71	–0.43	
Number	1.22	1.26	–0.04	
Commodity				
Single commodity	0.49	0.43	0.06	Yes
Main commodity is rice	0.09	0.04	0.05*	Yes
Main commodity is fresh fruits and vegetables	0.34	0.28	0.06	Yes

Notes: ** 1% significance, * 5% significance; the mean comparison tests are two-tail t-tests for continuous variables and chi-squared for categorical variables.

profit. S_{it} is a dummy variable that is equal to 1 if the traders are selling in a traditional market with a supermarket nearby and 0 otherwise. At t = 1, the value of this variable is 0 for all traders, while it is 1 at t = 2 for all traders in the treatment markets. Therefore, an estimate of β_1 is the estimated effect of supermarkets on traditional markets.

Meanwhile, X_{it} is a vector of control variables, which includes number of trading spaces used by the trader, main commodity sold by the trader, and whether the trader only sells one commodity. On the other hand, α_i represents time-invariant characteristics of the trader, both the observed and unobserved. The role of these characteristics on business outcomes is not estimated since we are using fixed effects. This means we are not able to ascertain the correlation between trading performance and factors such as age, experience, education level, and sex of the trader. However, this not our main objective and, more importantly, we do not have the issue of time invariant omitted variables bias.

The first two columns of Table 3 show the estimated effect of supermarkets on traditional markets in terms of profit, while the last two columns measure the effect in terms of revenue. Contrary to the literature in the United States, there is no statistically significant effect of supermarkets on traditional markets in Indonesia. In addition, our results are also opposite to the studies mentioned in Reardon & Berdegué (2002).

However, we find that our results corroborate the study in Brazil (Zinkhan et al. 1999). Looking at in-depth interview results, it appears that the Indonesian

Table 3. The impact of supermarkets on traditional markets

	Average daily profit		Average daily revenue	
	(1)	(2)	(3)	(4)
Supermarket	0.061	0.068	0.078	0.091
	(0.064)	(0.065)	(0.065)	(0.064)
Time indicator (2003=1)	0.481**	0.493**	0.365**	0.377**
	(0.049)	(0.049)	(0.051)	(0.050)
Number of kiosks		−0.041		−0.038
		(0.121)		(0.134)
Size of kiosk (sq. metres)		0.033		0.026
		(0.018)		(0.018)
Single commodity dummy (Yes=1)		−0.229		−0.487*
		(0.217)		(0.229)
Main commodity dummies	No	Yes	No	Yes
Overall R-squared	0.06	0.09	0.02	0.09
F-statistics	100.37**	253.83**	51.73**	14.95**
Panel observation	400	400	400	400

Notes: ** 1% significance, * 5% significance; the dependent variables are in log form; robust standard errors in parentheses; estimation is done using panel fixed effects.

condition mimics that in Brazil, where households believe that traditional markets provide fresher products and enjoy the more personal shopping experience than they find in supermarkets. In addition, given that small stores also make up a substantial part of the customers in traditional markets in Indonesia, it is also possible that the small stores prefer to continue long-standing business relationships with the traditional traders as opposed to forging new relationships with supermarkets.

The only other study of supermarkets and traditional markets in Indonesia, CPIS (1994), found that traditional markets and supermarkets attract different segments of consumers. The former attracts mostly low-end consumers, while the latter attracts mainly the middle and upper class consumer. Moreover, CPIS found that the goods sold in the two markets are largely complementary, with traditional markets providing fresh foods and supermarkets selling processed food and non-food goods. Related to this difference, the study states that the competitive advantage of traditional markets comes from the low prices and freshness of the products, while supermarkets provide superior comfort and cleanliness. These findings provide additional explanations of the non-existent effect that we arrive at in our estimation.

There are also more explanations from the in-depth interviews. Firstly, there is intense competition among traditional traders themselves rather than with supermarkets, which plausibly reduces revenue and profits. In our survey,

only 3.3% of traders in the control markets consider supermarkets to be their main competitor. In contrast, 66.2% of traders perceive other traders and street vendors as their main competitors. Surprisingly, even the majority of traders in the treatment markets, 56.5%, do not consider supermarkets their main competitor. Hence, it may be the case that supermarkets do not have a significant adverse effect on traditional retailers.

Secondly, we focus on traditional traders who are selling fresh fruits and vegetables, meat, and basic necessities, as they are the main competitors of supermarkets and the majority of traditional traders in Indonesia sell these commodities. However, they are also the most resilient ones, as World Bank (2007) finds that supermarket penetration is slowest in these areas. Hence, our results do not say anything about traders who are outside the confines of our study, such as those selling processed food, electronics, or furniture.

Thirdly, our estimation is a short-term one since it measures the effect of supermarkets on nearby traditional markets at most within 3 years of opening. It would be interesting to see the long-term effect of the supermarkets on traditional traders in developing countries.

Concluding remarks

Supermarkets have been around in major urban centres in Indonesia for the last three decades. At the onset of the liberalisation of the retail sector in 1998, however, foreign supermarket operators began entering the country, sparking a fierce competition with local operators. Some commentators claim that traditional markets are the real victims of the intense competition, as they lose their customers due to the cheaper and higher quality products and the more comfortable shopping environment that supermarkets provide. Therefore, there are calls to limit the construction of supermarkets, especially in locations near traditional markets.

This study has investigated the impact of supermarkets on traditional market traders in Indonesia's urban centres. Five traditional markets were chosen as the treatment group and two traditional markets were chosen as the control group. The sampling frame ensured that these markets are representative of traditional markets in urban areas in Indonesia. Furthermore, it also ensured that the treatment and control groups had similar characteristics other than their proximity to supermarkets. Two treatment markets and one control market are located in Depok, an urban centre near Jakarta, while the rest are located in the Greater Bandung area, the capital of West Java Province. Randomly selected traders in these markets were interviewed using a questionnaire. These traders are representative of the traditional markets.

On average, traders in both treatment and control markets experienced a decline in their business over the previous 3 years. The quantitative impact analysis finds no statistically significant impact of supermarkets on the profit and revenue of traditional traders. These results are further confirmed by the qualitative analysis findings that supermarkets are not the main cause of the decline among traditional markets.

The traders, market managers, and traders' representatives all state that the main steps which should be undertaken to ensure their survival are the improvement of traditional market infrastructure, organisation of the street vendors, and the implementation of better market management practices. The traders explicitly state their confidence that supermarkets would not drive them out of business if the above conditions were met.

Therefore, policy recommendations to ensure a thriving traditional market environment revolve around increasing the competitiveness of the traditional market. This involves several steps. First, the local government should improve the infrastructure in the traditional markets. This includes ensuring proper hygiene, sufficient cleanliness, ample lighting, and an overall comfortable environment. This also entails appointing qualified people as market managers and giving them enough authority to make decisions. Furthermore, the market manager should consistently coordinate with traders in order to achieve better market management.

Secondly, local governments should organise the street vendors, either by providing them with kiosks inside the traditional markets or by enforcing the law banning them from opening stalls around a traditional market. It is imperative that these vendors are kept from blocking the market entrance.

References

Artz G. and Stone K.E. (2006) Analyzing the impact of Walmart supercenters on local food store sales. *American Journal of Agricultural Economics* 88: 1296–1303.

Basker E. (2005) Job creation or destruction? Labor market effects of Walmart expansion. *Review of Economics and Statistics* 87: 174–183.

CPIS (1994) *Retail Trading in Indonesia: Small Scale vs Large Scale*. Center for Policy and Implementation Studies, Jakarta.

Farhangmehr M., Marques S. and Silva J. (2001) Hypermarkets versus traditional retail stores — consumer and retailers' perspectives in Braga: a case study. *Journal of Retailing and Consumer Services* 8: 189–198.

Hausman J. and Leibtag E. (2007) Consumer benefits from increased competition in shopping outlets: measuring the effect of Walmart. *Journal of Applied Econometrics* 22: 1157–1177.

Krishnamurti B. and Fauzia L. (2004) *Research on Supermarket Supply Chains in Indonesia*. Jakarta.

Minten B. (2008) The food retail revolution in poor countries: is it coming or is it over? *Economic Development and Cultural Change* 56: 767–789.

Natawidjaja R.S., Perdana T., Rasmikayati E., Insan T., Bahri S., Reardon T. and Hernandez R. (2006) The effects of retail and wholesale transformation on horticulture supply chains in Indonesia: with tomato illustration from West Java. Draft report for the World Bank by the Center for Agricultural Policy and Agribusiness Studies (CAPAS) Padjadjaran University, Bandung, and Michigan State University, USA.

Reardon T. and Berdegué J.A. (2002) The rapid rise of supermarkets in Latin America: challenges and opportunities for development. *Development Policy Review* 20: 371–388.

Reardon T., Timmer C.P., Barrett C.B. and Berdegué J. (2003) The rise of supermarkets in Africa, Asia, and Latin America. *American Journal of Agricultural Economics* 85: 1140–1146.

Reardon T. and Hopkins R. (2006) The supermarket revolution in developing countries: policies to address emerging tensions among supermarkets, suppliers, and traditional retailers. *European Journal of Development Research* 18: 522–545.

Traill W.B. (2006) The rapid rise of supermarkets? *Development Policy Review* 24: 163–174.

World Bank (2007) *Horticultural Producers and Supermarket Development in Indonesia.* Jakarta.

Zinkhan G., Fontenelle S.M. and Balazs A.L.. (1999) The structure of São Paulo street markets: evolving patterns of retail institutions. *Journal of Consumer Affairs* 33: 3–26.

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