AN ECONOMETRIC ANALYSIS ON ORGANIZED AND UNORGANIZED RETAIL SHARE

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Abstract

The present study strives to find the various determinants of the relative share of organized and unorganized retail sector of a country. A multiple regression model has been used in this study to find these determinants. Results from the analysis reveal that GDP, women's participation rate, foreign investment freedom and urbanization rate of a country, positively influence the growth of the relative share of organized retail sector. The results obtained in this study would very helpful in understanding the growth patterns of Indian organized retail sector in the future.

Keywords: Retail sector, Foreign Direct Investment (FDI), Women's participation rate, Foreign investment freedom index, Urbanization

JEL classification: C21, F21, O24

1. Introduction

In the late 60s and early 70s, developing countries like Latin America, Malaysia and Hong Kong etc. were very interested in promoting supermarkets in the name of food-sector modernization for the improvement of the overall competitiveness and efficiency of the sector (Reardon and Gulati, 2008). The main reason behind this was that, they had perceived the traditional retail sector as weak and inefficient. But most of these promotional programs were impractical and inconsistent for implementation with overall economic transformation and also had not been fed by private sector investment. As a result of which very few policies had succeeded (Reardon and Gulati, 2008).

Starting from the early 90s, various nations began supporting the supermarket development as a part of modernization policies. For instance, Russia and South Korea had taken the policy of tax exoneration for setting up supermarkets in municipalities. Some governments have even directly invested in modern retail explicitly to modernize the retail chain as well as to generate revenue for government.
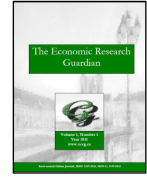
Many nations imposed regulations on wet-markets (fresh food informal market) for their nonparticipation in paying taxes to the government and also because of the fact that the wet-markets could create street congestion and could be unhygienic, which directly or indirectly could become the constraint in those countries for their development processes. They had imposed strict zoning limits and hygiene regulations on wet-markets. On the contrary, Chinese Government had adopted a program of converting wet-markets to supermarkets which was equivalent to the procedure of transforming unskilled unorganized retail sector to skillful modernized organized retail sector.

Moreover, Brazil and Mexico governments had taken 'intermediate approach' which developed foods' formal modern market without providing any protection or support to traditional (informal) retailers.

An interesting observation can be elicited from the literature of the different formats of the retail outlets. As the modern formal retailers are tied down only by the local regulations, they tend to bargain or influence the government bodies at the municipal level so that the terms of entry and functioning favor them and thus adversely affecting the competition between hypermarkets, local small supermarkets and unorganized retailers. The Federal Competition Commission (FCC) regulates competition among formal organized sector retailers but not between organized and small unorganized retailers. Thus, these countries had effectively created liberalized situation for modern formal retail diffusion. In case of Mexico, when conflict between organized and unorganized retailers had aroused, government handled it only at municipal or state level. But the local regulatory authority agencies had imposed significant pressure on unorganized retail outlets. For example, over last few years, street vendors and hawkers had been barred from the central districts of Mexico City only because traditional retail players could not form any significant organization to influence regulations.

On the contrary, the governments of Thailand and Malaysia imposed some regulations on hypermarkets as the hypermarkets already had advantages of foreign chains (collaborations), like lower prices over small stores. But as the modern retail chains were very flexible and malleable in terms of company arrangement and store format, the regulations on modern retail diffusion could easily been handled by themselves. The modern retail chains which were popularly known as 'big box', could take any kind of format like a chain of kiosks, convenience stores, neighborhood markets, supermarkets, hypermarkets and even an 'email order' (even daily goods purchased through email and delivered by the supermarket almost immediately) outlets(Reardon and Gulati, 2008). Moreover, regulations often take longer time to become effective and in the meantime modern retail chains were usually able to accelerate their expansion. This rush of new stores has often compelled to change policy orientation in municipalities and provinces. The traditional retailers however did not have enough authority or power to change municipal governments' policy orientations. As a result, these policies had ultimately been decided by the formal retail chains' transformation and the informal ones were the losers.

In case of Taiwan and Singapore, the Government had taken some policies to upgrade the traditional markets, e.g. 105 year old Nanmen wet-market had been upgraded in 1979 in the Taipei city by giving some facilities. Singapore's hawker centre's upgrading programme was in the similar lines.
Gaiha and Thapa (2007) did an econometric analysis on the growing share of the organized retail sector in a country which depends on different socio-economic factors of a country. They strive to
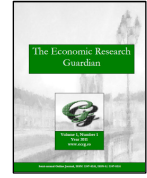
find out the relation between the growths of the share of super market of different countries with their respective socio-economic status in terms of per capita income, share of urban population, relative openness and their lifestyle. They found out that the super market shares are positively correlated with the per capita income and also with the participation rates among women of a country. They also found that the super market share is also positively related to the level of income inequality, openness and level of urbanization. This clearly shows that entry of FDI in retail sector will enhance the share of super markets in a country.

Gaiha and Thapa (2007) limit their research to the share of super markets in retail food sales. But actually super market revenues include sale of both food and non-food related commodities. So it would be interesting to analyze the situation taking into consideration the overall sales. Moreover, supermarkets represent a major but not the complete share of organized retail sector. In this study, we study the factors affecting the relative share of organized to unorganized retail sector of a country at large. This will actually give the broad picture of the retail sector in an economy when the economy is growing.

2. Data and methodology

Multiple regression models are used to study the different determinant factors of the relative market share of organized retail sector to unorganized sector of a country. The relative market share of organized retail sector of a country has been taken as the dependent variable and the GDP (gross domestic product), women's participation rate in total work force, foreign investment freedom index and the urbanization rate of a country have been taken as the independent variables.

The model has been built mainly based on the secondary data. The data type which has been used is cross country in nature. Data of twenty one countries (USA, Japan, China, UK, France, Germany, India, Brazil, Russian, South Korea, Indonesia, Poland, Thailand, Pakistan, Argentina, Philippines, Malaysia, Check Republic, Vietnam, Hungary and South Africa) for the year 2006 has been used for this study. The countries were selected based on the availability of data for the variables analyzed in the study.

Data on dependent variable i.e. the relative market share of organized retail sector to unorganized retail sector of different countries in the year 2006 has been taken from "Impact of Organized Retailing on the Unorganized Sector, ICRIER September 2008, WP 228" (Joseph et.al. had collected and modified the data from Planet Retail and Technopak Advisers Pvt. Ltd, 2007-08).
 Among the independent variables used in the model, the data on GDP (in $), women's participation rate in total work force (i.e. percentage rate of women's participation in total work force) and the urbanization rate (i.e. the percentage rate of urban population out of total population) of different countries in the year 2006 have been taken from the world development reports-world development
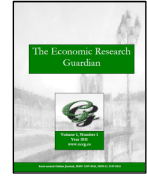
indicators of 2006, 2007 and 2008. For the case of foreign investment freedom index[1], this study has taken the average score of foreign investment index for the years 2003, 2004 and 2005 of different countries to see the actual foreign investment environment of those sample countries in the past few years from the study period. And then it has been divided by 10 to get all the scores in between 0 to 10. The data on foreign investment freedom index of different countries has been taken from "The Link Between Economic Opportunity & Prosperity a product of the heritage foundation & the wall street journal"[2].

All the variables in the model have been taken in natural log form. The multiple regression model of this study has been given as follows:

$$ln(Org\text{-}share/Unorg\text{-}share)_I = a + b_1 ln(GDP)_i + b_2 ln(Women's\ participation\ rate)_i + b_3 ln(Foreign\ investment\ freedom)_i + b_4 ln(Urbanization\ rate)_i + e_i \tag{1}$$

3. Results and interpretation

STATA package was used to do the regression analysis on the model formulated. To control for the multicollinearity problem encountered, the model has been divided into two separate models by dropping the independent variables namely urbanization rate and foreign investment freedom index of different countries alternatively. Model A has the urbanization rate dropped while Model B has the foreign investment freedom variable dropped from the model. Results from the two models show no significant multicollinearity. Both the models have been shown as follows:

Model A: $ln(Org\text{-}share/Unorg\text{-}share)_i = a + b_1 ln(GDP)_i + b_2 ln(Women's\ participation\ rate)_i + b_3 ln(Foreign\ investment\ freedom)_i + e_i$ $\tag{2}$

Model B: $ln(Org\text{-}share/Unorg\text{-}share)_i = a + b_1 ln(GDP)_i + b_2 ln(Women's\ participation\ rate)_i + b_3 ln(Urbanization\ rate)_i + e_i$ $\tag{3}$

Results from the regression analysis shows that the all the independent variables are statistically significant including the constant term. It has been found out that the relative market share of organized sector to unorganized retail sector is positively related with all the independent variables, such as GDP, women's participation rate and also with foreign investment freedom index of a country (see appendix, Table 3.1). As we have used cross-country data, problems of heteroskedasticity might creep in. The same was tested for and found that the model was free from heteroskedasticity problem (see appendix).

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[1] It takes the score in between 0 to 100 depending on the respective countries' foreign investment restriction. If the countries' foreign investment restriction more, than the score will be less where as if the restriction is less, then the score will be more.

[2] http://www.heritage.org/index/Explore.aspx?view=by-region-country-year
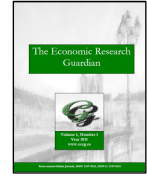
So from the above multiple regression it has been found out that the coefficients of independent variables came either significant at 5 percent level of significance or marginally significant (i.e. for the case of foreign investment freedom index the estimator is significant at 10 percent level of significance) and positive. That shows that GDP, women's participation rate in the total work force and foreign investment freedom index of different countries are positively related with the relative market share of organized retail sector to unorganized retail sector of those different countries.

Similar results were found with the model B. It implies that, the relative market share of organized to unorganized retail sales is positively related with all the independent variables GDP, women's participation rate and also with urbanization rate of a country (see appendix, Table 3.3). Model B also was tested for heteroskedasticity issues and was found free of them (see appendix, Table 3.4).

So from the above multiple regression of model B it has been found out that all the coefficients of independent variables remain significant and positive. This implies that GDP, women's participation rate in the total work force and urbanization rate of different countries all are positively related with the relative market share of organized retail sector to unorganized retail sector of those different countries. To test the normality of the residuals both the models had also gone through the Kolmogorov-Smirnov normality test which showed that the residuals of both models A and B are normally distributed (see appendix, Table 3.1 and 3.3).

The above analysis shows a positive relationship between the relative share of organized retail sector and the GDP. This result is very intuitive as a growing GDP increases the purchasing power of the consumer and thus his penchant for products from a more organized retailer. The model also reveals a positive relationship of the dependent variable with the women's participation rate. Higher women's participation rate in the total work-force implies more women buying more readymade or quick-food, which is available in organized retail sector. Moreover the availability of not just food but other non-food related commodities in the same store makes it much more convenient for them to shop in a modern retail store. According to the results, the foreign investment freedom of a country positively affects the relative share of the organized retail sector. Regulations involving relatively free FDI inflow helps raise funds to invest in more number of retail stores (which require huge investment). So, any dearth of domestic capital that can prevent the establishment of this type of retail outlets will be fulfilled by FDI inflows. Also, the dependent variable is positively related to the urbanization rate of a country. This result is very intuitive and follows similar logic as given for how GDP might impact the relative share of organized retail sector to unorganized retail sector.

4. Conclusion

From the above cross country econometric analysis on the relative share of organized to unorganized retail sector it can be concluded that the relative share of organized retail sector to unorganized retail sector is positively related with different socio-economic factors like GDP, women's participation rate in total workforce, foreign investment freedom and the urbanization rate of a country. For the developing economies all the above factors are likely to be increase in future which will definitely

increase the relative share of organized retail sector of them. This may have a mammoth socio-economic effect on the nature of business competition with several outcomes for ever dominating unorganized retailers in those economies. The main limitation of this study is that it has not included those countries which are having either zero organized or unorganized retail share. In future this study can be extended for different groups of countries like low-income, middle-income and high-income group and it can also include many other factors in future which are having relevant impact on the retail sector.

Acknowledgements

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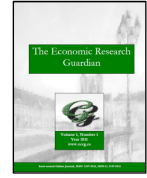
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Appendix

Table 3.1 - Model A result

Variable	Beta coefficient	P value	VIF	R^2	F
Constant	-5.374811 (2.452671)	.043	---------	.5794	7.81 (.0017)
GDP	.3717157 (.1829921)	.058	1.25	Adj R^2	
Women's participation rate	4.214135 (1.313213)	.005	1.13	.5052	
Foreign investment freedom	1.60681 (.835)	0.079	1.30		
Standard error of the estimate = 1.0777		Kolmogorov-Smirnov Z	.674		
		Asymp. Sig. (2-tailed)	.755		

Source: STATA analyzed result of model A (*the values in parenthesis are the standard errors of the estimators).

Table 3.2 - Heteroskedasticity diagnosis of model A

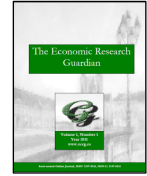| Breusch-pagan/ Cook-Weisberg test for Heteroscedasticity |
|---|
| H_0= Constant Variance |
| Chi2(1)= 2.14
 P value = 0.1436 |

Source: STATA analyzed result of model A.

Table 3.3 - Model B result

Variable	Beta coefficient	P value	VIF	R^2	F
Constant	-2.01031 (2.425493)	.419	--------------	.6686	11.43 (.0002)
GDP	.3449292 (.1577261)	.043	1.17	Adj R^2	
Women's participation rate	3.381896 (1.104648)	.007	1.02	.6101	
Urbanization	1.825947 (.567)	.008	1.16		
Standard error of the estimate = .95673			Kolmogorov-Smirnov Z	.488	
			Asymp. Sig. (2-tailed)	.971	

Source: STATA analyzed result of model B (*the values in parenthesis are the standard errors of the estimators).

Table 3.4 - Heteroscedasticity diagnosis of model B

Breusch-pagan/ Cook-Weisberg test for Heteroskedasticity
H_0= Constant Variance
Chi2(1)= 0.73 P value = 0.3922

Source: STATA analyzed result of model B