



Impact of country-level factors on export competitiveness of agriculture industry from emerging markets

Impact of
country-level
factors

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Da Huo

*School of International Trade and Economics, Central University of
Finance and Economics, Beijing, China*

Abstract

Purpose – The purpose of this paper is to focus on the impact of country-level factors and aim to find out how the factors affect the export competitiveness of agricultural industries from emerging markets. Agricultural industries have been traditionally one of the important contributors to the increased exports from emerging markets.

Design/methodology/approach – The revealed comparative advantage (RCA) approach is used to define the export competitiveness of agricultural industries in emerging markets. Regression and factor analysis are used to find out the relationship between export competitiveness and important country-level factors, such as wage cost, irrigated land area, food price index, export of agriculture products, domestic consumption demand and exchange rate, against US dollars of different countries from emerging markets.

Findings – Export of agriculture products, irrigated land area and exchange rate against US dollars were found to have positive relationship with export competitiveness of agriculture industry. On the other hand, labor cost and domestic consumption demand were found to have a negative relationship with the export competitiveness.

Practical implications – In transformation of emerging economies, a higher level of export, larger area of irrigated land and stable exchange rate of US dollars will benefit the agriculture export of emerging markets. The rising wage cost and domestic consumption need can restrain the export competitiveness of emerging markets.

Originality/value – The research offers important hints for emerging markets to find their own ways to maintain a sustainable competitive advantage in export market by controlling the country-level factors. Also, it revealed the future problems that can appear in the transformation, with practical suggestions following. This research will be helpful to both policy-makers and global managers.

Keywords Agriculture industry, Emerging market, Export competitiveness

Paper type Research paper

Introduction

The increase of international trade across different countries has accelerated the emergence of new global players having different competitive advantages. Lower trade barriers help emerging markets in developing new opportunities and comparative advantages. The globalization of the world economy has increased exports from emerging markets. With the specialization of international trade, compared to developed countries with higher level of industrialization, most of the countries from emerging markets are better at labor-intensive industries. As a labor-intensive industry,



the agricultural export has traditionally offered emerging markets a comparative advantage in global competition (Escaith, 2010). Thus, the research of export competitiveness of agriculture industry from emerging markets is important for the understanding of the growth of the emerging economies and also is helpful to global management of international trade.

The competitiveness of a country is defined as the ability to produce the goods or services that fulfill the requirement of international competition while maintaining a rising living standard (Tyson, 1992). The international competitiveness of a country represents its ability to maintain a preferable relative position in trade with the rest of the world. International competitiveness usually originates from relatively lower labor cost or higher levels of productivity. The competitiveness of a country is often explained as a maintaining of growth rate in the industries relative to its trading partners (Ezeala, 2005).

The globalization of world economy has also increased the competition of agriculture industry of emerging markets. The countries from emerging markets are forced to compete in foreign markets and have increased their market share in foreign buyer groups (Esterhuizen and Rooyen, 2006). The growth of exports from emerging markets such as China is highly dependent on the increased competitiveness that gains the country a larger share of the global market (Finicelli *et al.*, 2011). Many countries also start to cooperate with foreign partners to further improve their competitiveness in an export-oriented economy and to increase foreign exchange reserves (Kaynak *et al.*, 2007).

Therefore, the export competitiveness of the agriculture industry is important to managers and governors from emerging markets in formulating future policies and decisions. This research aims to find the impact of country-level factors such as labor cost, land area and exchange rates on the export competitiveness of the agricultural industry. The result of this research delivers valuable information not only to the governors and exporters from emerging markets but also to global managers and foreign investors in the future development of emerging markets.

Literature review

Export competitiveness is an important indicator in the evaluation of industry competitiveness. Export competitiveness presents the degree of the industry to participate the international trade (Fetscherin *et al.*, 2010). According to the Ricardian model, different countries have their comparative advantages and the countries open to international trade can benefit from their comparative advantages (Ricardo, 1951). The Ricardian model pointed out that international trade can help countries in expanding their markets through the economy of scale. According to the Heckscher and Ohlin's (1991) model, the exports of different countries are influenced by both the factors of the industry and the intensity of the factors that have influences of the prices of export products (Feestra, 2003). It is concluded from the Ricardian and Heckscher-Ohlin's models that a country produces and exports the products and services that have comparative advantages in either price or factor cost. Comparative advantage is an important reason for international trade (Waheeduzzaman and Ryans, 1996). Therefore, country-level factors will have important impacts on the export competitiveness of the agriculture industry from emerging markets. Factors such as labor cost, export price and irrigated land resource will be important determinants to the export

competitiveness of agriculture industry from emerging markets. Additionally, the export of agriculture from emerging markets, consumer demand of agriculture products and exchange rate of emerging economy are also important factors that influence the export competitiveness of agriculture products from emerging markets:

H1. The wage of emerging markets is negatively related to export competitiveness of agricultural industry from emerging markets.

According to Heckscher-Ohlin's model, the intensity of labor resources and capital resources has influences on comparative prices of products. The labor intensity represented by the wages and income level of emerging markets is measured as a wage factor that influences the export competitiveness. It has been found that emerging markets such as China have higher comparative advantages in labor-intensive agricultural products such as vegetables and the performance of labor-intensive products is positively related to their increase of share in world trade (Liu and Revell, 2009).

Most of the emerging market economies achieved a high growth rate of economy development by using export-driven strategies. Lower wage cost is an important competitive advantage in exporting and, thus, most emerging markets have attracted a large number of investments in the labor-intensive industries such as the agricultural industry (Wysokinska, 1998). On the other hand, the increase of wages in emerging markets may adversely lower the margin of the export, and, thus, lower the export competitiveness of emerging markets. Therefore, the wage of emerging markets is an important factor that influences the export competitiveness of the agriculture industry in emerging markets:

H2. Irrigated land area is positively related to the export competitiveness of agricultural industry from emerging markets.

At the agriculture industry level, the competitiveness is considered as the sector to supply the agriculture goods in the international market (Zhang *et al.*, 2012). The irrigated land area is an important source of the competitiveness to the export of agriculture products. Maxwell (1986) pointed out that the irrigated land is a non-tradable physical factor of countries and offers sustainable advantages to maintain the export competitiveness of emerging markets. Jenkins (1987) also pointed out that the local inputs can have important impact on the comparative advantage. The local inputs include the rent and capital of the industries. Therefore, the area of irrigated land is measured to represent the capital resources of the agricultural industry and the export competitiveness is higher in emerging markets whose irrigated land area is larger:

H3. The price of agricultural products in emerging markets is negatively related to export competitiveness of agricultural industry from emerging markets.

The price of exports reflects resources that could influence the competitiveness, such as the productivity, factor endowment or transportation cost, and the price may predict a potential of the export competitiveness (Zhang *et al.*, 2012). The price of agriculture exports indicates the capital investment and raw material input of the industry and a higher productivity with a relative lower price will increase the export competitiveness of agriculture industry (Chacko, 1997).

Peterson and Barras (1987) have pointed out that countries have comparative advantages in products that can be produced relatively cheaply. The trade of countries that have specialized in products with lower prices has strong international competitiveness. Obayelu (2011) found that the increases of food price driven by the high demand of food and high cost of production will reduce the potential market size of the agricultural industry and will affect the incentives of farmers in production for export. On the other hand, a country that can produce a product relatively cheaply is said to have a “comparative advantage” in that product, and trade between countries permits each of the trading countries to specialize in those products in which its degree of comparative advantage, or competitiveness, is strong. Thus, if the price of the product is lower in the agriculture industry, the export competitiveness is higher. Therefore, the food price index is measured to reflect the price factor of agricultural products and export competitiveness is higher in those countries with lower prices in agricultural industry:

H4. Export of agricultural products is positively related to export competitiveness of agricultural industry from emerging markets.

With the integration of world economy, the growth of export trade and economy output in emerging markets has gradually reached a higher level as the developed countries (Abboushi, 2008). According to the product life cycle theory in international business, developed countries will gradually shift production to developing countries for lower production cost (Vernon, 1979). Dunning (1993) also pointed out that the foreign direct investment (FDI) will prefer markets with location advantages and competitive strength.

The export-driven economy of emerging markets such as China improved the productivity of emerging economies with the development of technological and managerial skills (Reid and Walsh, 2003). Also, the export of agriculture products in Hungary contributes to a large share of the total export earning. With the large agriculture capacity, the country is one of the leading Eastern European exporters in agriculture products (Kiss, 1995). The competitiveness of the agricultural industry with traditional advantages in labor and resources was further improved by the export-driven economy (Guo, 2010). In India, the processing of agriculture products in the export further improved the value-adding conversion of output, by lowering the waste of production and improving the income of farmers (Chengappa, 2004). The increase of agriculture export will result a higher level of export competitiveness (Wu and Kumarapathy, 1998):

H5. Consumer demand is negatively related to export competitiveness of agricultural industry from emerging markets.

Consumer demand is an important factor that influences the prices of agricultural products from emerging markets. Masters (1995) have concluded that consumer demand has an important impact on the export competitiveness of the agricultural industry. The domestic demand of emerging markets can be driven by larger consumption following the rising consumption power. With an increase of domestic agricultural demand, the export of emerging markets will be lowered relatively. Thus, the consumption expenditure on food is measured to reflect the consumer demand and higher domestic demand will reduce the export competitiveness of agricultural

products. Additionally, there can be a gap of consumer demand between middle- and lower-income countries in emerging markets, such as the different demands of non-traditional agriculture products among South African countries. And the lower-income economies with lower demand of the non-traditional agriculture products can be benefited from the consumer demand differences of non-traditional agriculture products and find more export trading opportunities in fulfilling this demand gap (Pratt and Diao, 2008):

H6. The exchange rate of one US dollar to local currency is positively related to the export competitiveness of agricultural industry from emerging markets.

The exchange rate is an important determinant to the demand of a country's export. Fagerberg (1988) pointed out that the competitiveness of a country also underlines the stability in the balance of payment. The decline of the exchange rate is often related to the increase of exports and an increase of exchange rate is also related to the higher demand for imports.

Also according to Salter–Swan theory, changes in relative factor prices are influenced by the world commodity price and world commodity price can affect the factors prices. The depreciation of the exchange rate in international trade leads to a higher level of export and a lower level of import (Thierfelder and Robinson, 2003). The depreciation of the exchange rate in emerging markets to the US dollar will make the export of agricultural products cheaper to import to developed countries. On the other hand, the appreciation of exchange rate in emerging markets to US dollars will increase the price of agricultural products in their export and reduce the import to developed countries (Pan *et al.*, 2007). Therefore, the exchange rate of US dollar to local currency of emerging markets is measured and the export competitiveness is higher if the value of one US dollar is higher in the local currency.

Research method

According to Balassa (1965), the revealed comparative advantage (RCA) can be reflected by commodities and countries. International trade is influenced by the relative market costs and the non-priced competitive factors. The RCA is an important measurement of export competitiveness because the concept contributes to the understanding the export competitiveness of an industry in terms of the export market share. RCA is measured by the country's share of world market in one commodity compared to its share of all trade products. Balassa Index is used to evaluate the RCA of agriculture products from emerging markets, and the higher level of Balassa Index means that the country is more specialized in the agriculture industry than the world level.

According to Balassa (1987), the RCA is: $XRCA_i = 100(X_i/X_{iw})/(X/X_w)$, where X_i is the value of national exports of industry i and X_{iw} is the value of total world exports of industry i . X is the value of national exports in all industries and X_w is the value of total world exports in all industries. This index normalizes for the country's share in total world trade. A value greater than 100 implies a RCA in that product.

With the RCAs measured from different countries, linear regression analysis is used to find important factors that influence the export competitiveness of agricultural industry from emerging markets. The dependent variable is export competitiveness of agriculture, and the independent variables are wage of emerging markets, irrigated land area of emerging markets, price index of agricultural products in emerging markets,

consumer demand, export of agricultural products and exchange rate of US dollar to local currency in emerging markets:

$$ExportCompetitiveness = \frac{WageCost + IrrigatedLand + FoodPriceIndex + ExportofAgriculture + ConsumptionDemand + ExchangeRate}{}$$

Data collection

The data were collected from the following emerging markets: China, India, Indonesia, Malaysia, Pakistan, Philippines, South Korea, Thailand, Czech Republic, Hungary, Poland, Russia, Argentina, Brazil, Chile, Colombia, Mexico, Peru, Egypt, Israel, Jordan, Morocco, South Africa and Turkey. The countries of emerging market were selected from Morgan Stanley Capital International (MSCI) emerging markets index (2008). The annual data from 1997 to 2006 were obtained from the Euro Monitor database. For the comparison between different countries, the values in the domestic currency were all changed to the US dollars according to the temporary exchange rate. The value consumption and export of agricultural industry were measured by million US dollars. The wage level was measured by US dollars and irrigated land area were measured by thousand hectares.

Result

The consumer demand and wage level of emerging markets have negative relationships with the export competitiveness of agricultural industry. The irrigated land area has a positive relationship with the export competitiveness of agricultural industry from emerging markets. The exchange rate of local currency value to one US dollar has a positive relationship with the export competitiveness of agriculture and, thus, the lower value of local currency to US dollar in emerging market, the higher is export competitiveness of agricultural industry. However, there is no relationship found between food price index of emerging market and export competitiveness of agricultural industry.

Descriptive analysis

The average export competitiveness of agricultural industry from emerging markets is 1.87. The average consumption of agricultural products in emerging markets is 44.5 billion US dollars, and the average export of agricultural industry is 1.11 billion US dollars. The average wage level of emerging markets is 3,330 US dollars per year. The median level of irrigated land area is 1.55 million hectares, the median level of food price index is 138.35 and median level of exchange rate is 9.6 local currency values to one US dollars in emerging markets.

The export competitiveness of agricultural products in emerging markets is positively correlated with export of agricultural products at 0.392 ($p < 0.01$). The export competitiveness is also negatively correlated with consumption of agricultural products at -0.178 ($p < 0.01$) and negatively correlated with wage levels of emerging markets at -0.214 ($p < 0.01$) (Table I).

On the other hand, the export competitiveness of agricultural industry from emerging markets has been maintained at a stable level between 1.8 and 1.9. However, the export competitiveness of agricultural industry from five golden-bricks countries is

	Mean	SD	Median	Competitiveness	Consumption	Export	Wage	Land	Food price	Exchange rate
Competitiveness	1.87E+00	1.46E+00	1.48E+00	1						
Consumption	4.45E+04	5.55E+04	2.09E+04	-0.178**	1					
Export	1.11E+03	2.53E+03	1.93E+02	0.392**		1				
Wage	3.33E+03	3.09E+03	2.18E+03	-0.214**	-0.186**		1			
Land	7142.48	14897.48	1550	-0.092	0.788**	-0.011		1		
Food price index	270.717	610.1996	138.35	-0.066	0.096	0.177**	0.078		1	
Exchange rate	537.71	1784.982	9.6	-0.074	0.043	-0.132*	-0.139*	-0.072		1

Notes: ** $p < 0.01$; * $p < 0.05$

Table I.
Correlation matrix of
export competitiveness of
agricultural industry and
different factors in
emerging markets

different from each other. The export competitiveness of agricultural industry from Brazil is higher and in a climbing trend, whereas the export competitiveness of agricultural industry from India is also at a higher level but in a declining trend. The average levels of export competitiveness in agricultural industry from China and South Africa are relatively stable and the export competitiveness of Russia in agricultural industry is at a lower level but in a climbing trend (Figure 1).

Regression analysis

The data are transformed by the logarithm for the regression analysis, as the original data may not follow the normal distribution. The data transformation corrects for violations of the statistical assumptions associated with the multivariate techniques. When the natural data is in a non-normal distribution, the transformation finds the normality of the variables and builds the linear relationships of the variable. The non-normal distributed data could be transformed with the logarithms of the variables (Hair *et al.*, 2010). Therefore, the dependent variable is the logarithm of export competitiveness of agriculture industry from emerging markets, and the independent variables include the logarithm of wage level as the labor cost of production, the logarithm of irrigated land area, the logarithm of food price, the logarithm of export of agriculture products, the logarithm of domestic consumption demand, the logarithm of exchange rate against US dollars, which are following normal distributions.

(Figure 2) of export competitiveness and logarithm of export competitiveness is as follows:

(Figure 3) of labor cost and logarithm of labor cost is as follows:

(Figure 4) of irrigated land area and logarithm of irrigated land area is as follows:

(Figure 5) of food price index and logarithm of food price index is as follows:

(Figure 6) of export and logarithm of export in agricultural industry is as follows:

(Figure 7) of consumer demand and logarithm of consumer demand is as follows:

(Figure 8) of exchange rate and logarithm of exchange rate is as follows:

Table II shows the standardized coefficient between different factors and the export competitiveness. Model 1 generally includes all of the different factors as independent variables, and it is found that the food price does not have significant relationship to the export competitiveness of agriculture industry from emerging markets. Model 2 excludes the food price, and it is found that the factors expect food price are all significantly related to the export competitiveness. Model 3 further excludes land factors, and Model 4 further excludes wage factors in addition to excluding the food

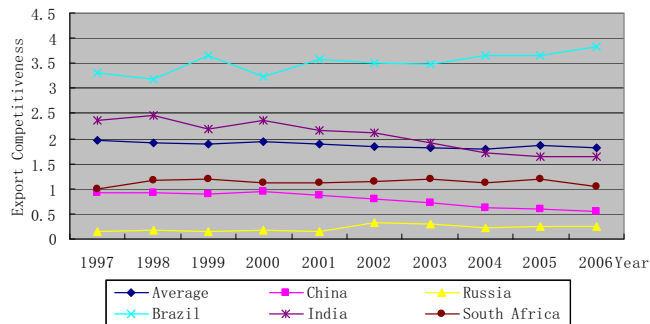


Figure 1.
Export competitiveness of agricultural industry from emerging markets

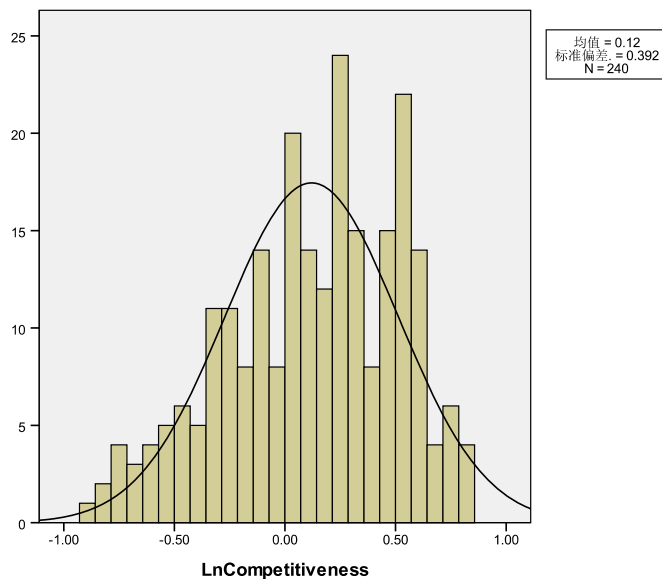
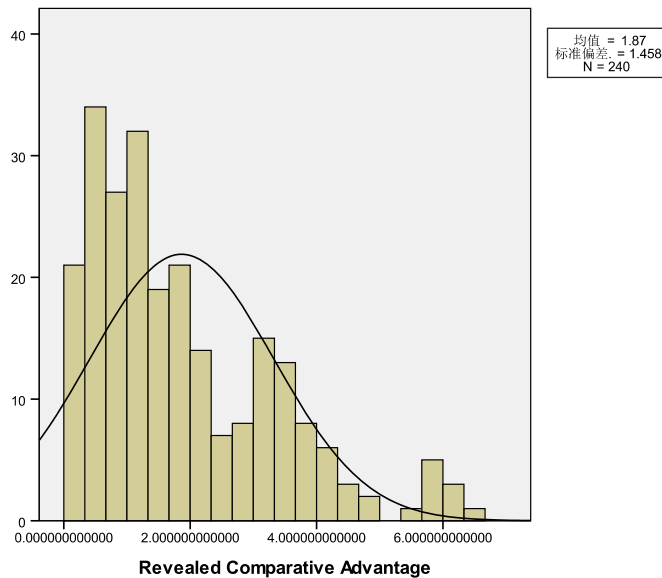


Figure 2.
Export competitiveness
and logarithm of export
competitiveness

price. It is found that the rest of factors are significantly related to the export competitiveness of agriculture industry from emerging markets. Model 5 excludes the exchange rate factors and the food price, and it is found that the significance level is lower than in Model 2. Model 6 excludes the consumption demand and food price, and the significance level of the model is further lowered. Model 7 excludes the export of agriculture industry in addition to excluding the food price, and it is found that the

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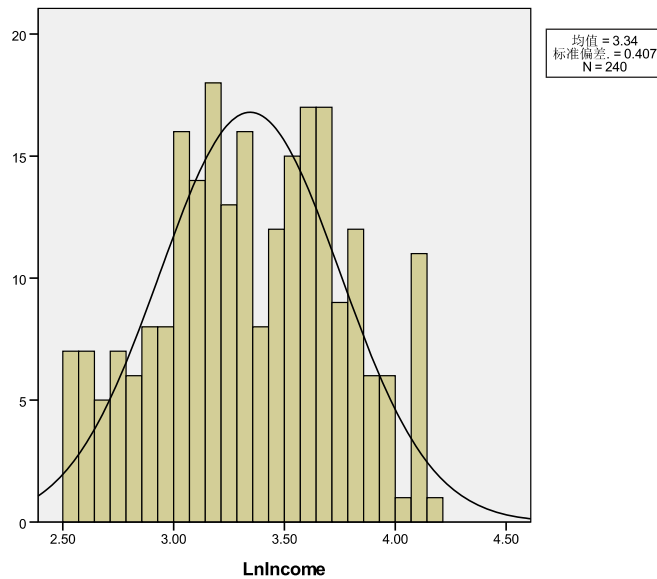
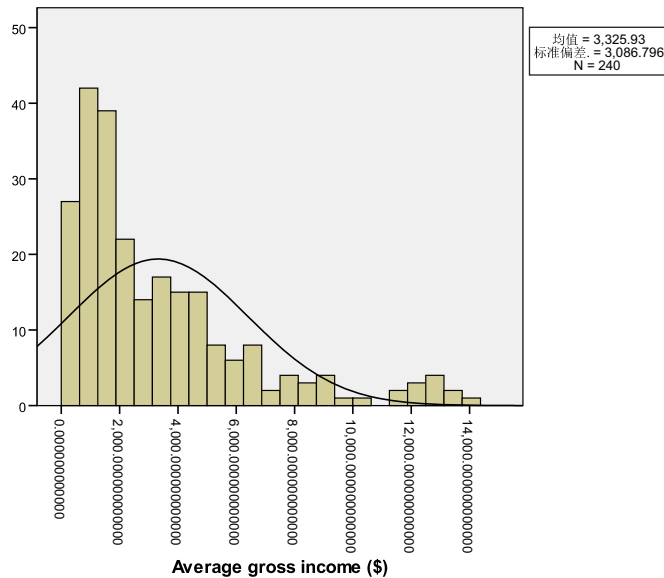


Figure 3.
Labor cost and logarithm
of labor cost

significance level is also much lower than the significance level of Model 2. Therefore, it is shown that the domestic consumption demand, export of agriculture industry and exchange rate against US dollars are all important factors to the export competitiveness of agriculture industry from emerging markets.

Furthermore, in generation from Model 2 which shows a better significance performance, it is found that export competitiveness of agricultural industry from emerging markets is

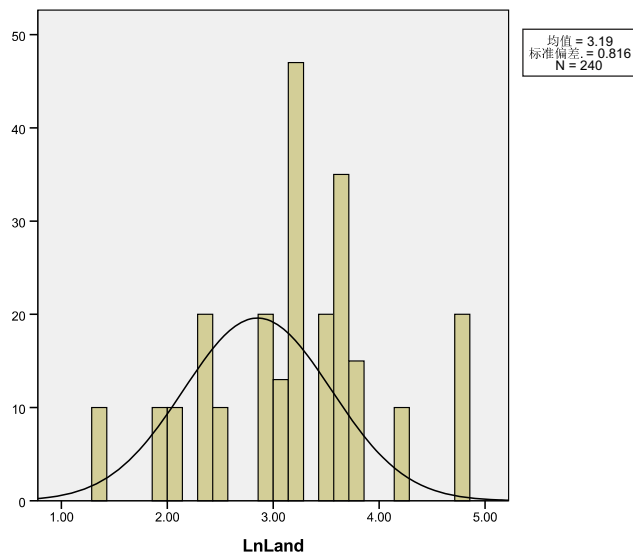
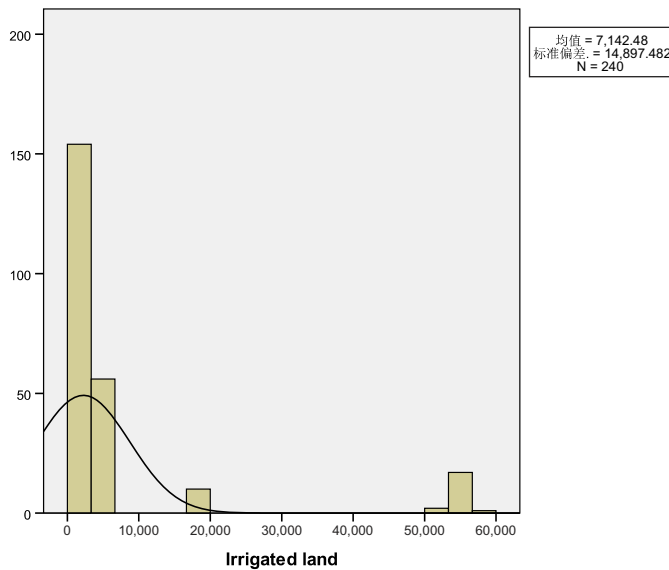


Figure 4.
Irrigated land area and
logarithm of irrigated land
area

positively related to export of agricultural industry, exchange rate of one US dollar to local currency value and irrigated land area. Therefore *H2*, *H4* and *H6* are supported. The result is consistent with studies supporting that higher level export of agricultural industry, higher value of US dollars exchanged to local currency and larger areas irrigated land are all important factors to increase the export competitiveness of agriculture industry from emerging markets. The export competitiveness is also negatively related to consumption of agricultural products and wage level of emerging markets. Thus, *H1* and *H5* are supported.

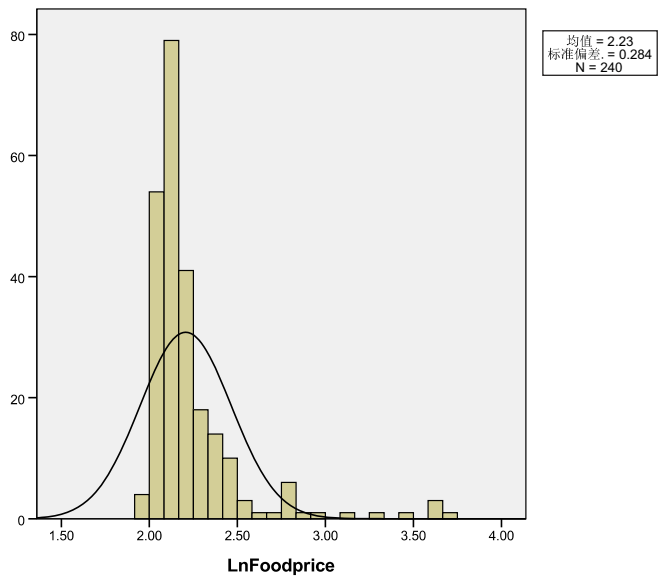
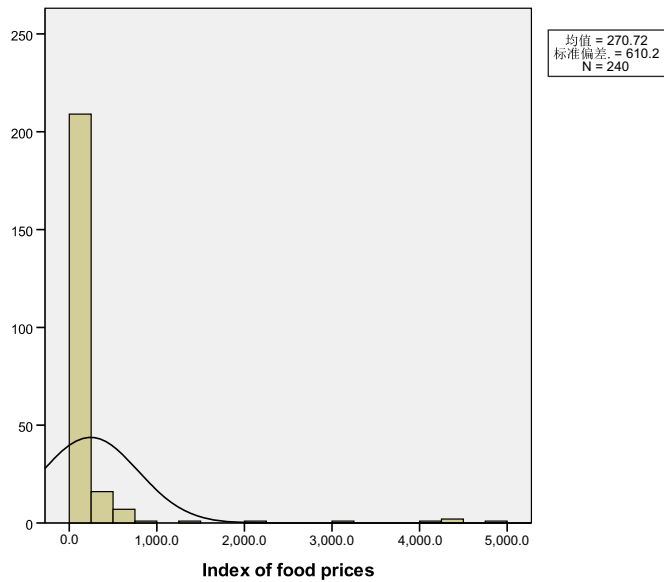


Figure 5.
Food price index and
logarithm of food price
index

The result is consistent with studies supporting that larger demand of domestic consumption for agriculture products and rising labor cost of emerging economies can reduce the export competitiveness of agriculture industry from these areas. However, there is no relationship found between the export competitiveness of agricultural industry and the food price index in emerging markets and $H3$ is not supported (Table II).

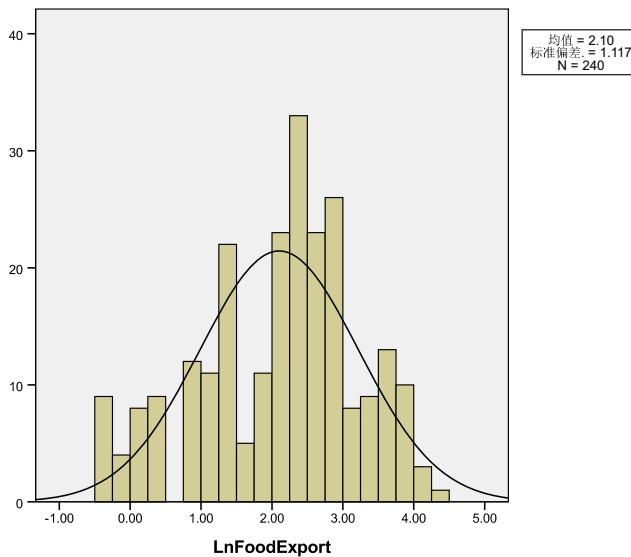
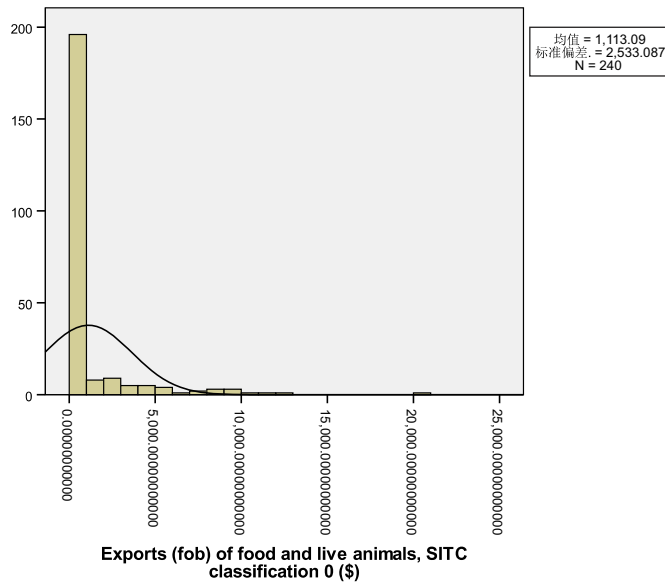


Figure 6.
Export and logarithm of
export in agricultural
industry

Factor analysis

The export competitiveness of agricultural industry is a function of different factors in the countries of emerging markets and, thus, factor analysis is used to find the importance of different factors to the export competitiveness. Factors that influence the export competitiveness of emerging markets can be divided into three main components, which cumulatively explain 71.56 per cent of the variance (Tables III–V).

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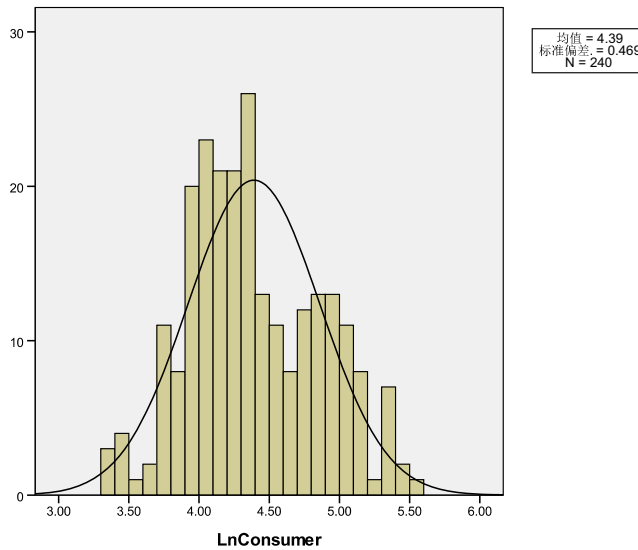
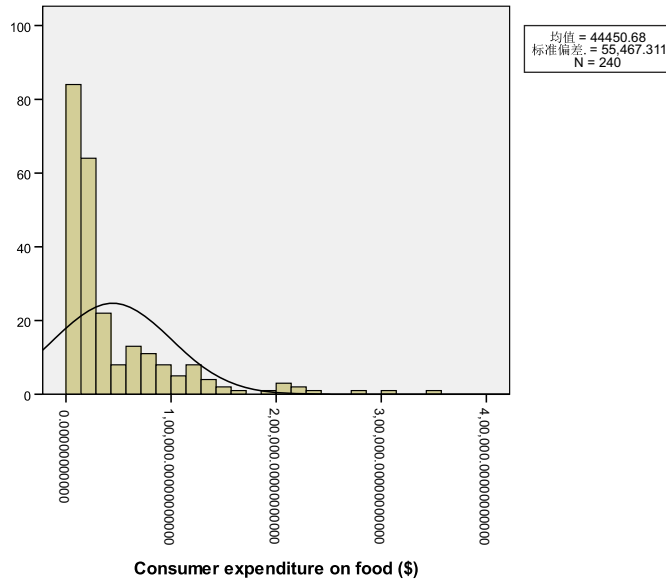


Figure 7.
Consumer demand and
logarithm of consumer
demand

It is shown that a rotated principle component analysis has a better performance than principle component analysis. Therefore, rotated principle component analysis is used to analyze the factors that influence the export competitiveness of agriculture industry from emerging markets, following the Equamax with Kaiser Normalization rule. The result from rotated principle component analysis shows that domestic consumption of agriculture products in emerging markets, wage level of emerging markets and irrigated land areas of countries in emerging markets are included in Component 1, which explains 32.32 per cent of

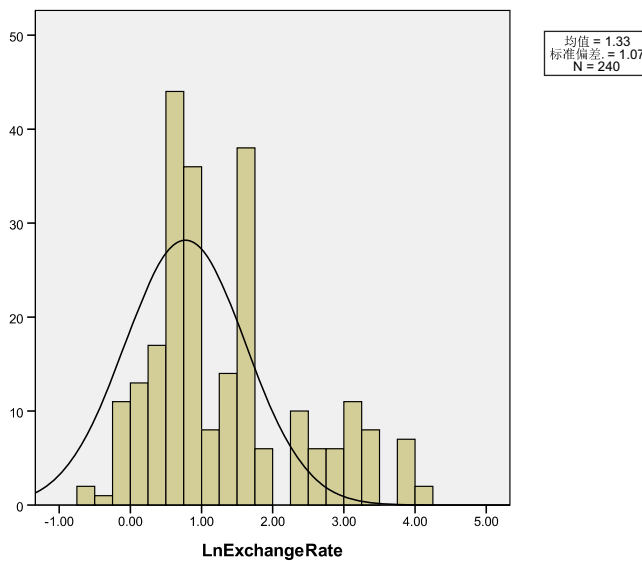
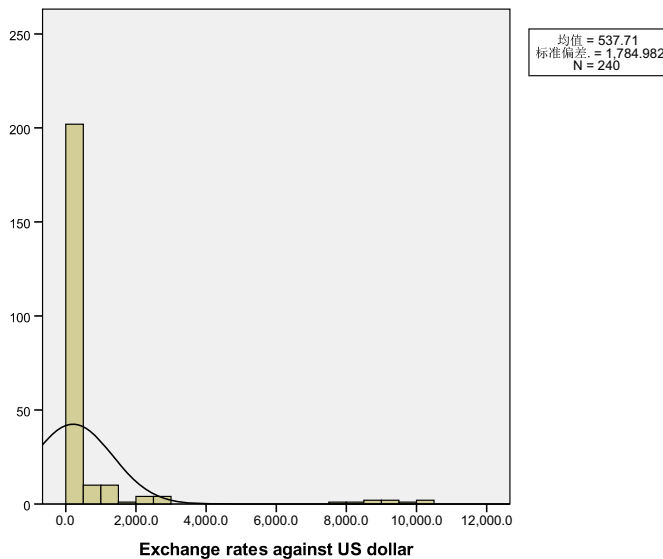


Figure 8.
Exchange rate and
logarithm of exchange
rate

variance. Food price and export of agricultural industry are included in Component 2 which explains 20.74 per cent of the variance. And the exchange rate against US dollar in emerging markets is in Component 3, which contributes 18.51 per cent of variance (Table III).

Therefore, different factors that influence the export competitiveness of agriculture industry from emerging markets can be divided into three groups. The domestic consumption of emerging markets, wage level of emerging markets and irrigated land area included in the first group of factors that influence the export competitiveness of agriculture

Table II.
Multiple regression
analysis of export
competitiveness of
agricultural industry and
factors in emerging
markets

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	1.757***	1.807***	2.031***	1.037***	1.587***	1.014**	4.356***
LnWage	-0.332***	-0.301***	-0.462***		-0.072	-0.526***	0.004*
LnLand	0.295**	0.319**		0.632***	0.57***	-0.389***	0.623***
LnFoodPrice	0.074						
LnExport	1.8***	1.749***	1.881***	1.499***	0.308***	1.244***	
LnConsumption	-0.903***	-0.876***	-0.704***	-0.982***	-0.637***		-0.594***
LnExchangeRate	1.515***	1.467***	1.589***	1.25***		0.986***	-0.153**
R	0.675	0.671	0.656	0.643	0.511	0.471	0.443
R square	0.455	0.451	0.430	0.414	0.261	0.222	0.196
Adjusted R square	0.441	0.439	0.421	0.404	0.248	0.209	0.182
F	32.418***	38.39***	44.407***	41.469***	20.716***	16.772***	14.335***
N	240	240	240	240	240	240	240

Notes: N = 240; *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

products from emerging markets. The food prices and export of agriculture products in emerging markets are included in the second group of factors that have effects on export competitiveness of agriculture products from emerging markets. The exchange rate against US dollar is a third kind of factor which explains the export competitiveness of agriculture products from emerging markets.

Component	Total variance explained								
	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	1.951	32.518	32.518	1.951	32.518	32.518	1.939	32.315	32.315
2	1.330	22.170	54.688	1.330	22.170	54.688	1.244	20.736	53.050
3	1.013	16.876	71.564	1.013	16.876	71.564	1.111	18.514	71.564
4	0.795	13.257	84.821						
5	0.762	12.708	97.529						
6	0.148	2.471	100.000						

Table III.
Factor analysis of factors that influence export competitiveness of agricultural industry from emerging markets

Note: Extraction method: principal component analysis

	Component		
	1	2	3
Consumption	0.907	0.167	0.037
Food prices	0.052	0.574	0.585
Exchange rates against US dollar	0.020	-0.475	0.780
Wage (\$)	-0.493	0.473	-0.131
Exports	0.171	0.720	0.110
Land	0.923	-0.066	-0.176

Table IV.
Component Matrix^a

Notes: Extraction method: principal component analysis; ^a three components extracted

	Component		
	1	2	3
Consumption	0.887	0.255	-0.012
Food prices	-0.043	0.801	0.177
Exchange rates against US dollar	-0.033	0.028	0.913
Wage (\$)	-0.504	0.271	-0.396
Export	0.116	0.678	-0.294
Land	0.939	-0.053	-0.060

Table V.
Rotated Component Matrix^a

Notes: Extraction method: principal component analysis; rotation method: Equamax with Kaiser normalization; ^a rotation converged in five iterations

Conclusion

The development of economy in emerging markets has been providing an important driven power to the international trade business in the global market. During the international specialization, emerging markets have been traditionally better-off in the labor-intensive agricultural industry, such as China, India and Brazil. With the globalization of productions and operations by multinational companies and the relaxed entry barriers of investment, the competition of agriculture industry in the global market is increased. As the countries from emerging markets have increased the productivity in cooperation with foreign companies, the export competitiveness of agricultural industry has become a critical issue to the emerging markets. The factors that influence the export competitiveness of agriculture industry from emerging markets are found to be divided into three groups. The domestic consumption, wage level and irrigated land area of emerging markets are included in the first group. The food prices and export of agriculture products are in the second group. And the exchange rate of emerging economies against US dollars is a third kind of factors.

The study finds that the wage level remains an important competitive advantage in the labor-intensive agricultural industry of emerging markets and the lower wages in the production and operations of agricultural industry maintains a higher level of export competitiveness from emerging markets (Figure 9). The lower level of wage in agricultural industry could maintain the advantage of in production and the lower cost in employment of skilled labor forces. On the other hand, the emerging economies also need to be cautious with the rising income of the agriculture industry, which can be increased consistently with the economy growth. As the wage level increases, the export competitiveness of agriculture industry can be reduced by the increase of labor cost in agriculture productions. Thus, the industrialization of agricultural industry in further development of emerging markets with technology improvement and machinery work will be important for emerging economies to convert agriculture outputs to value-adding exports, and to maintain a sustainable competitive advantage in the export from emerging markets.

The study also indicates that the irrigated land area in emerging markets also remains an important physical resource to the export competitiveness of their agricultural business and this implies a further emphasize to protect the irrigated land area in emerging markets and the surrounding biological environment. With the accelerated development of economy, the urbanization of countries in emerging markets has become an important issue that makes the maintenance of irrigated land area more difficult. The building and execution of a well-developed irrigated land area protection law will become more and more necessary in emerging markets to maintain their export competitiveness in the agricultural industry.

The export competitiveness of agricultural industry from emerging markets is also positively related to the export of agricultural industry and the exchange rate of local currency value to US dollars. Therefore, the export of emerging market has a positive effect

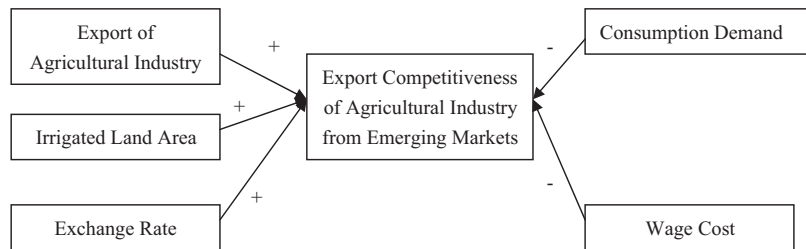


Figure 9.
Impact of country-level factors on export competitiveness of agricultural industry from emerging markets

on the improvement of export competitiveness of agriculture industry. The productivity and also experiences of emerging economies will be increased during the international trade. The depreciation of exchange rate in local currency value to US dollars also has a positive effect on the increase of export competitiveness of agricultural industry in emerging markets. Adversely, the pressure from appreciation of local currency to US dollars such as Chinese RMB will affect the export competitiveness of agricultural industry from emerging markets. Furthermore, the fluctuation of exchange rate will also affect the stability of the export competitiveness of agriculture industry from emerging markets. And a managed floating exchange rate system in emerging markets can be effective to maintain their export competitiveness of agriculture products in a stable range.

The export competitiveness is also found negatively related to the consumption demand of agricultural products in the domestic market and the wage level of countries in emerging market (Figure 9). Therefore, the trade-off between the consumption demand in domestic market and the development of export competitiveness in agricultural industry is an important issue for countries in emerging markets with a large population such as China and India. The satisfaction of domestic consumption demand is also important to the large countries. Otherwise, the increasing demand of domestic consumptions may drive up the price of raw materials in agricultural productions. A rising cost of production for farmers can be resulted and the export competitiveness of agriculture industry from these emerging economies can be reduced. On the other hand, emerging markets can also develop their competitiveness in international market by exporting higher value-adding agriculture products which has a relatively lower level of domestic consumption demand.

On the other hand, the food price index has found no relationship with the export competitiveness of the agricultural industry in emerging markets. The sample size can be enlarged with more countries included in the research and the models of export competitiveness from emerging markets and developed countries can be compared in the future.

Limitations

The sample size of this study can be enlarged with more countries from emerging markets included. And the different cases of export competitiveness between emerging markets and developed countries can be compared in the future. Moreover, the study is focused to the macro economic indicators of export in the agricultural industry from emerging markets. Other factors in the micro economic level such as firm-level indicators can be further analyzed. Additionally, this is a case study of export competitiveness in agriculture industry, and export competitiveness in other industries from emerging markets can be researched in the future.

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Corresponding author

Da Huo can be contacted at: dhuocufe@163.com