J I T A A
Journal of the Indonesian Tropical Animal Agriculture
Accredited by Ditjen Penguatan Risbang No. 60/E/KPT/2016

J. Indonesian Trop. Anim. Agric.
pISSN 2087-8273 eISSN 2460-6278
http://ejournal.undip.ac.id/index.php/jitaa
44(2):213-219, June 2019
DOI:10.14710/jitaa.44.2.213-219

Competitiveness of Indonesian beef trading in Asean

S. Sutawi*, L. Hendraningsih and A. Wahyudi
Faculty of Agriculture and Animal Science, University of Muhammadiyah Malang,
Jl. Raya Tlogomas 246 Malang 65144, East Java - Indonesia
**Corresponding E-mail: sutawi@umm.ac.id*

Received April 30, 2019; Accepted May 28, 2019

ABSTRAK

Penelitian ini bertujuan menganalisis posisi daya saing dan spesialisasi perdagangan daging sapi Indonesia di ASEAN. Penelitian dilakukan di Indonesia dengan sembilan negara anggota Asean lain (Malaysia, Philippina, Singapore, Thailand, Brunei, Vietnam, Kamboja, Laos, and Myanmar) sebagai pembanding. Penelitian menggunakan data sekunder nilai ekspor dan impor daging sapi, dan ekspor komoditas Indonesia dan sembilan negara ASEAN lain tahun 2013 hingga 2017. Posisi daya saing daging sapi diukur menggunakan metode Revealed Comparative Advantage (RCA), sedangkan spesialisasi daging sapi dalam perdagangan internasional diukur menggunakan metode Indeks Spesialisasi Perdagangan (ISP). Hasil perhitungan RCA tahun 2013-2017 menunjukkan bahwa keunggulan komparatif perdagangan daging sapi Indonesia terendah di ASEAN (RCA=0,000). Hasil perhitungan ISP tahun 2013-2017 menunjukkan bahwa komoditas daging sapi Indonesia berada pada tahap pengenalan dalam perdagangan internasional (ISP=-1,000).

Kata kunci: ISP (indeks spesialisasi perdagangan), keunggulan komparatif, perdagangan daging sapi, RCA (revealed comparative advantage)

ABSTRACT

This research was aimed to analyze Indonesian beef trading competitive position and specialization in ASEAN countries. This research was conducted in Indonesia with nine other ASEAN members (Brunei, Cambodia, Laos PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) as the comparison. The research used secondary data of beef export and import values, and export commodities from Indonesia and nine other ASEAN countries in 2013 to 2017. Beef competitive position was measured by using Revealed Comparative Advantage (RCA) method, while the development of beef commodity in international trading was measured by using Trading Specialization Index (TSI) method. RCA calculation result in 2013-2017 showed the lowest comparative advantage of Indonesian beef trading in ASEAN (RCA = 0.000). TSI calculation result in 2013-2017 showed that Indonesian beef trading commodity was in introduction stage in international trading (TSI=-1.000).

Keywords: beef trading, comparative advantage, RCA (revealed comparative advantage), TSI (trade specialization index)

INTRODUCTION

Indonesia is one of ten countries that agreed on ASEAN Economic Community (AEC) enforcement since 31 December 2015. The AEC Blue Print stated a cooperation in food and agriculture fields, including livestock, as one of the important element to make ASEAN as the

single market and production base (Ningsih and Kurniawan, 2016). Wastra (2014) stated that some opportunities that can be reached by Indonesia in AEC are: opening wider market opportunities for Indonesian agricultural products; ASEAN population is about 630,490 million people (8.40% of world people); a better ASEAN economic growth; encouraging domestic investment; and facilitating domestic companies to form joint venture with companies in ASEAN scope.

Beef is one of a favorite food commodity in Indonesia and ASEAN. Beef consumption level tends to increase along with increasing of population and per capita income, changes in consumption patterns and people's tastes, and also awareness of high nutritious food. Beef consumption of Indonesian population increased from 2.305 kg/cap/year in 2013 to 2.399 kg/cap/year in 2017 (Kementan, 2017), eventhough is still lower than other ASEAN countries, such as Malaysia 8.5 kg, Vietnam 8.9 kg, and Philippines 3 kg/cap/year. The low consumption was caused by the low purchasing power, expensive meat price, and shortage of domestic meat production. Some of Indonesia's beef needs are still fulfill by imports of meat and feeder stock. Overall, Indonesia is a country importing livestock commodity including beef, which tends to increase from year-to-year.

Forming a single market in ASEAN will allow Indonesia to sell its products and services easily to other countries in Southeast Asia, thus the competition will be harder. In the harder competition, only countries with the competitive advantage will be able to survive and win the competition, while the countries with low competitiveness will be the target market of products and services from competing countries. Competitiveness is one strategic issue to guarantee the empowerment and sustainability of beef cattle business. This research was aimed to analyze Indonesian beef trading competitive position and specialization in ASEAN countries.

MATERIALS AND METHODS

Research Location

This research was conducted in Indonesia with nine other ASEAN countries member (Brunei, Cambodia, Laos PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) as the comparison.

Objects and Data of the Research

The objects of the research are: (1) determine position of Indonesian beef competitiveness among nine other ASEAN countries, and (2) understand specialization of Indonesian beef trading among nine other ASEAN countries. Categorized of beef observed include: Bovine Carcasses and Half Carcasses, Fresh or Frozen with codes HS 0201100000; Bovine Cuts Bone In, Fresh or Frozen code HS 0201200000; Bovine Cuts Boneless, Fresh or Frozen HS 0201300000; Bovine Carcasses and Half Carcasses, Frozen (HS 0202100000); Bovine Cuts Bone In, Frozen (HS 0202200000); and Bovine Cuts Boneless, Frozen (HS 0202300000). The research used a secondary data of export and import beef values, and export commodities of Indonesia and nine other ASEAN countries from 2013 to 2017. Data obtained from Ministry of Agriculture, Ministry of Commerce, Central Bureau of Statistic, International Trade Centre (ITC), and Food and Agriculture Organization (FAO).

Revealed Comparative Advantage Analysis

The position of beef competitiveness was measured by using Revealed Comparative Advantage (RCA) method or Balassa Index popularized by Balassa in 1965 (French, 2017). RCA compares the weight of a certain category of export in total export from a country with the weight of the same category at world level, against total world export. RCA is commonly used to measure the comparative advantage of agricultural commodity in Indonesia, for example of cereals, cocoa, live animal, milling products, and tobacco (Ningsih and Kurniawan, 2016), of crab (Riniwati *et al.,* 2017), and of food crops, horticulture and estate crops (Firmansyah *et al.,* 2017). RCA is calculated with this formula:

$$RCA = (X_{ij}/X_j)/(X_{iw}/X_w)$$

where:

X_{ij} = Export commodity value *i* (beef) in country *j* (ASEAN country)

X_j = Total export commodity value of country *j* (ASEAN country)

X_{iw} = World export commodity value *i* (beef)

X_w = Total of world export commodity

The values of RCA index vary from 0 to infinity ($0 \leq RCA \leq \infty$). RCA that is less than 1 implies that a country has comparative disadvantage in the commodity or industry. In

contrast, RCA that is greater than 1 means that a country has comparative advantage in the commodity or industry (Saleh and Widodo 2010; Zaman and Vasile, 2012; Granabetter, 2016). In 2001, Hinloopen and Marrewijk presented 4 classes of RCA index values which can be easily interpreted: Class *a*: 0<RCA≤ 1; Class *b*: 1<RCA≤ 2; Class *c*: 2<RCA ≤4; and Class *d*: RCA>4 (Startienė and Remeikienė, 2014). Class *a* includes all commodities or industries by which a country "does not have revealed comparative advantage", class *b* related to "weak comparative advantage", class *c* "medium comparative advantage", and class *d* "strong comparative advantage".

Trade Specialization Index Analysis

Trade Specialization Index (TSI) is applied to analyze the position or development stage of a commodity product. This index is used to recognize whether types of commodity in a country tend to be an exporter or importer country. TSI is a comparison between net trade value difference with total value of trade in a country. TSI is calculated with the formula:

$TSI = (X_{ia}-M_{ia})/(X_{ia}+M_{ia})$

X_{ia} = export commodity value *i* (beef) in country *a* (ASEAN country)

M_{ia} = import commodity value *i* (beef) in country *a* (ASEAN country)

The position of the competitiveness of a commodity in international trade can be devided into 4 stages based on TSI value (Riniwati *et al*., 2017; Firmansyah *et al.*, 2017; Elysi *et al.*, 2018), where "Introduction stage": TSI values vary from -1.00 to -0.50; "Import Substitution stage": TSI value varies in the interval from -0.51 to 0.00; "Growth stage": TSI value varies in the interval from 0.01 to 0.80; and "Maturity stage": TSI value varies in the interval from 0.81 to 1.00.

RESULTS AND DISCUSSION

Revealed Comparative Advantage

Revealed Comparative Advantage (RCA) calculation result in 2013-2017 showed that Indonesia, with Philippines and Myanmar, have the lowest RCA value in ASEAN (RCA=0.000), below Vietnam (0.003), Cambodia (0.005), Thailand (0.034), Brunei (0.035), Singapore (0.039), Malaysia (0.041), and Laos (0.074) (Table 1). RCA value close to zero indicates that beef exports in almost all ASEAN countries are very low (less than 0.5%) comparing with total export commodities. Overall, ten ASEAN countries do not have comparative advantages (RCA<1) in beef international trading. The result of this research was similar to the review of Jabbar (2014) that since 2008 no ASEAN country has a comparative advantage in livestock commodity trading, including meat. By using Relative Trade Advantage (RTA) method, Ismail

Table 1. Revealed Comparative Advantage (RCA) Rangkings for ASEAN countries 2013-2017

Ranks	Countries	Revealed Comparative Advantage					Average
		2013	2014	2015	2016	2017	
1	Lao PDR	0.000	0.006	0.288	0.076	0.000	0.074
2	Malaysia	0.028	0.049	0.058	0.037	0.030	0.041
3	Singapore	0.026	0.023	0.038	0.068	0.039	0.039
4	Brunei	0.003	0.002	0.002	0.166	0.000	0.035
5	Thailand	0.040	0.064	0.062	0.003	0.000	0.034
6	Cambodia	0.000	0.002	0.000	0.022	0.000	0.005
7	Vietnam	0.000	0.004	0.000	0.010	0.000	0.003
8	Indonesia	0.000	0.000	0.000	0.000	0.000	0.000
9	Myanmar	0.000	0.000	0.000	0.000	0.001	0.000
10	Philippines	0.001	0.000	0.000	0.000	0.000	0.000

et al. (2013) found the different result that Indonesia, Philippines, Singapore, and Thailand are more competitive in the meat and meat preparation sector, for the ruminant category, as compared to Malaysia.

At least, there are two problems related to the lack of comparative competitiveness of Indonesian beef trading. First, though economically beef cattle products will give benefit (Prasetyo *et al.*, 2012, Nugroho *et al.*, 2013, Kalangia *et al.*, 2016), but the production cost will be expensive. In 2013, Cambodia was the first rank of competitive country to produce at US$ 1.97 per kg live beef cattle, followed by the Philippines US$ 2.06, Malaysia US$ 3.27, Indonesia US$ 3.34, Vietnam US$ 3.80, Thailand US$ 4.25, Laos PDR US$ 5.20, and Brunei US$ 10.47 (Soedjana and Priyanti, 2017). Indonesia was only ranked fourth to produce per kilogram live beef cattle compared to other member ASEAN countries. This condition impacts to the development of beef cattle farming, both in the business applied by feedloters and smallholders.
Second, domestic beef price is more expensive than import meat and lead to increasing of beef import (Priyanto, 2011). The average price of beef at the consumer level in 2013-2017 periods was IDR 79,911/kg (equivalent to US$ 6.132/kg), while import beef price was US$ 4.000/kg (Kementan, 2017). Setiaji *et al.* (2017) stated that the price of beef in the Indonesian market (US$ 9.1) is about double that in Australia (US$ 4.2). The price of beef in Indonesia is relatively expensive, as the impact of inefficient domestic animal farming business and inefficient trading system from the areas of production centers to consumers' areas. Beef trading in Indonesia is vulnerable to cartel behaviors that cause an oligopoly market structure. The farmers get little beneft from it, due to the farmer's poor bargaining position. Import meat prices were relative cheaper with a better quality as a consequence of efficiency of production management, in addition to the dumping price policy by exporter countries (Pakpahan, 2012). This price differentials increase the beef trade deficit from 88,419 tons (2013) to 144,697 tons (2017) (Kementan, 2017). Deficit was over the prediction of Jabbar (2014) that the deficit of Indonesian beef trading will be 23,000 tons in 2020.

Trade Spesicialization Index

Trade Spesicialization Index (TSI) calculation result in 2013-2017 showed that Indonesia and Philippines had the lowest TSI values in ASEAN (TSI=-1.000), below Myanmar (-0.995), Vietnam (-0.983), Brunei (-0.937), Cambodia (-0.835), Singapore (-0.693), Thailand (-0.639), Laos (-0.627), and Malaysia (-0.493) (Table 2). Malaysian beef trading had entered "Import substitution stage", whereas nine other ASEAN countries are in "Introduction stage". Negative TSI indicated that ASEAN countries are net importer countries of beef. The demand for beef products in ASEAN countries will be driven

Table 2. Trade Specialization Index (TSI) Rankings for ASEAN countries in 2013-1027

Ranks	Countries	Trade Specialization Index					Average
		2013	2014	2015	2016	2017	
1	Malaysia	-0.552	-0.358	-0.322	-0.601	-0.634	-0.493
2	Lao PDR	-1.000	-0.872	0.612	-0.876	-1.000	-0.627
3	Thailand	-0.431	-0.373	-0.453	-0.939	-0.999	-0.639
4	Singapore	-0.753	-0.774	-0.706	-0.532	-0.698	-0.693
5	Cambodia	-1.000	-0.917	-1.000	-0.260	-1.000	-0.835
6	Brunei	-0.990	-0.992	-0.996	-0.708	-1.000	-0.937
7	Vietnam	-0.998	-0.971	-0.998	-0.950	-1.000	-0.983
8	Myanmar	-1.000	-1.000	-1.000	-1.000	-0.974	-0.995
9	Indonesia	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
10	Philippines	-0.999	-1.000	-1.000	-1.000	-1.000	-1.000

by economic progress, population growth, urbanization, and changing consumer preferences (Agus and Widi, 2018; Smith *et al.,* 2018), and their knowledge about the importance of animal protein consumption (Mallu *et al.*, 2018), and improvement of living standard (Rudatin, 2016). The increasing of beef demand is not compensated with the increasing of beef production, thus it will make ASEAN member countries stay as net importers.

The lowest Indonesian TSI position in ASEAN is related to the imbalanced between beef consumption and beef production. Total beef consumption of Indonesian population decreased 0.942% from 591,671 tons (2013) to 586,149 tons (2017). The decline in meat consumption occurs because the price of meat at the consumer level increases very sharply (35.400%) from IDR 77,119/kg (2013) to IDR 104,419/kg (2017) (Kementan, 2017). In the same period, meat production declined 5.93% from 504,818 tons (2013) to 474,840 tons (2017). The decline in production caused the decline of Indonesian capability to meet the meat requirements from domestic production. Based on Self Sufficiency Ratio (SSR) calculation, Indonesian capability to meet domestic beef needs declined from 88.840% (2013) to 74.690% (2017). In the contrary, Import Dependency Ratio (IDR) value increased, from 14.910% (2013) to 25.310% (2017). This means that domestic production can only satisfy about 75% of Indonesian demand for beef. To fulfil the demand for meat, the Indonesian government has been importing meat and live feeder and slaughter cattle and some breeding stock (Agus and Widi, 2018; Smith *et al.,* 2018). Fresh and frozen beef imported by Indonesia increased 218% from 45,503 tons (2013) to 144,705 tons (2017). Indonesian beef import, particularly from Australia, contributed 56.27%, India 28.68%, and New Zealand 10.46% (Kementan, 2017). Meat consumption is estimated to increase in the coming years as the population reaches 262 million, per capita income of IDR 51,890 million or US$ 3.877, and economic growth of about 5% (Ginting, 2017). Indonesian goverment estimate that the national beef consumption will reach 1,045 million tons in 2024 and can be produced domestically for about 546 thousand tons (52%) or the shortage is 499 thousand tons (Mallu *et al.*, 2018).

The decline of Indonesian beef production was related to the low beef cattle productivity. The low local beef cattle productivity was caused by inefficient breeding management (Ekowati *et al.*, 2018) and high mortality rate of livestock, particularly the death of calf that reached 20-40% and cattle for about 10-20% (Matondang and Rusdiana, 2013). The low productivity of local cows was also related to beef cattle production in Indonesia dominated by traditional and small-scaled farms. Only 10% of 16,599 million of beef cattle population in 2017 are managed by large beef cattle companies while the balance of 90% are from smallholder farming systems (Smith *et al.* 2018). Smallholder farmer, therefore, are the primary driver of domestic beef production in Indonesia. About 43.71% beef cattle population is concentrated in rural areas of Java island, whereas Java is only 6.77% of Indonesia's land area.

Small-scaled farmers have characteristics as follows: herd size of approximately 1-5 head per farmer, subsistence-oriented farming, the cattle is often employed for draught power and producer of fertilizer for the farm, and as a form of savings to be sold when cash is needed (Eni *et al.*, 2006). For the majority of farmers in Indonesia the purpose of raising beef cattle are as saving, a social security insurance policy, draught power for plowing and freight, and a beef production system (Ainsworth, 2017). The performance of beef cattle on smallholder farms needs improvement through several strategies: development and use of breeds adapted to tropical conditions (Romjali, 2018); empowered smallholder farmers in terms of input technologies, financial, support, information and markets (Sugiarto *et al.*, 2017; Kapa *et al.*, 2018); and develop systems for industry development such as integration of palm oil or plantations with beef cattle production (Kadarsih, 2015; Agus and Widi, 2018).

CONCLUSION

Based on the result of this study, it can be concluded that the comparative advantage of Indonesian beef trading is the lowest in ASEAN, and Indonesian beef commodity is still in the introduction stage of international commerce.

ACKNOWLEDGEMENT

The research for this paper was funded by the University of Muhammadiyah Malang through Research Grant No. E.6.k/012/DPPM-UMM/L/II/2018.

REFERENCES

Agus, A. and T.S.M. Widi. 2018. Current situation and future prospects for beef cattle production in Indonesia - A review. Asian-Australas. J. Anim. Sci. 31(7):976-983

Ekowati, T., E. Prasetyo and M. Handayani. 2018. The factors influencing production and economic efficiency of beef cattle farm in Grobogan Region, Central Java. J.Indonesian Trop. Anim. Agric. 43(1):76-84

Elysi, M.G., Darsono, and E.W. Riptanti. 2018. The analysis of export commodity competitiveness in Central Java Province at period 2011-2015. IOP Conf. Series: Earth and Environmental Science 142, 2018. P. 012-061

Eni, S.R., N. Amali, Sumanto, A. Darmawan dan A. Subhan. 2006. Pengkajian integrasi usaha tani jagung dan ternak sapi di lahan kering Kabupaten Tanah Laut, Kalimantan Selatan. J. Pengkajian dan Pengembangan Teknologi Pertanian 9(2): 129-139

French, S. 2017. Revealed comparative advantage: What is it good for? J. Int. Econ. (JIE) 106:83-103

Firmansyah, W. Widodo, Karsinah, and S. Oktavilia. 2017. Export performance and competitiveness of Indonesian food commodities. Jejak. 10(2):289-301

Ginting, A.M. 2017. An analysis of export effect on the economic growth of Indonesia. Bul. Ilmiah Litbang Perdagangan. 11(1):1-20.

Granabetter, D. 2016. Revealed comparative advantage index: an analysis of export trade in the Austrian district of Burgenland. Rev. of Innovation and Competitiveness. 2(2):97-114

Ismail, M.M., A.M. Abdullah and B. Hassanpour . 2013. Ranking the competitiveness of the ruminant meat and meat preparation sub-sector amongs Asean countries. Int. J. Econ. Manag. 7(1):1-16

Jabbar. M. A. 2014. Livestock sub-sector report for the Asean strategic plan 2016-2020. 2nd ATAF Meeting, Bangkok, July 17-18, 2014. P. 1-55

Kadarsih, S. 2015. Beef Cattle Business: Sustainable Plan Strategy. International Seminar on Promoting Local Resources for Food and Health, Bengkulu, 12-13 October, 2015. P. 528-534

Kalangia, L.S., Y. Syaukat, S.U. Kuntjoro, and A. Priyanti. 2016. Factors affecting profit analysis of beef cattle farming in East Java, Indonesia. Livestock Research for Rural Development Vol. *28, Article #226.* Retrieved June 7, 2018, from http://www.lrrd.org/lrrd28/12/kala28226.htm

Kapa, M.M.J., Y.L. Henuk, Hasnudi and Suyadi. 2018. Contribution of local beef cattle production on farmer's income in the dryland farming of Kupang Regency, Indonesia. International Conference on Agriculture, Environment, and Food Security. IOP Conf. Series: Earth and Env. Sci. 122, 2018. P. 012-018

Kementan. 2017. Outlook daging sapi. Pusat Data dan Sistem Informasi Pertanian Sekretariat Jenderal Kementerian Pertanian. Jakarta.

Kementan. 2017. Analisis kinerja perdagangan komoditas daging sapi. Pusat Data dan Sistem Informasi Pertanian Sekretariat Jenderal Kementerian Pertanian. Jakarta.

Mallu, M.H., D.H. Darwanto, S. Hartono and J.H. Mulyo. 2018. The Competitiveness of Beef Cattle Breeding Business on Community Livestock-Based in North Penajam Paser Regency, East Kalimantan Province. Int. J. Econ. Manag. Sci. 7(5):548-551.

Matondang, R.H. and S. Rusdiana. 2013. Strategic steps in achieving beef self-sufficiency in 2014. J. Litbang Pertanian. 32(3):131-139

Ningsih, E.A. and W. Kurniawan. 2016. Daya saing dinamis produk pertanian Indonesia di Asean. J. Ekonomi Kuantitatif Terapan. 9(2):117-125

Nugroho, E., S. Azizah, T. Susilawati and I. Novianti. 2013. Socio-economic potential of Indonesian native cattle in supporting meat self-sufficiency in Indonesia. Livestock Research for Rural Development. Vol.25, Article #202.

Pakpahan, A.R.S. 2012. Analisis faktor-faktor yang mempengaruhi impor daging sapi di Indonesia. Econ. Dev. Anal. J. (EDAJ). 1(2):1-13.

Prasetyo, E., Sunarso, P.B. Santosa and E. Rianto. 2012. The influence of agribusiness subsystem on beef cattle fattening farm's profit in Central Java. J. Indonesian Trop. Anim. Agric. 37(2):121-126

Priyanto, D. 2011. Strategi pengembangan usaha ternak sapi potong dalam mendukung program swasembada daging sapi dan kerbau tahun 2014. J. Litbang Pertanian.

30(3):108-116
Riniwati, H., N. Harahab and T.Y. Carla. 2017. Analysis of indonesian crab export competitiveness in international market. Int. Rev. Manag. Mark. (IRMM). 7(5):23-27.
Romjali, E. 2018. Program Pembibitan Sapi Potong Lokal Indonesia (Local Beef Cattle Breeding Program in Indonesia). Wartazoa. 28(4):190-210
Rudatin, A. 2016. Analysis on Indonesia's beef import. Econ. J. Emerg. Mark. 8(1):65-72
Saleh, S. and T. Widodo. 2010. Trade specialization indices: two competing models. J. Ind. Econ. Bus. (JIEB) 25(2):129–142
Setiaji, B., I. Susila and H.D. Wahyudi. 2017. Supply Chain of the Beef Market in Indonesia. Exp. J. Bus. Manag. (EJBM). 5(2):129-135.
Smith, S.B., T. Gotoh and P.L. Greenwood. 2018. Current situation and future prospects for global beef production: overview of special issue. Asian-Australas J. Anim. Sci. 31(7):927-932.
Soedjana, T. D. and A. Priyanti A. 2017. Competitiveness of Indonesian livestock production among ASEAN countries. Wartazoa 27(1):1-14
Startienė G. and R. Remeikienė. 2014. Evaluation of revealed comparative advantage of Lithuanian industry in global markets. Procedia Soc. Behav. Sci. 110:428-438.
Sugiarto, M., Y.N. Wakhidati, A. Einstein and Khaerudin. 2017. The Competitiveness of Beef Cattle Business on Various Agro-Ecological Zones in Tegal Regency. J. Anim. Prod. 19(2):127-134
Wastra, A. R. 2014. Perlindungan produk pertanian menghadapi pasar bebas Asean 2015. J. Agrib. 8(2):111-124
Zaman, G. and V. Vasile. 2012. Comparative advantages metrics of Romania's export in the period 2007-2010. Rom. J. Econ. 34(1):5-23