THE NEXT-11 AND THE BRICS: ARE THEY THE FUTURE MARKETS FOR AGRIFOOD TRADE?

CATPRN Trade Policy Brief 2012-03

December 2012

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http://www.catrade.org

1.   Introduction

When Goldman Sachs predicted, in 2003, that the combined economies of the BRICs would exceed the size of the G6 in less than 40 years it was greeted with some skepticism (Wilson and Purushothaman, 2003).[1] However, between 2000 and 2010 the average real growth rate in emerging economies (6.2 percent) was nearly four times larger than in the G7 (1.6 percent). In 2000, the BRICs aggregate GDP was 12.2 percent of the G7's; by 2010 it was more than a third; and by 2016 the IMF (2010) predicts that the BRICs aggregate GDP will be more than one-half of that of the G7's. From 8 percent of the worlds economy in 2000, by 2016 the BRICs will account for 23 percent of the worlds economic activity, while the G7s share of world GDP is projected to drop from 66 to 44 percent (IMF, 2010). It is now obvious that a significant realignment of economic power will be a major story of the 21st Century.

In 2007, Goldman-Sachs identified the growth potential of an additional eleven emerging economies that they termed the next eleven (N-11).[2] In their report Wilson and Stupnyska (2007) make several predictions regarding the growth potential of the group, noting that in general N-11 members have demonstrated a willingness to engage in more open trade by removing trade barriers and could grow to have a cumulative GDP two-thirds the size of the G7 by 2050. Table 1 shows that N-11 countries currently contain about 20 percent of the worlds population – less than one-half of the population of the BRICs and about twice as many people as in the G7. However, the N-11 is a diverse group of geographically dispersed countries. Some are close to large economic centres while others are more isolated. Two members of the N-11 have GDPs greater than $1 trillion (South Korea, Mexico) while two are only a tenth as large (Bangladesh, Vietnam). In terms of GDP per capita South Korea ($20,756) stands out producing twice as much as the second most productive N-11 member Turkey ($10,309) in 2010.[3] Currently, Iran faces stringent economic sanctions that will seriously hamper its economic growth potential.

The combination of higher economic and population growth in the N-11 and BRICs, coupled with a larger proportion of income spent on food in developing countries could translate into signicant increases in expenditure on agrifood. The anticipated increase in agrifood expenditures has the potential to increase agrifood imports as consumers begin to diversify their diets and/or if domestic food production rises slower than consumption an important development for major agrifood exporters facing stagnant growth prospects in developed country markets. In short, there may be gains to be had by agrifood exporters targeting these developing markets.

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[1]The BRICs are: Brazil, Russia, India and China. The G6 are: France, Germany, Italy, Japan, United Kingdom and the United States. The G7 adds Canada to the G6.

[2]The Next-11 are: Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, Philippines, South Korea, Turkey and Vietnam.

[3]All dollar values are in US dollars.

Table 1: BRIC, N-11 and G7 country summaries

Country	2000			2010			2016		
	Pop. (mil.)	GDP (bil.)	GDP per capita	Pop. (mil.)	GDP (bil.)	GDP per capita	Pop. (mil.)	GDP (bil.)	GDP per capita
G7									
Canada	31	$725.0	$23,653	34	$1,577.0	$46,303	36	$2,106.0	$58,674
France	59	$1,332.0	$22,550	63	$2,563.0	$40,704	65	$3,268.0	$50,497
Germany	82	$1,892.0	$23,051	82	$3,286.0	$40,274	81	$3,929.0	$48,731
Italy	57	$1,101.0	$19,334	60	$2,055.0	$34,059	62	$2,476.0	$40,100
Japan	127	$4,667.0	$36,800	128	$5,459.0	$42,783	127	$6,783.0	$53,615
U.K.	59	$1,481.0	$25,142	62	$2,250.0	$36,164	65	$3,224.0	$49,777
U.S.	282	$9,951.0	$35,252	310	$14,527.0	$46,860	328	$18,251.0	$55,622
Total/Avg.	**697**	**$21,149.0**	**$30,343**	**739**	**$31,717.0**	**$42,919**	**764**	**$40,037.0**	**$52,404**
BRICs									
Brazil	171	$642.0	$3,751	193	$2,090.0	$10,816	203	$3,373.0	$16,635
China	1,267	$1,198.0	$946	1,341	$5,878.0	$4,382	1,382	$11,780.0	$8,523
India	1,024	$476.0	$465	1,191	$1,632.0	$1,371	1,289	$3,027.0	$2,349
Russia	146	$260.0	$1,775	143	$1,480.0	$10,356	140	$3,088.0	$22,066
Total/Avg.	**2,608**	**$2,576.0**	**$988**	**2,868**	**$11,080.0**	**$3,863**	**3,014**	**$21,268.0**	**$7,056**
Next-11									
Bangladesh	141	$47.0	$334	164	$106.0	$642	179	$174.0	$973
Egypt	63	$99.0	$1,566	78	$218.0	$2,808	88	$342.0	$3,901
Indonesia	205	$166.0	$807	238	$707.0	$2,974	255	$1,382.0	$5,429
Iran	55	$85.0	$1,559	75	$407.0	$5,449	82	$630.0	$7702
S. Korea	47	$533.0	$11,317	49	$1,014.0	$20,756	50	$1,686.0	$33,948
Mexico	98	$672.0	$6,859	109	$1,034.0	$9,522	115	$1,505.0	$13,052
Nigeria	119	$46.0	$390	156	$203.0	$1,298	184	$359.0	$1,957
Pakistan	138	$74.0	$539	172	$177.0	$1,030	194	$303.0	$1,566
Philippines	77	$81.0	$1,053	94	$200.0	$2,123	106	$307.0	$2,907
Turkey	66	$266.0	$4,026	71	$735.0	$10,309	76	$1,133.0	$14,839
Vietnam	78	$31.0	$402	88	$104.0	$1,174	95	$210.0	$2,217
Total/Avg.	**1,087**	**$2,100.0**	**$2,626**	**1,294**	**$4,905.0**	**$5,280**	**1,424**	**$8,031.0**	**$8,045**
TOTALS	**4,392**	**$25,825.0**	**$5,880**	**4,901**	**$47,702.0**	**$9,734**	**5,202**	**$69,336.0**	**$13,329**
World	**6,115**	**$32,216.0**	**$5,268**	**6,909**	**$62,911.0**	**$9,106**	**7,302**	**$91,575.0**	**$12,541**

Source: IMF ; "World Economic Outlook Database", September 2011 Edition, http://www.imf.org/.
Actual data is used for 2010 where it is available, where it is not, IMF projections are used.

2. Data

The sample used for the empirical work contains 24,800 bilateral trade flows from 20 major agrifood exporters to 63 importers over a period of 20 years (1990-2009). The exporters were the 20 largest agrifood exporters in 2008, and on average accounted for 74.5 percent of world agrifood exports over the sample period. Importers were included based on the following criteria: 1) they were a member of the BRICs, N-11 or one of the 20 major exporters; or 2) they imported more than $5 million in agrifood; or 3) Canada generally exported more than one million in agrifood to the country in each of the 20 years.This resulted in the selection of 63 importers accounting for, on average, 90.5 percent of agrifood imports annually over the sample period.[4]

3. Results

We begin by asking if expenditure elasticities for agrifood imports vary across the members of the BRICs and N-11? We find that every BRIC member has a statistically signicant and positive expenditure elasticity. From the latter group, income appears to have the largest effect on agrifood imports in India, which has an expenditure elasticity larger than unity, suggesting that if expenditure increases by 1 percent, then per capita expenditure on agrifood imports will increase by roughly 1.25 percent. Income in China appears to have a near proportional effect on imported food expenditure, increasing by 0.90 percent for every one percent increase in income, while the expenditure elasticities for Russia and Brazil are around 0.70. However, the expenditure elasticities for Brazil and Russia are not statistically different from other countries in the middle income group, while China and India differ from the average elasticity faced by the middle and low income groups to which they belong.

The expenditure elasticities for the N-11 are varied ranging from 0.38 (Nigeria) to 2.28 (South Korea). The estimated elasticitities for all of the N-11 are statistically signicant except for Bangladesh and the Philippines. Although the N-11 members Egypt (0.88), Indonesia (0.85), Pakistan (0.94), Nigeria (0.38) and Turkey (0.76) have expenditure elasticities of varying magnitudes, their income effects are not statistically different from other low and middle income countries.

Among the N-11, the results clearly identify South Korea (2.28) and Vietnam (1.8) as countries where income notably inuences per capita expenditure on agrifood imports. In particular South Korea and Vietnam both exhibit expenditure elasticities greater than one implying that per capita expenditure on food imports increases at a faster rate than income growth – e.g. if income grows by 10 percent, expenditure on agrifood imports increases by

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[4]A complete discussion of the data, model specification and estimation procedures is contained in Cairns and Meilke (2012).

roughly 23 percent in South Korea and approximately 18 percent in Vietnam. This is likely attributable to several fundamental factors driving demand.

South Korea faces topographical and political constraints on agriculture; it is geographically characterized as largely mountainous, a problem which is further exacerbated by archaic agricultural policies which constrain farm size (Economist Intelligence Unit, 2008a). Furthermore, South Koreas emphasis on its manufacturing sector and its role as a transportation hub, has led to its population becoming increasingly urbanized (Economist Intelligence Unit, 2008a, 2010). Thus, due to the high cost of domestic production, South Korea has become a large net importer of food – $20 billion in 2010 in spite of high applied MFN tariffs averaging 48.6 percent.

Vietnams large expenditure elasticity likely stems from consumers emerging preference for meat (a higher value good) (Economist Intelligence Unit, 2008b), and its increased efforts to engage in international markets including its ascension to the WTO in January 2007. Wilson and Stupnyska (2007) also note the potential for Vietnam to experience large increases in income, which may translate into increased expenditure on imported food products as Vietnam is still a lower-middle income country with food representing a significant portion of consumers budgetary outlays.

4.   Forecasts

The elasticities discussed in section 3 only tell a part of the story with respect to market potential. Inelastic (low) elasticity estimates do not automatically imply that increases in the value of agrifood imports will be marginal. If income and population growth are substantially large then even a country with a relatively smaller expenditure elasticity can exhibit large trade potential. In this section, we estimate the absolute growth in agrifood import demand for members of the BRICs, the N-11 and the G7 between 2010 and 2016. This process has four components.

First, the import demand elasticities in table 2 tell us how fast agrifood imports will increase as per capita GDP rises. South Korea (2.3) and Vietnam (1.8) have the largest expenditure elasticities for agrifood imports followed by Bangladesh (1.3) and India (1.2). However, these are the only countries studied that have elastic import demand. In contrast, the average import demand elasticity estimated for high-income countries is 0.65.

Table 2: BRIC, G7 and N-11 agrifood import forecasts

	Import Elasticity	2010 Imports (bil.)	2010 to 2016: Pop. Growth (percent)	Income Growth (percent)	Additional agrifood imports resulting from: Pop. Growth (bil.)	GDP Growth (bil.)	Pop. + GDP Growth (bil.)	Share of Total Growth (percent)	Est. 2016 Imports (bil.)
G7									
Canada	0.65	$28.1	6	18	$1.7	$3.3	$5.0	0.9	$33.1
France	0.65	$51.0	3	16	$1.6	$5.2	$6.8	0.9	$57.8
Germany	0.65	$75.6	-1	13	-$0.9	$6.3	$5.4	-0.5	$81.0
Italy	0.65	$44.3	3	10	$1.5	$2.8	$4.3	0.8	$48.6
Japan	0.65	$64.0	-1	17	-$0.5	$7.0	$6.5	-0.3	$70.5
U.K.	0.65	$54.2	5	28	$2.6	$10.0	$12.6	1.5	$66.8
U.S.	0.65	$97.3	6	11	$5.6	$6.8	$12.4	3.2	$109.7
G7 Total	**0.65**	**$414.5**	**3**	**14**	**$14.0**	**$37.5**	**$51.5**	**8.1**	**$466.0**
BRICs									
Brazil	0.74	$8.4	5	43	$0.4	$2.7	$3.1	0.3	$11.5
China	0.91	$59.6	3	81	$1.8	$43.9	$45.7	1.0	$105.3
India	1.24	$12.3	8	60	$1.0	$9.2	$10.2	0.6	$22.5
Russia	0.77	$32.5	-2	99	-$0.7	$24.6	$23.9	-0.4	$56.4
BRICs Total	**0.89**	**$112.8**	**5**	**70**	**$5.7**	**$70.6**	**$76.3**	**3.3**	**$189.1**
Next-11									
Bangladesh	1.33	$3.9	9	41	$0.4	$2.1	$2.5	0.2	$6.4
Egypt	0.88	$10.1	13	30	$1.3	$2.6	$3.9	0.7	$14.0
Indonesia	0.85	$11.5	7	70	$0.8	$6.9	$7.7	0.5	$19.2
Iran	-1.43	$8.3	9	32	$0.8	-$3.8	-$3.0	0.4	$5.3
S. Korea	2.28	$19.2	2	53	$0.4	$23.0	$23.4	0.2	$42.6
Mexico	0.63	$19.5	6	28	$1.1	$3.4	$4.5	0.6	$24.0
Nigeria	0.38	$4.5	18	41	$0.8	$0.7	$1.5	0.5	$6.0
Pakistan	0.94	$4.9	13	42	$0.6	$1.9	$2.6	0.4	$7.5
Philippines	0.47	$6.4	13	28	$0.8	$0.8	$1.6	0.5	$8.0
Turkey	0.76	$7.4	7	34	$0.5	$1.9	$2.5	0.3	$9.9
Vietnam	1.81	$5.5	8	76	$0.4	$7.6	$8.0	0.3	$13.5
N-11 Total	**0.92**	**$101.0**	**10**	**39**	**$10.2**	**$36.1**	**$46.2**	**5.8**	**$147.4**
Total		**$628.5**			**$29.9**	**$147.2**	**$178.1**	**17.2**	**$802.6**

Source: United Nations, "UN Comtrade", Updated in 2010, http://comtrade.un.org/
Source: IMF, "World Economic Outlook Database", September 2011 Edition, http://www.imf.org/.
Actual data is used for 2010 where it is available, where it is not, IMF projections are used.
Aggregate elasticities are weighted by the countries' share of agrifood imports.

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Second, table 2 shows the 2010 US dollar value of agrifood imports for the members of the G7, BRICs and N-11. In 2010, imports by the G7 ($414.5 billion) dwarfed those of the BRICs ($112.8 billion) and the N-11 ($101 billion). Among the BRICs and N-11 only China ($59.6 billion), Russia ($32.5 billion), Mexico ($19.5 billion), South Korea ($19.2 billion) and India ($12.3 billion) imported more than $12 billion in agrifood products, in 2010; but $12 billion is less than one-half of the imports of the smallest G7 member Canada ($28.1 billion). The value of the United States agrifood imports ($97.3 billion) alone were nearly as much as the BRICs or N-11 combined.

Third, population growth will play an important role in driving future agrifood imports. The IMF (2010) forecasts population growth between 2010 and 2016 to average 3 percent in the G7, 5 percent in the BRICs and 10 percent in the N-11. The countries with most rapidly growing populations are all in the N-11: Nigeria (18 percent), Pakistan (13 percent), Egypt (13 percent) and the Philippines (13 percent). India (8 percent) has the fastest growing population in the BRICs.

Fourth, real income growth is a key element in determining how quickly agrifood imports will grow. The IMF (2010) forecasts real per capita GDP to grow by 70 percent between 2010 and 2016 in the BRICs, 39 percent in the N-11 and 14 percent in the G7. The largest forecast increases in real per capita GDP are for Russia (99 percent), China (81 percent), Vietnam (76 percent) and Indonesia (70 percent).

To calculate import potential begin by multiplying the 2010 value of agrifood imports by population growth to discover how much agrifood imports will rise as a result of population growth (column 6 in table 2).[5] In 2016, agrifood imports are projected to be $14 billion larger than in 2010 in the G7, $5.7 billion larger in the BRICs and $10.2 billion larger in the N-11 (table 2). Although population growth in the G7 is relatively low the quantity of agrifood imported is so large that population growth results in a nontrivial increase in imports, 2.5 times more than in the BRICs and 1.4 times more than in the N-11.

The seventh column of table 2 shows the impact of growth in real income on agrifood imports. Somewhat surprisingly, the aggregate growth in agrifood imports between 2010 and 2016 attributable to real income growth, is similar in the G7 ($37.5 billion) and the N-11 ($36.1 billion) but considerably larger in the BRICs ($70.6 billion), in fact growth in China ($43.9 billion) alone is larger than in the G7 or N-11. The eighth column of table 2 shows the combined effects of population and income growth on agrifood imports. Again counter intuitively population growth accounts for a larger fraction of the total growth in imports in the G7 (27.2 percent) than in the BRICs (7.5 percent) or N-11 (22.1 percent). Total agrifood imports in the BRICs and N-11 are forecast to rise by 67.6 and 45.7 percent, respectively, in six years while in the G7 the relative increase is only 12.4 percent from their

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[5]Our empirical model estimates per capita demand, consequently total demand is homogeneous of degree one in population, which implies that a one percent increase in population will translate to a one percent increase in the value of agrifood imports.

2010 value. As a fraction of the total growth in agrifood imports between 2010 and 2016 China accounts for 26.3 percent, Russia 13.7 percent, South Korea 13.5 percent, the United Kingdom 7.3 percent and the United States 7.1 percent.

The information in table 2 shows that six developing countries stand out as major growth markets for agrifood imports in the near future: India ($10.2 billion), Indonesia ($7.7 billion), South Korea ($23.4 billion), Vietnam ($8.0 billion), China ($45.7 billion) and Russia ($23.9 billion). Six members of the N-11 (Bangladesh, Iran, Nigeria, Pakistan, Philippines, Turkey) appear to be so small and/or at such early stages of development that near term increases in agrifood imports will likely be minor. However, due to the short period looked at here it is plausible that the latter countries may increase in importance in the future if income and population growth accelerate. Developed countries will continue to expand their use of imported agrifood products and given their size they cannot be forgotten; in the United States, United Kingdom, Japan, and France the increase in agrifood imports is forecast to range from $6.5 to $12.6 billion. In the BRIC and N-11 members not yet mentioned (Brazil, Egypt, Mexico) the growth in agrifood imports is forecast to range from $3.1 to $4.5 billion. If the projections shown in table 2 pan out by 2016, China and the United States will be importing in excess of $100 billion in agrifood imports and import levels in Russia and South Korea will be similar to the G7 countries.

5. Conclusions

We have examined whether income growth in two groups of emerging economies, the BRICs and N-11, has translated into increased expenditure on imported agrifood products. The results suggest that as groups, the N-11 and BRICs are not unique in terms of their agrifood import demand elasticities. However, when the members of these groups are dis-aggregated, China, India, South Korea, and Vietnam are found to have large expenditure elasticities, which are statistically different from other countries in the income groups to which they belong. While other members of the BRICs and N-11 also have positive and statistically signicant expenditure elasticities, there is no statistical difference between their elasticities and those of other countries at similar income levels.

A forecasting exercise is employed to approximate the capacity of the BRIC and N-11 members to increase the value of their agrifood imports by 2016. Findings suggest that by 2016 China will be the largest agrifood import market ($105.3 billion), followed by Russia ($56.4 billion), South Korea($42.6 billion), Mexico ($24.0 billion), India ($22.5 billion) and Indonesia ($19.2 billion). As a result G7 agrifood imports which were about two-thirds of the G7 plus BRIC and N-11 imports in 2010 are forecast to decline to less than 60 percent by 2016.

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