

---

Volume 5

Issue 3 *CONFERENCE PROCEEDINGS*:  
OCTOBER 22th-23th, 2015

Article 10

---

10-2015

## An Analysis of Fertilizer Markets in BRIC Countries

Robert Lloyd

Follow this and additional works at: <http://dc.swosu.edu/aij>

---

### Recommended Citation

Lloyd, Robert (2015) "An Analysis of Fertilizer Markets in BRIC Countries," *Administrative Issues Journal*: Vol. 5 : Iss. 3 , Article 10.  
Available at: <http://dc.swosu.edu/aij/vol5/iss3/10>

This Article is brought to you for free and open access by the Journals at SWOSU Digital Commons. It has been accepted for inclusion in Administrative Issues Journal by an authorized editor of SWOSU Digital Commons. An ADA compliant document is available upon request. For more information, please contact [phillip.fitzsimmons@swosu.edu](mailto:phillip.fitzsimmons@swosu.edu).

## An Analysis of Fertilizer Markets in BRIC Countries

Robert Lloyd  
Bethel College  
blloyd@bethelks.edu

### Abstract

Over the previous decade the collection of countries known as the BRIC nations has worked together to advance social and economic agendas. These four nations represent unique challenges and immense opportunities for MNC's searching to expand their business into these countries. This paper reviews these opportunities and challenges in the context of the fertilizer industry and provides an overall outlook for this international market. Recommendations are provided for how an international business might succeed in each of the BRIC nations.

Keywords: BRIC, fertilizer, international policy, trade theory, globalization

Paper classification – Research, Theoretical framework, Globalization

As populations in developing nations continue to grow, so does the global demand for food. Supplying this increased demand will require more efficient means of grain production. Seed companies continue to manipulate seed genetics to increase yield, chemical companies are creating more targeted herbicides and pesticides to reduce crop failures, and fertilizer manufacturers around the world are increasing production capacity in response to demand. The BRIC countries (made up of Brazil, Russia, India, and China) constitute much of this increased demand for both food and fertilizer. This creates both evolving challenges and new opportunities for global fertilizer companies operating in these nations. The purpose of this paper is to describe the fertilizer market conditions in the BRIC countries and to assess the opportunities unique to each country.

### BRIC Countries

#### From Concept to Political Reality

BRIC is an acronym that stands for the four nations Brazil, Russia, India, and China. The name originated in 2001 with Goldman Sachs market analyst Jim O'Neill in an attempt to identify the four most influential entities representing emerging markets at the time. (Mielniczuk, 2013). O'Neill claimed that these markets would be safe areas in which to invest during the first part of the current century.

The term BRIC was created to represent emerging markets where investors could focus their capital. This begs the question - what do the BRIC countries have in common that make them such a viable alternative to other markets? On the surface, they don't seem to have much in common. They are geographically separated, culturally unique, and conduct business in distinctly different ways (Ralston, et al, 2015). Moreover, diplomatic tensions can sometimes dominate the relationships among BRIC countries (Sparks, 2015). Their ostensible commonalities of population and economic size are far

outweighed by the differences between each of them (Stuenkel, 2013). So what contributes to investor stability? Elfakhani and Mackie (2015) suggest that three elements make these nations viable investment environments: strong financial characteristics, solidified social institutions such as healthcare and education, and protection of individual and corporate property rights.

Since its inception as a collective over a decade ago, the group has become more economically integrated. From 2002 to 2012, trade between the BRIC nations increased 1,000% to approximately \$320 billion annually (IMF, 2011). Perhaps more importantly, however, the BRIC nations have come together to cooperate politically, in an attempt to advance common social agendas. Following the first BRIC summit in 2008, the nations have met each year to discuss such politics. Common themes from these summits include a call for “non-intervention, technology transfer to promote development, poverty alleviation, reform of the security council, restructuring of the institutions of economic global governance, ... [and] respect for international law” (Mielniczuk, 2013, p. 1087).

### *Brazil*

The global increase in natural gas, a main feedstock for nitrogen-based fertilizer production, has made Brazil less competitive in the production of nitrogen-based fertilizers (Protti-Alvarez, 2014). Natural gas is expensive in Brazil compared to global prices – in March 2015, the landed price of natural gas was \$6.51/MMBtu in Rio de Janeiro, while it was \$2.70/MMBtu in the United States (Waterborne Energy, 2014). The nitrogen-based fertilizers they do operate are becoming less competitive, while alternatives for exporting these tons continue to diminish.

Brazil's growing population continues to fuel an annual 4% increase in fertilizer demand, but they continue to reduce production capacity by 3.3% each

year. Consequentially, Brazil imports 70% of its fertilizer needs (Protti-Alvarez, 2014). As a developing nation, Brazil lacks a sufficient infrastructure to import fertilizer at major ports and to transport it inland, and they are faltering in making investments in this regard to reduce constraints (Stewart, 2014). Logistics has become the major challenge to buying and selling fertilizer in Brazil.

While Brazil lacks the competitive advantage in nitrogen-based fertilizer production, they are uniquely efficient in the production of ethanol. This is because they produce ethanol from sugar-cane, instead of the corn-based ethanol produced in the United States. Sugar cane-based ethanol has an energy balance that is seven times greater than corn-based ethanol, which significantly reduces operating costs (Mejean & Hope, 2010).

Ricardo (1817) suggests that a nation should produce more of and consume less of the goods in which they have a comparative advantage. For Brazil, this means an opportunity exists to employ a countertrade strategy with the United States. Brazil should increase sugarcane production and import nitrogen-based fertilizer's from the United States. In 2013, the United States reduced Brazilian imports of ethanol by 40%, and became a net exporter of the commodity (Hill, 2014). As a result, the Brazilian government increased tax breaks to ethanol exporters (Fox News Latino, 2014). These two countries would be better off increasing production in the goods where they have the comparative advantage and trade for what they do not.

### *Russia*

Russia poses significant risks to international companies wishing to conduct business there. Russia is experiencing a currency crisis and the overall economy has been hurt by the lowest manufacturing output in five years (Di Christopher, 2015). In response, Russia is expected to impose currency and capitol controls to curb the problem. Political unrest between Russia and Ukraine has created supply disruptions of fertilizer – an estimated 25-40%

reduction in nitrogen exports from the region as a result (Quinn 2015).

Russian President Vladimir Putin continues to nationalize the energy sector, most recently through the buy-out of BP's oil assets in the country (Frum, 2012). This has deterred investors in all energy-related industries (including fertilizer) from investing in Russia. Moreover, Russian exports are hindered by international trade barriers, most notably the protective anti-dumping duties imposed by the United States (Quinn, 2014b). Rampant corruption and slow bureaucratic processes also hinder business for international firms operating in the country.

In regards to specific challenges to the fertilizer industry in Russia, credit seems to be a major issue. This includes a faltering consumer credit market (Kobzeva & Winning, 2014), business loan market (Blakewell, 2014), and the national credit rating of Russia, which was recently downgraded to junk status by the S&P (Rooney, 2015). The struggling credit market in Russia makes it difficult for exporters to attain lines of credit necessary to secure traditional export financing (Ring, 1993).

While Russia seems committed to continuing the production of nitrogen-based fertilizer, they will need to find new ways of exporting the product. They are a nation that is asset heavy and cash poor. The opportunity for international fertilizer trading companies therefore lies in collateralized-debt contracts. This means credit defaults result in a foreign entity owning Russian production assets, and would most likely be inclined to sell those assets to (presumably) a private party within Russia in order to recoup cash losses.

### *India*

Operating in the India requires an understanding of the extensive history of government intervention in the fertilizer industry. The Indian government has implemented policies in the past which include "retention price schemes, decontrol

of prices, nutrient-based pricing, [and] nutrient based subsidies" (Praveen, 2014, p. 163). This has created uncertainty in the market as the market-based factors are skewed by intervention. Other challenges that exist in the Indian market is a reduction in farmable land due to growth of major cities, as well as shrinking reserves of water used for irrigation (NAAS, 1997).

The growth rate in fertilizer consumption within India between 2001 and 2010 averaged 5.86% per year (Praveen, unknown). Demand increased by six million metric tons during that span, but production only increased by two million metric tons. In response to this growth in demand, India has continued to add production capacity, and they currently operate one of the most efficient and highly utilized assets in the global market. However, they do have a few plants that are under-utilized and use older technology. This creates opportunities for international fertilizer companies to address this increase in demand that is currently being satisfied via imports. Foreign direct investment can bring needed capital to the country to improve the weaker production assets, either in the form of greenfield production to replace the old plants or to upgrade these existing assets with foreign technology.

### *China*

Not only is China the most populous country, it also has a rising standard of living and growing urbanization – all contributing factors to the country's increased need for food (USDA, 2015). As standards of living rise, Chinese citizens have switched from a plant-based diet to an animal based diet, which requires more grain (as animal feed) to produce. In response to this demand, China has increased production capacity over the last decade to become the world's largest producer of nitrogen-based fertilizers (Quinn, 2015). Production capacity is 131 million metric tons per year, but domestic demand is only 74 million metric tons (Tan, 2015b), creating an oversupply in China, leaving them to export the remainder.

One of the challenges that international fertilizer companies have faced in the past has been the Chinese government's inclination to impose trade barriers, creating additional market volatility. Despite the oversupply, China regularly has seasonal outages. This forces them to close the door on exports with high export tariffs, only to drop them again after the season (Tan, 2015a). An additional challenge in China is soil contamination, which reduces grain yields and usable land for growing crops (Patton, 2014).

Maintaining an adequate food supply is important for the Chinese government. This requires them to import much of their grain needs, in particular from the United States and Brazil. They are expected to represent 40% of the rise in global corn demand over the next ten years (USDA, 2015). The opportunity for China lies in a countertrade scheme in which they trade more fertilizer to the United States while increasing grain imports from the same. The reason lies in the comparative advantage of each nation. The United States is more efficient in producing corn, for example, at an average yield per acre of 150 bushels (Ag Professional, 2013). China's average yield per acre is 100 bushels, and this lower yield comes in despite of a higher Chinese application rate per acre than farmers in the United States. Allowing the United States to produce grain and trade for fertilizer from China would add value to both nations' trading overall economy by utilizing their comparative advantages.

- Ag Professional. (2013). A comparison of world corn yields. Ag Professional Retrieved from <http://www.agprofessional.com/news/A-comparison-of-world-corn-yields-227415201.html>
- Blakewell, S. (2014). Russia loan market shut down by sanctions squeeze funding. Bloomberg Business. Retrieved from <http://www.bloomberg.com/news/articles/2014-09-30/loan-market-shut-by-sanctions-squeezing-finances-russia-credit>
- Calderón-Zaks, M. (2014). Are the BRICS a viable alternative to the West? A succinct analysis. *Perspectives on Global Development and Technology*, 13, p. 61-69.
- CIA.gov. (2015). The World Factbook. Retrieved from <https://www.cia.gov/library/publications/the-worldfactbook/rankorder/2119rank.html#wfbtop>
- Di Christopher, T. (2015). Putin on track to nationalize companies. CNBC. Retrieved from <http://www.cnbc.com/id/102391782#>
- Elfakhani, S., & Mackie, W. (2015). An analysis of net FDI drivers in BRIC countries. *Competitiveness Review*, 25, p. 98-132.
- Follath, E. (2013). Goldman Sachs' Jim O'Neill: BRICS have exceeded all expectations. Spiegel Online. Retrieved from <http://www.spiegel.de/international/business/departing-goldman-sachs-exec-still-sees-bright-future-for-bric-nations-a-890194.html>
- Fox News Latino (2014). Brazil offers tax breaks to ethanol exporters. Fox News Latino. Retrieved from <http://latino.foxnews.com/latino/politics/2014/09/10/brazil-offers-tax-breaks-to-ethanol-exporters/>
- Frum, D. (2012). Russia Re-nationalizing its oil. The Daily Beast. Retrieved from <http://www.thedailybeast.com/articles/2012/10/30/russia-re-nationalizing-its-oil.html>

- Hill, S. (2014). U.S. ethanol imports from Brazil down in 2013. US Energy Information Administration. Retrieved from <http://www.eia.gov/todayinenergy/detail.cfm?id=16131>
- Hyder, A., & Vecino-Ortiz, A. (2014). BRICS: Opportunities to improve road safety. *Bull World Health Organization*, 92, p. 423-428
- International Monetary Fund. 2011. World economic outlook database. Retrieved from <http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/index.aspx>
- Kobzeva, O., & Winning, A. (2014). Russia's consumer credit market grinding to a halt: Home credit bank. Reuters. Retrieved from <http://www.reuters.com/article/2014/09/24/us-russia-banking-homecredit-idUSKCN0HJ0Q720140924>
- Mejean, A., & Hope, C. (2010). Sugarcane vs. corn based ethanol. Bio Wesleyan Word Press. Retrieved from <https://biowesleyan.wordpress.com/first-generation-biofuels/ethanol/case-study-brazil/sugarcane-vs-corn-based-ethanol/>
- Mielniczuk, F. (2013). BRICS in the contemporary world: Changing identities, converging interests. *Third World Quarterly*, 34(6), p. 1075-1090
- NAAS. (1997). Fertilizer Policy Issues (2000-2025). National Academy of Agricultural Sciences, India. Retrieved from <http://naasindia.org/Policy%20Papers/pp2.pdf>
- Patton, D. (2014). China Looking to curb fertilizer, pesticide use. Reuters Retrieved from <http://www.reuters.com/assetsprint?aid=USKCN0JJ0SO20141205>
- Praveen, K. (2014). Evolution and emerging issues in fertilizer policies in India. *Economic Affairs*, 59(2), p. 163-173.

- Praveen, K. (unknown). Input markets and policy perspectives in India: With reference to fertilizers. Indian Agricultural Research Institute. Retrieved from <http://www.iari.res.in/files/Divisions/Input%20markets%20and%20Policy%20Perspectives%20in%20India%20with%20reference%20to%20fertilizers.pdf>
- Protti-Alvarez, F. (2014). Brazil's fertilizer demand still growing, hindered by logistics. *Chem Week*. p. 34-35
- Quinn, R. (2014a). Focus changes on big issues for fertilizer. *Global Fertilizer Outlook*. DTN. Retrieved from <http://www.dtn.com/ag/indepth/Global-Fertilizer-Outlook-1.cfm>
- Quinn, R. (2014b). Former Soviet Union remains giant in producing fertilizers. *Global Fertilizer Outlook*. DTN. Retrieved from <http://www.dtn.com/ag/indepth/Global-Fertilizer-Outlook-6.cfm>
- Quinn, R. (2015). World nitrogen demand growing despite trials. *Global Fertilizer Outlook*. DTN. Retrieved from <http://www.dtn.com/ag/indepth/Global-Fertilizer-Outlook-4.cfm>
- Ralston, D., Egri, C., Karam, C., Naoumova, I., Srinivasan, N., Casado, T., Li, Yongjuan, & Alas, R. (2015). The triple-bottom-line of corporate responsibility: Assessing the attitudes of present and future business professionals across the BRICS. *Asia Pacific Journal of Management*, 32, p. 145-179
- Ranjan, V., & Agrawal, G. (2011). FDI inflow determinants in BRIC countries: A panel data analysis. *International Business Research*, 4(4), p. 255-263
- Ricardo, D. (2001). *On the Principles of Political Economy and Taxation*. London: Electric Book. Originally published in 1817.
- Ring, M. (1993). Countertrade business opportunities in Russia. *Business America*. US Department of commerce. p. 15-16

- Rooney, B. (2015). S&P cuts Russia's credit rating to junk. CNN. Retrieved from <http://money.cnn.com/2015/01/26/investing/russia-credit-rating-junk/>
- Stewart, A. (2014). Imports to meet Brazil's rising demand. Global Fertilizer Outlook. DTN. Retrieved from <http://www.dtn.com/ag/indepth/Global-Fertilizer-Outlook-7.cfm>
- Stuenkel, O. (2013). The financial crisis, contested legitimacy, and the genesis of intra-BRICS cooperation. *Global Governance*, 19, p. 611-630.
- Sundaram, J. K. (2010). Lessons from the 2008 world food crisis. *Economic & Political Weekly*.
- Tan, L. (2015a). Chinese fertilizer companies turning to international market. Global Fertilizer Outlook. DTN. Retrieved from <http://www.dtn.com/ag/indepth/Global-Fertilizer-Outlook-9.cfm>
- Tan, L. (2015b). Chinese fertilizer industry struggling because of overcapacity. Global Fertilizer Outlook. DTN. Retrieved from <http://www.dtn.com/ag/indepth/Global-Fertilizer-Outlook-8.cfm>
- USDA (2015). China in the next decade: Rising meat demand and growing imports of feed. USDA, Economic Research Service. Retrieved from <http://www.ers.usda.gov/amber-waves/2014-april/china-in-the-next-decade-rising-meat-demand-and-growing-imports-of-feed.aspx#.VQBICivF-So>
- Virk, M. (2011). Is your company ready to export to BRIC? *World Trade 100*.
- Waterborne Energy (2014). World LNG estimated March 2015 landed prices. Federal Energy Regulatory Commission. Retrieved from <http://www.ferc.gov/market-oversight/mkt-gas/overview/ngas-ovr-lng-wld-pr-est.pdf>

