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Agricultural Policy Reform in the BRIC Countries

Paper for Discussion

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Overview

This working paper forms part of a project titled *Facilitating Efficient Agricultural Markets in India: An Assessment of Competition and Regulatory Reform*. The project follows from previous research which found that India's border reforms need to be complemented by 'behind-the-border' domestic reforms if government policy objectives of improved productivity, higher rural employment and incomes and enhanced food security are to be met.

The project is being undertaken by collaborators from India, Australia and the UK with funding support from the Australian Centre for International Agricultural Research (ACIAR). This working paper contains a preliminary review of agricultural policy developments in the economies of Brazil, Russia, India and China (BRIC) for the purpose of informing India's agricultural policy reform agenda.

This paper has been circulated during an International Workshop on "Indian Agriculture: Improving Competition, Markets and the Efficiency of Supply Chains" at the Claridges Hotel, New Delhi, India on 16 February 2011.

The authors invite and welcome comments on this Paper.

Keywords: ACIAR, emerging economies, developing countries; agricultural policy reform; market failure; competition policy, competition law.

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Executive Summary

Background

This working paper forms part of a broader project titled *Facilitating Efficient Agricultural Markets in India: An Assessment of Competition and Regulatory Reform Requirements,* undertaken collaboratively by India's National Council of Applied Economic Research, the New South Wales Department of Industry and Investment, the Australia and New Zealand School of Government, Melbourne University, LaTrobe University and Exeter University. Funding was provided by the Australian Centre for International Agricultural Research (ACIAR).

The report follows from a previous ACIAR project titled *Agricultural Trade Liberalisation and Domestic Market Reforms in Indian Agriculture,* which involved the assessment of the impacts of international and domestic market reforms on agricultural prices, production and incomes. Results of that work were reported in several fora, including two major workshops in Delhi.

A key finding from that work was that trade policy reforms at the border need to be complemented by 'behind-the-border' domestic reforms if government policy objectives of improved productivity, higher rural employment and incomes and enhanced food security are to be met. An econometric analysis of domestic and international market integration of rice markets in India demonstrated that while the post-1990 policy reforms in India improved market integration and efficiency, significant constraints remain on further progress due to domestic regulatory structures (Jayasuriya *et* al., 2008). These findings were reinforced by a general equilibrium analysis by Chadha *et al*. (2008) which identified the need for a competition and regulatory system to oversee the efficient operation of newly developing private agricultural markets.

Senior Indian officials, private sector representatives and academic analysts therefore suggested that the project team extend its research into domestic reform issues, pointing to Australia as having an international reputation in the area of implementing competition policy in agriculture.

A further research project was therefore designed, with a first stage focussed on identifying the direction of recent agricultural policy reforms in the economies of Brazil, Russia, India and China (BRIC), and a second stage focussed on how policy reform within India's agricultural sector might be further progressed.

This working paper therefore relates to Stage 1 and, in addition to considering the direction of agricultural policy reform in the BRIC countries, endeavours to draw out policy issues and directions relevant to India's agricultural policy reform agenda.

The BRIC Countries and the Direction of Agricultural Policy Reform

Compelling evidence was found that market-orientated agricultural policy reform leads to higher rural incomes, increased agricultural productivity and reduced rural poverty, with countries such as Brazil and China leading the way in achieving these outcomes. A guiding principle for governments in adopting more market-based policy reforms was found to be the decoupling of government intervention in its various forms from agricultural input and output prices. While an important issue associated with the decoupling of assistance in this way is the welfare impacts on the farm sector, much of that impact is addressed by the ability of rural labour and farm families to adjust to other sectors and to new production and employment opportunities. Removing policy impediments to those adjustment options is therefore a further important focus for government.

While agricultural assistance in most of the BRIC economies is at moderate levels, its focus on input and output prices for import-competing commodities is highly distortionary. Significant here are government food grain procurement operations involving minimum support prices and input subsidies which, while focussed on food 'self sufficiency', ironically detract from food security by impeding farm sector adjustment into the production of those food products where countries have a comparative production advantage. This then leads to lower rates of sectoral and employment growth, declining productivity and maintains rural poverty. Reform of domestic food grain self-sufficiency policies in countries with high rural populations, such as China and India in particular, is therefore a priority if fundamental social issues are to be addressed.

A further issue considered was the transition from domestic industry regulation in agriculture to the application of trade practices law and the adoption, more broadly, of competition policy. While countries such as Brazil have successfully adopted competition law, in most cases efforts are found to be tentative, with agriculture and statutory agricultural institutions remaining exempt.

A particular concern in relation to competition policy is that its focus to date on meeting stated commitments to target levels of assistance, or to particular sectoral deregulation actions, has detracted from countries otherwise building internal capacity to develop and drive national interest-based reform programmes based on market failure principles (see Attachment 2). The ongoing tendency of some governments to establish growth targets as the centrepiece of rural policy is also of concern given its inconsistency with competition policy, whereas the focus of government would otherwise be on increasing the efficiency of markets and allowing growth to be autonomously determined.

The Link between Policy Reform and Productivity

Declining agricultural productivity in countries such as India and the causal link to agricultural policy is found to be a topic warranting closer consideration in public policy formation in emerging economies. Consequently, Attachment 1 provides information on the recently developed productivity framework developed by Australia's Productivity Commission, as well as recent papers which shed light on the influence of agricultural policy on productivity in developing countries, including a comparison between India and China.

Given the framework developed by the Productivity Commission, a clear message is that policy reform, policy review processes and the 'openness' of economies hold the key to productivity gains, rather than simply increasing expenditures on subsidies and research & development.

It is found that while India and China have experienced accelerated rates of multi-factor productivity growth following policy and institutional reforms, China has experienced much greater growth due to more fundamental institutional changes and greater structural transformation of their economy.

An important source of productivity growth has been the "greater diversification into high-valued and export commodities and declining reliance on growth from traditional food staples". In the former Soviet Socialist republics and Eastern Europe, productivity growth was found to be aligned with the various transition stages of these economies, with a close link being found between productivity growth and the pace of economic and institutional reforms.

For the 1978-2004 period, agricultural output was found to have grown by 4.6 per cent in China, 4.0 per cent in Indonesia and 2.5 per cent in India with a contributing factor being the reduced rates of growth of rural populations in China and Indonesia due to improved absorption rates into other sectors of their economies, which contrasts with India's expanding rural population.

The studies considered also found that in China, growth in the manufacturing sector was important in absorbing agricultural labour and, in so doing, provided incentives for labour-saving technology adoption in agriculture. The very limited changes to Indian agricultural and manufacturing policy are therefore found to explain India's slower productivity growth with the further result being much stronger income growth in China than in India.

The BRIC Economies

Goldman Sachs (2001) coined the term 'BRICs' for the four developing countries of Brazil, Russia, India, and China in the 2001 Global Economics paper, "The World Needs Better Economic BRICs". The original BRICs thesis was that this group was emerging as large economies with real GDP growth that would soon exceed that of the G6. This was revised in a subsequent paper, *Dreaming with BRICs: the Path to 2050*, in which it was argued that the BRIC countries could become four of the seven largest economies in the world by 2050 (Goldman Sachs, 2003).[1] A paper in 2005, *How Solid are the BRICs?* then made the case that BRIC economies can realise the 'dream' more quickly than initially thought (Goldman Sachs, 2005).

These expectations for the BRIC economies have largely been confirmed with annual growth in GDP having exceeded that of the original G6 countries (Table 1.1). A 2008 ranking of the BRIC countries by GDP (Table 1.2) has China in third place, Russia in the eighth, Brazil in the tenth and India in the twelfth.

From a competition and trade perspective, a number of characteristics make the BRIC economies noteworthy. For example, they have a combined population of 2.9 billion people, or around 43 per cent of the global population. Their labour force is around 1.5 billion people and their age structures differ significantly from that of the G7 nations. The median population age across the BRIC economies is currently 30 years, compared to the US at 37 and Japan at 44 years. Rising incomes for BRIC populations will have major implications for consumption, investment, productive capacity and wealth generation. Goldman Sachs makes the qualifying point that converting the potential of BRIC economies into reality will need to take into account 'that strong growth is best achieved with a stable and open economy, healthy investment, high rates of technology adoption, a healthy and well-educated workforce, and a secure and rule-based political environment' (Goldman Sachs, 2005).

[1] The G7 block refers to the group of the seven most industrialised nations in the world (the United States, Japan, Germany, the United Kingdom, France, Italy and Canada) whose finance ministers meet on an annual basis to discuss and consider shared global economic policies. The G8 is a meeting of G7 heads of government plus Russia. For the purpose of analysis, Goldman Sachs drops Canada from its assessment, hence, the G6 reference. There is no 'G6' block of finance ministers or government leaders.

Table 1.1 G6, G8 and BRIC countries and annual growth in GDP (2000-2008)

Country	G6 1975	G8 1976/97	G8+5 2005	BRICs	Annual growth in GDP (2000-2008) %
USA	✓	✓	✓		2.17
UK	✓	✓	✓		2.34
Germany	✓	✓	✓		1.20
Japan	✓	✓	✓		1.28
France	✓	✓	✓		1.66
Italy	✓	✓	✓		0.87
Canada		✓	✓		2.35
Russia		✓	✓	✓	6.51
Brazil			✓	✓	3.57
China			✓	✓	10.19
India			✓	✓	7.33
Mexico			✓		2.41
S Africa			✓	✓	4.10

Source: IMF (2009).

Table 1.2 Significance of agriculture in the BRICs and other selected countries

	GDP 2008 (US$ billion)	Rank 2008	Total growth in GDP (2000-2008) %	Agric share of GDP in 2007 %	Agric share of employment %
China	4,401.61	3	117.33	11.30	40.80
Russia	1,676.59	8	65.57	4.60	10.20
Brazil	1,572.84	10	32.44	5.50	18.30
India	1,209.69	12	76.11	17.80	52.00
South Africa	277.188	32	37.91	3.20	8.80
United States	14,264.60	1	18.69	1.00	2.00
Japan	4,923.76	2	10.75		
Turkey	729.443	17	41.27	7.53	59.56
Poland	525.735	18	38.20	3.78	22.38
Indonesia	511.765	19	49.82	13.83	47.33
Iran	344.82	28	56.64	10.09	25.79

Source: IMF (2009); FAOStat (2009).

The BRIC economies differ significantly in their stage of development as measured by GDP per capita and the significance of agriculture as an employment provider (Figures 1.1 to 1.3).

India and China stand out among the group for their heavy social reliance on the agricultural sector and relatively low rates of GDP per capita. Russia and Brazil similarly have low rates of GDP per capita but are much less reliant upon agriculture. The implications of these characteristics for agricultural policy are potentially significant, with agricultural policy, in some instances, continuing to play a surrogate social policy role.

The importance of the agricultural sector in terms of GDP also varies (Figure 1.3). India again presents a special case with agriculture's contribution being greater than in any of the other BRIC economies. China has the next most significant agricultural sector, but significantly less than India, at around 8 per cent. Both countries therefore face a significant challenge in having such a large proportion of their population reliant on a sector that provides a relatively small contribution to GDP.

The decline in agriculture's contribution to GDP has been significant in the economies under review with the exception of Brazil where agriculture's contribution has been maintained (Figure 1.3). This situation is similar to that in many developed economies where the contribution of other sectors has outstripped that of agriculture despite increasing agricultural production.

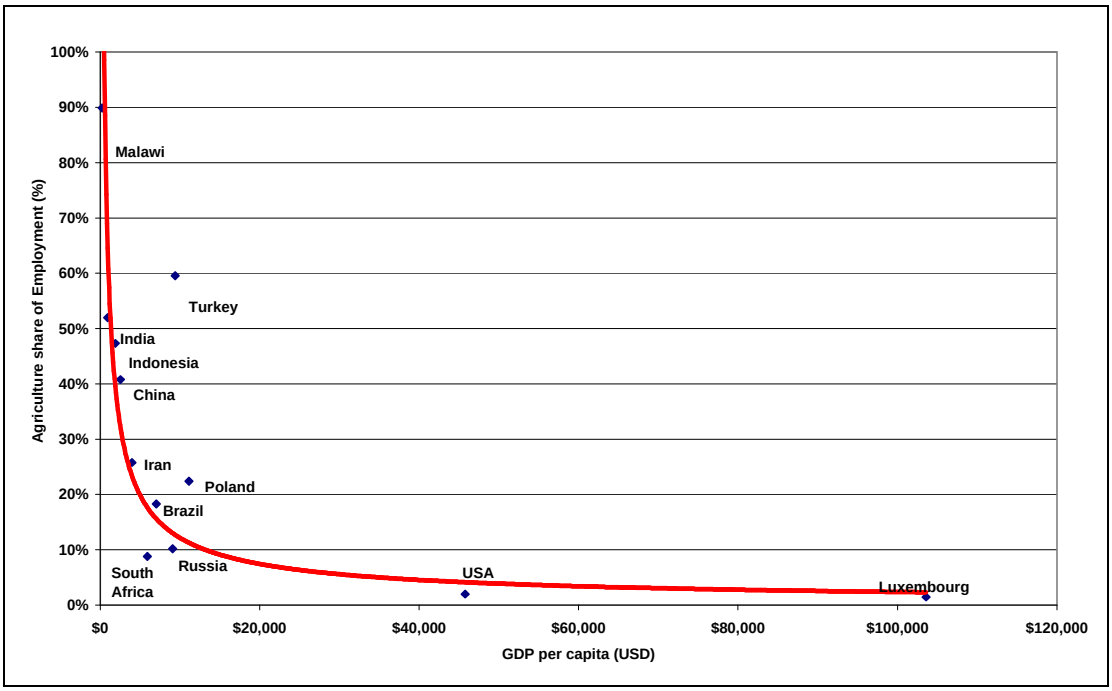
Farm assistance often dominates agricultural policy and producer support estimates (the value of producer support/gross value of agricultural production) for the BRIC economies (Figures 1.4 and 1.5) indicate current levels of 5.9 per cent for Brazil, 15.5 per cent for Russia, 16.1 per cent for India, 8.4 per cent for China and 9 per cent for South Africa. (Figure 3.5 is merely a close-up of the trends for the most recent years). A relationship can probably be drawn here between countries with high levels of assistance and the extent to which social goals still tend to be associated with agricultural policy settings.[2]

Of significant interest, and partly in response to agricultural policy reform, gross agricultural output (GAO) of the BRIC economies has increased since 2000 (Figure 1.6), though not at the same rate as their respective overall economies (OECD, 2007). Nevertheless, Brazil and China stand out as having achieved steady annual gains in agricultural output with further notable production and trade developments within the BRIC economies being:

- Brazil is the world's fourth largest exporter of agricultural commodities and its exports of sugar, poultry and oilseeds dominate world markets. Brazil is also a major exported of sugar-based ethanol;
- Russia is the world's fifth largest exporter of grains, but the world's largest overall importer of agricultural commodities—importing much of its meat and vegetables;
- India is the world's second largest exporter of cotton; and
- China is a major importer of cotton for its textile industry.

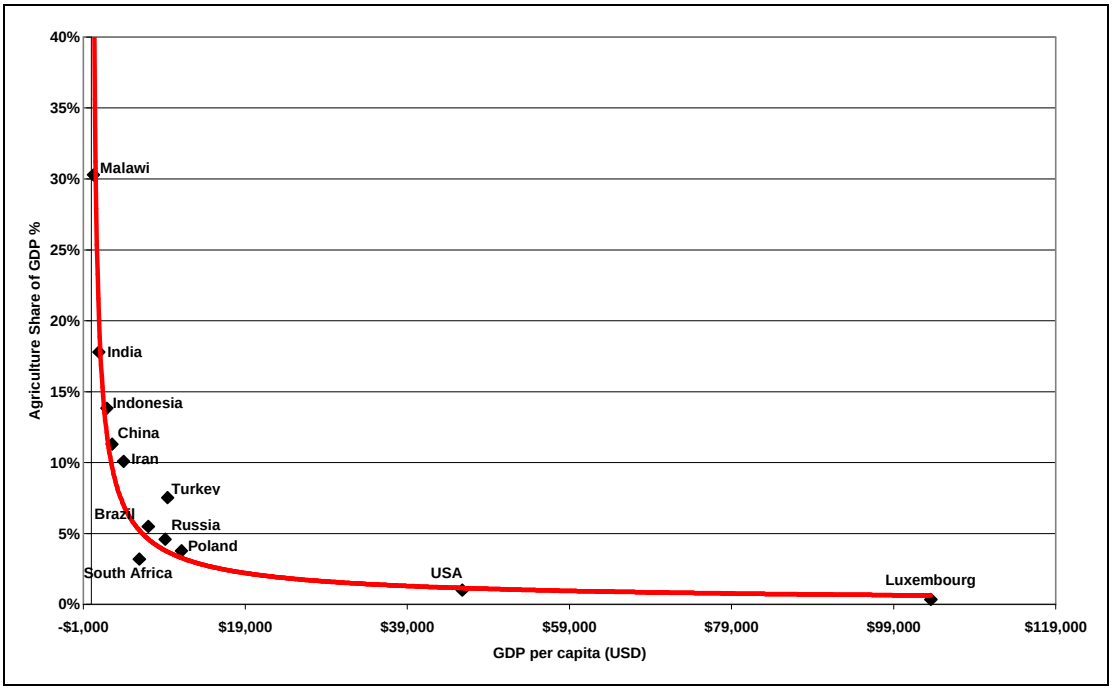
[2] The reported PSEs are for the year 2005; 2002 for India; and 2004 for China.

Figure 1.1 Agriculture's share of total employment against GDP per capita 2007



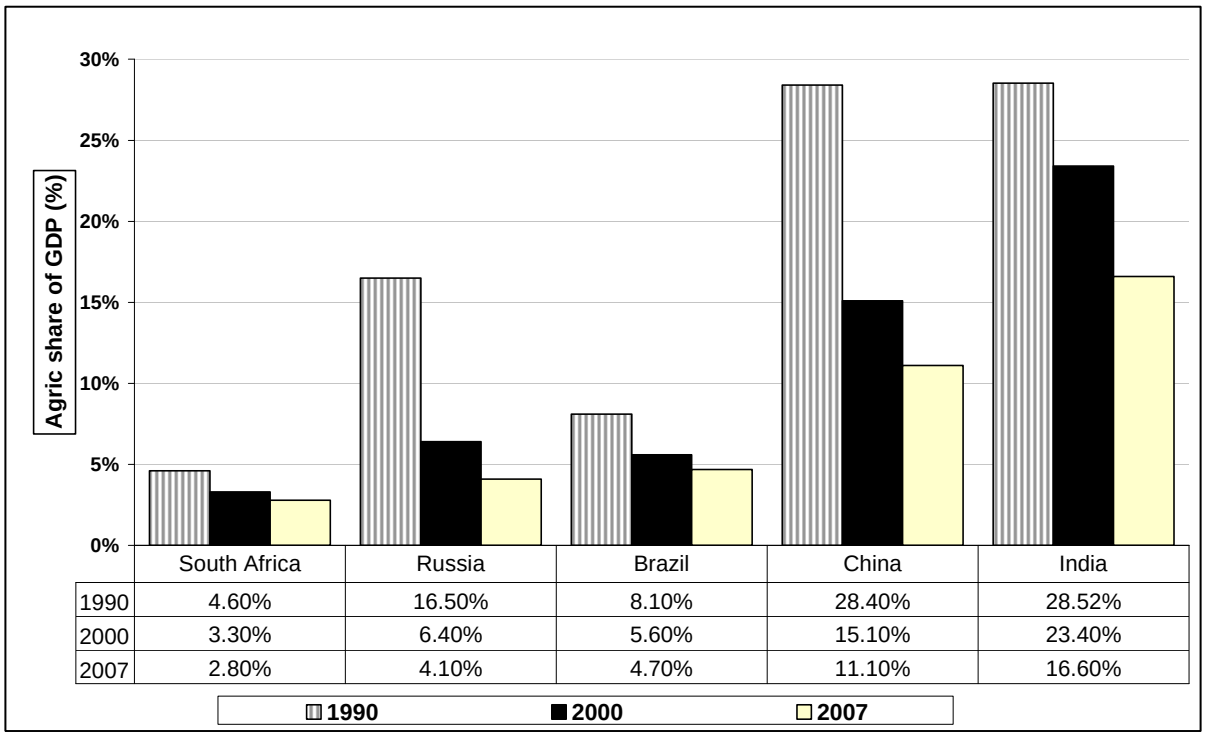
Source: World Bank (2009).

Figure 1.2 Agriculture's share of GDP against GDP per capita 2007



Source: World Bank (2009).

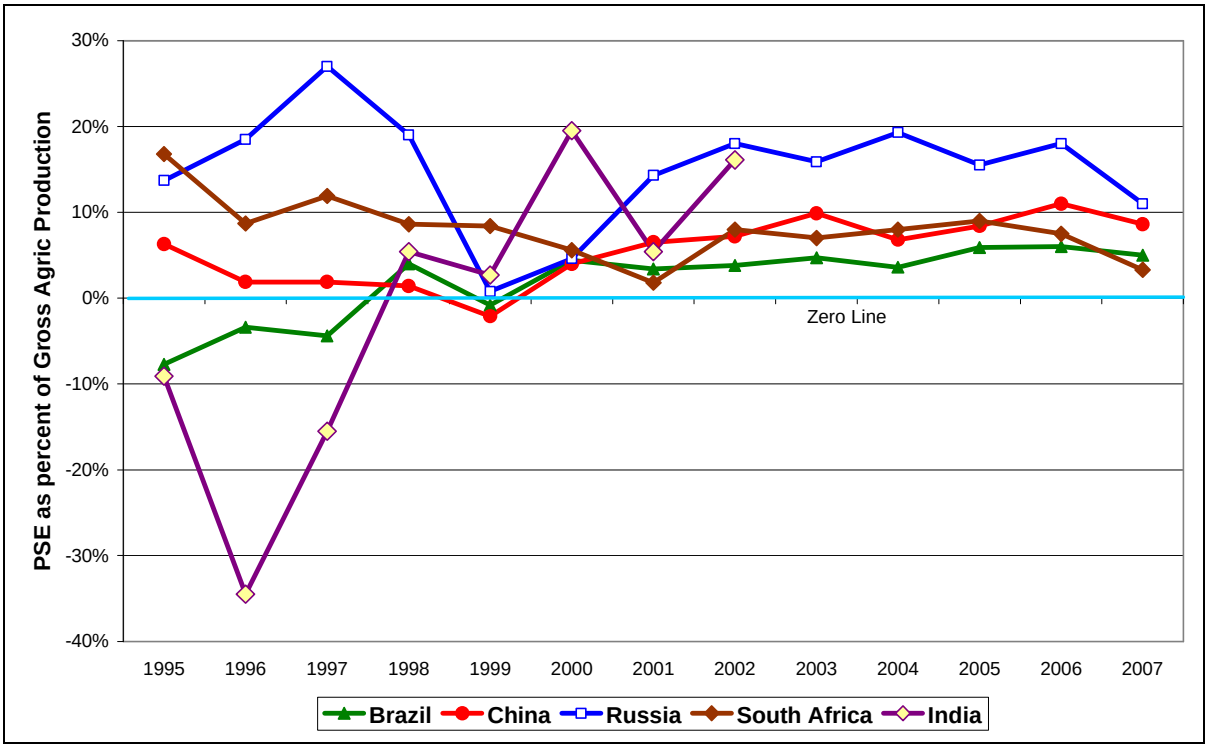
Figure 1.3 Share of agriculture in GDP



	South Africa	Russia	Brazil	China	India
1990	4.60%	16.50%	8.10%	28.40%	28.52%
2000	3.30%	6.40%	5.60%	15.10%	23.40%
2007	2.80%	4.10%	4.70%	11.10%	16.60%

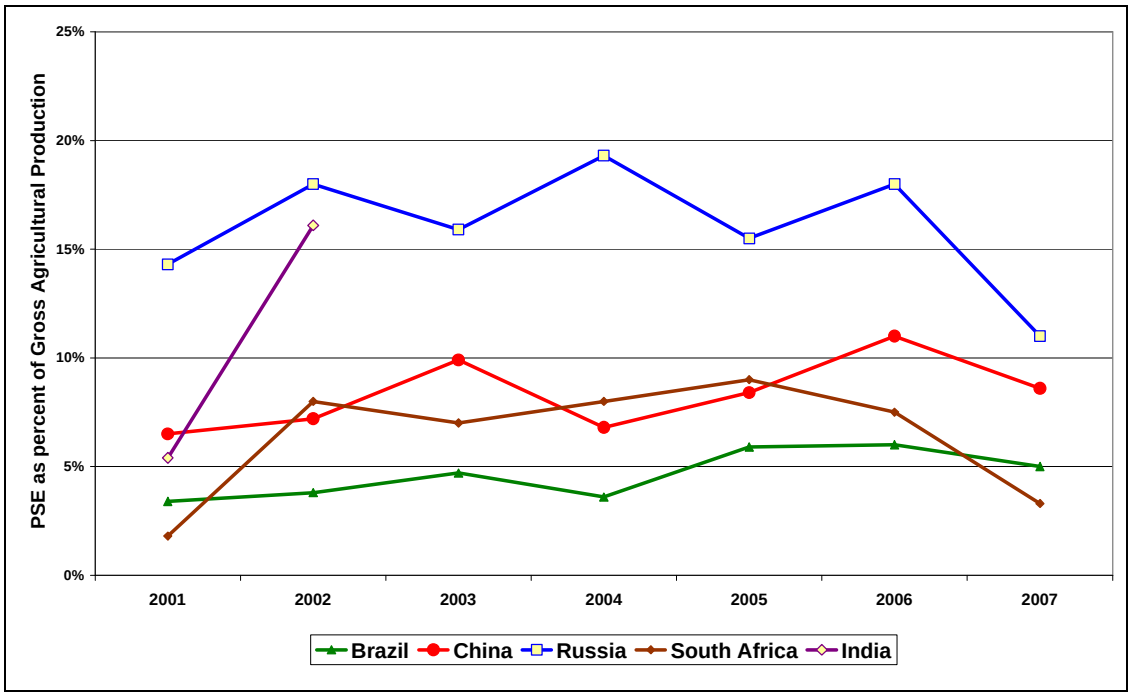
Source: World Bank (2009).

Figure 1.4 Per cent value of producer support



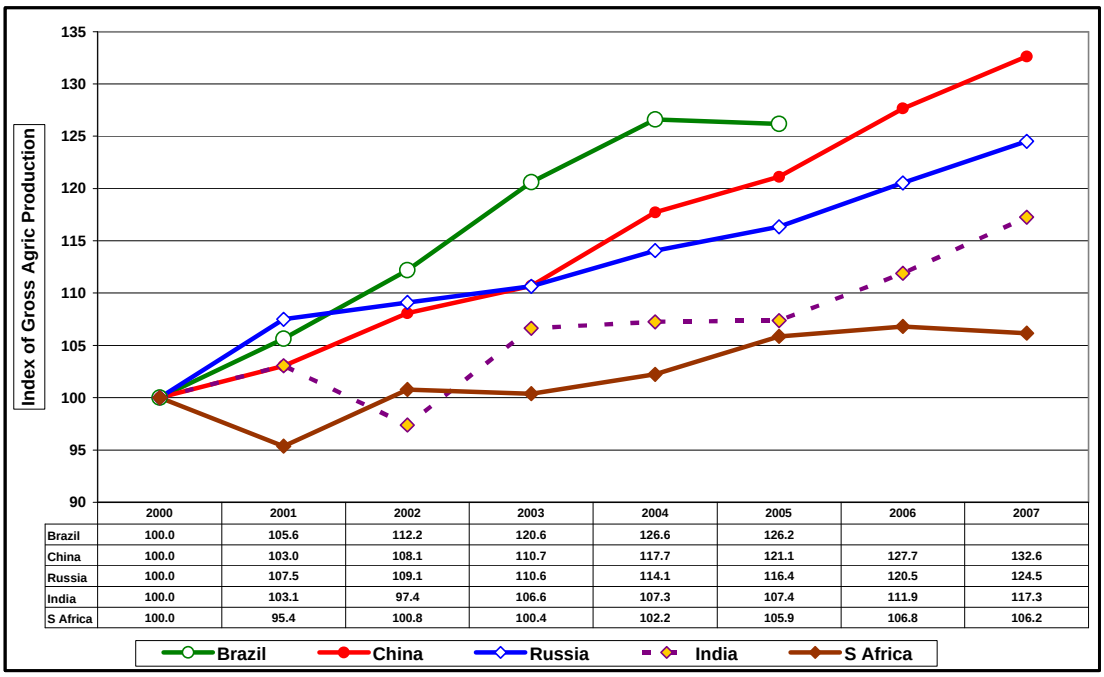
Source: OECD (2009b).

Figure 1.5 Per cent value of producer support – most recent years



Source: OECD (2009b).

Figure 1.6 Gross agricultural output (index 2000 = 100)



	2000	2001	2002	2003	2004	2005	2006	2007
Brazil	100.0	105.6	112.2	120.6	126.6	126.2		
China	100.0	103.0	108.1	110.7	117.7	121.1	127.7	132.6
Russia	100.0	107.5	109.1	110.6	114.1	116.4	120.5	124.5
India	100.0	103.1	97.4	106.6	107.3	107.4	111.9	117.3
S Africa	100.0	95.4	100.8	100.4	102.2	105.9	106.8	106.2

Source: OECD (2009b).

Agricultural Policy Reform in the BRIC Economies - BRAZIL

1.1 Overview

The World Bank estimated Brazil's population at 192 million in 2008 (5th largest) and GDP at US$1,575 billion (10th largest). Brazil is also endowed with a large land area, vast natural resources and a large agricultural sector.

Over the past 20 years, the Brazilian government has implemented significant policy reforms to transform a mostly state-controlled economy into a competitive and expanding market economy. These changes followed the removal of a range of trade control measures aimed at 'self-sufficiency', including import substitution policies for consumer goods and high tariffs on food products. Those policies encouraged manufacturing at the expense of reduced competitiveness of other sectors, such as agriculture, and led to severe inflation and low rates of investment

The move away from 'self-sufficiency' policy objectives led to a range of market-based policy reforms focused on structural changes, such as privatisation, deregulation and removal of restrictions on foreign investment in the food processing sector. Reforms also targeted the stability of the economy through the 'Real Plan' ("real" being the Brazilian currency) of 1994-98 which addressed inflationary pressures, as well as trade liberalisation with a shift from import restrictions and high tariffs to promoting exports to control the balance of trade (OECD, 2005a). Important here was participation in the Mercosur Customs Union consisting of a 'common market' between Brazil, Argentina, Paraguay and Uruguay (Silvia, 2007). Protection of the coffee and citrus industries was removed.

Of interest from an agricultural policy perspective was that these reforms were accompanied by the active development of competition law and a broad range of private and government investment programmes designed to support the development and modernisation of agricultural production (Matthey, 2004).

A further important development in terms of farm family welfare policy was the more recent introduction of policies targeting smaller family farms through price support and government acquisition schemes. These arrangements favour the more disadvantaged and distant regions and have been accompanied by certain land reforms and concessional credit programmes.

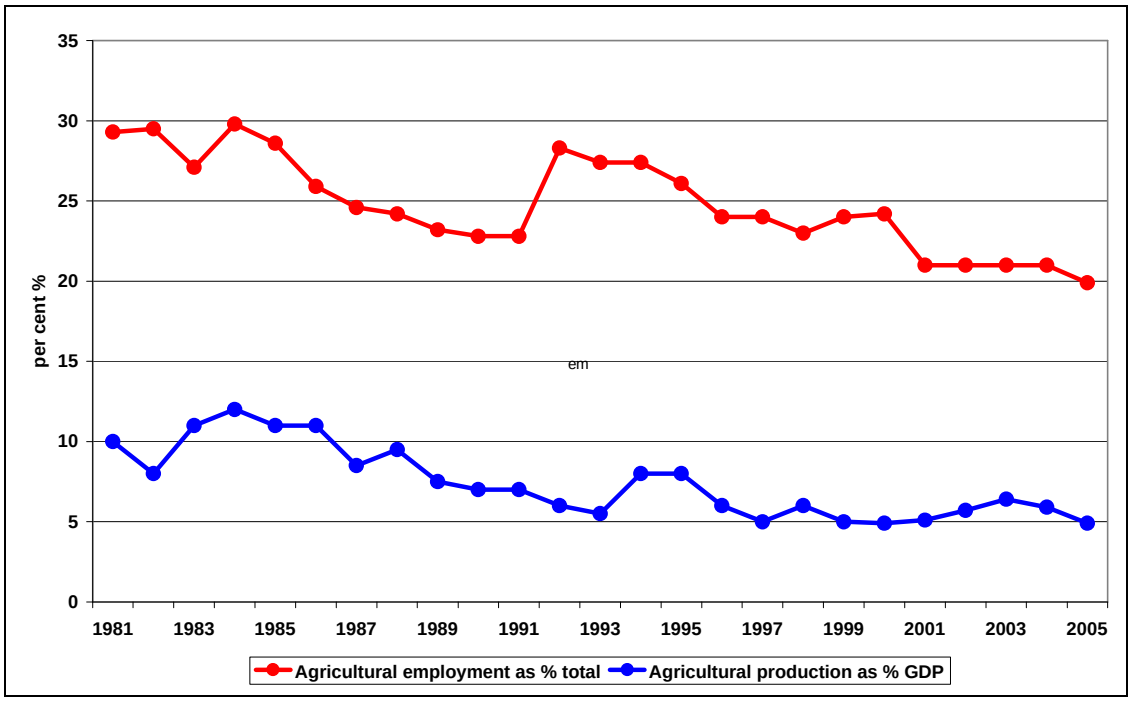
1.2 GDP and Employment

Brazil has the fourth largest area of agricultural land in the world, behind China, Australia and the United States. Agriculture's share of GDP has remained at around 5 per cent (Figure 2.1) over the past 10 years, which represents a strongly increasing trend in the nominal value of agricultural output (Figure 2.2).

Despite its relatively small contribution to GDP, agriculture continues to be a relatively large employer of labour; the sector accounted for 30 per cent of the labour force in 1981, but declined steadily to 20 per cent in 2005 (Figure 2.1).

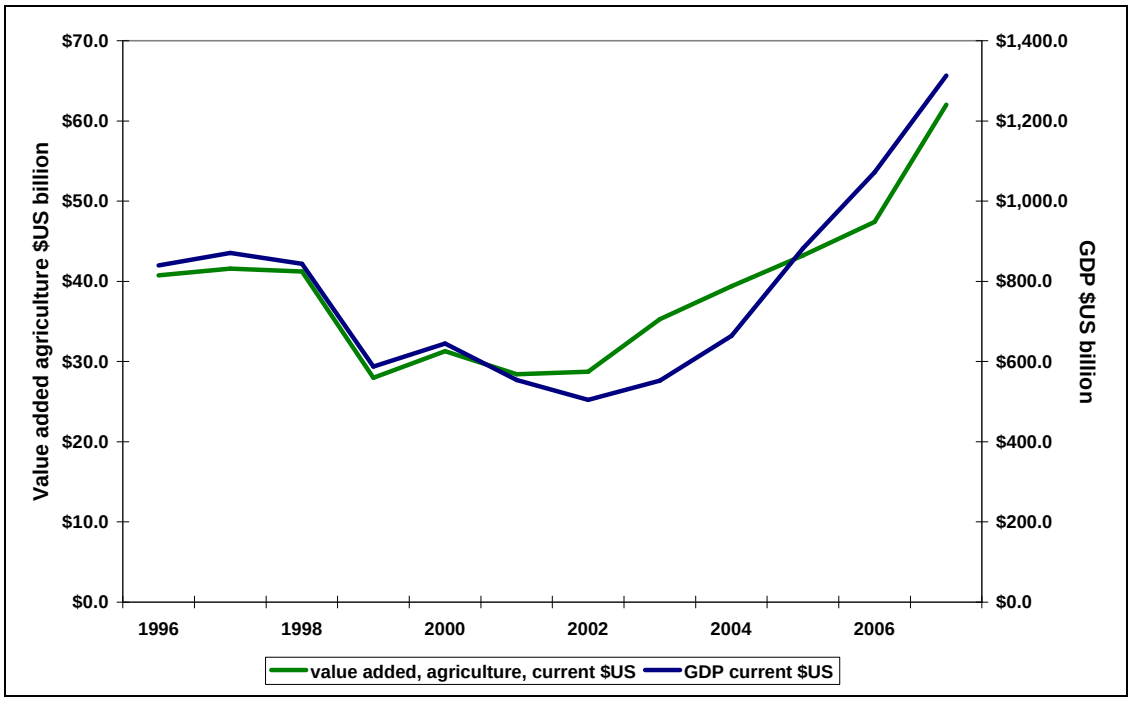
The main explanation for this impressive employment performance is the size and diversity of the agricultural sector and the emergence of a number of very large, internationally competitive producers who account for a large proportion of output (OECD, 2005a).

Figure 2.1 Agriculture in GDP and employment



Source: World Bank (2009).

Figure 2.2 Growth in GDP and value added by agriculture



Source: World Bank (2009).

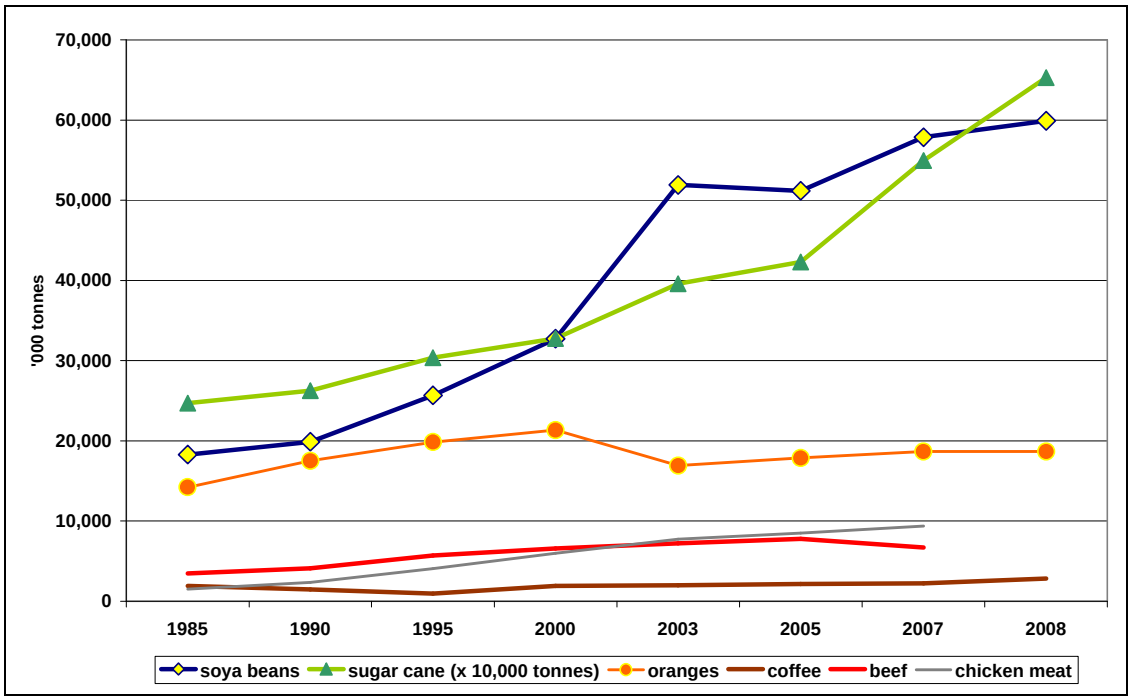
1.3 Agricultural Production

Brazil is the world's leading producer of coffee, sugarcane and orange juice, the second largest producer of soybeans and beef, the third largest poultry producer and the sixth largest pork producer (FAOStat, 2009). With agricultural output worth $US68.272 billion in 2007, Brazil accounts for 3.6 per cent of world production and 3.0 per cent of the global value of agricultural production.

Since 1985, the following production trends have occurred (Figures 2.3 and 2.4):

- a steady increase in sugarcane production from 250 million tonnes in 1985 to 650 million tonnes in 2008, while over the same period maize, wheat and cotton production declined;
- a gradual increase in soybean production from 19 million tonnes in 1985 to 32 million tonnes in 2000, followed by a dramatic increase to 59 million tonnes in 2008;
- while the areas planted to soybeans and sugar have increased, the strong uptake of new technology has seen production increase at a greater rate;
- like soybeans, orange production increased gradually until 2000; however, the rate of increase then slowed with an associated slowing in exports of concentrated orange juice;
- both beef and chicken meat have increased steadily since 1985; and
- coffee production has remained relatively constant.

Figure 2.3 Agricultural production



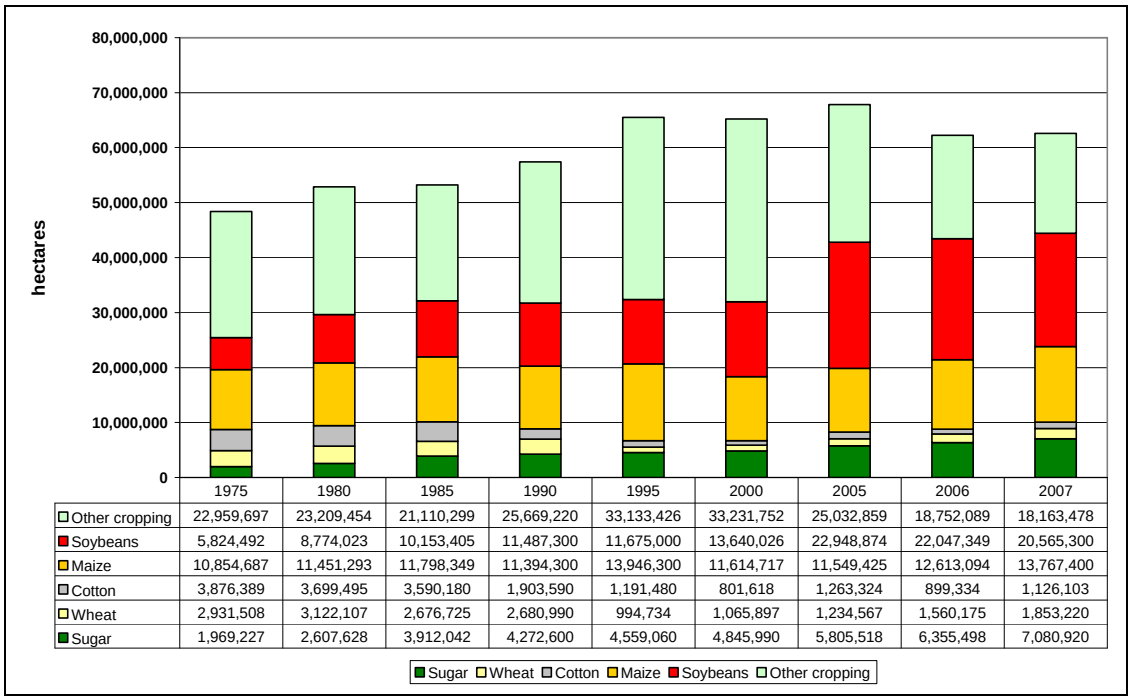
Source: FAOStat (2009).

Total crop and livestock production grew by 4.5 per cent annually between 1995 and 2005, almost double the increase in the overall economy (OECD, 2005a). Since then sugarcane,

soybean and chicken meat production have increased, while beef production has declined. Over the same period, there has been strong export growth.

It can therefore be seen that while agriculture's share of GDP has remained stable, the structure of output has changed significantly with deregulation and trade liberalisation.

Figure 2.4 Changes in cropping patterns



	1975	1980	1985	1990	1995	2000	2005	2006	2007
Other cropping	22,959,697	23,209,454	21,110,299	25,669,220	33,133,426	33,231,752	25,032,859	18,752,089	18,163,478
Soybeans	5,824,492	8,774,023	10,153,405	11,487,300	11,675,000	13,640,026	22,948,874	22,047,349	20,565,300
Maize	10,854,687	11,451,293	11,798,349	11,394,300	13,946,300	11,614,717	11,549,425	12,613,094	13,767,400
Cotton	3,876,389	3,699,495	3,590,180	1,903,590	1,191,480	801,618	1,263,324	899,334	1,126,103
Wheat	2,931,508	3,122,107	2,676,725	2,680,990	994,734	1,065,897	1,234,567	1,560,175	1,853,220
Sugar	1,969,227	2,607,628	3,912,042	4,272,600	4,559,060	4,845,990	5,805,518	6,355,498	7,080,920

Source: FAOStat (2009).

The growth in soybean production was in response to the availability of new technology and cheap land, with recent studies indicating that despite low production costs relative to Argentina or the US, certain variable costs such as freight are higher. Rising energy prices more recently have also led to sharp increases in fuel, fertilisers and machinery costs, making exchange rate movements crucial to Brazil's competitiveness (OECD, 2005b).

There has, however, been growing concern about the environmental consequences of Brazil's rapid agricultural growth. Since 1990, an area of forest equal to the size of the United Kingdom has been lost to large-scale commercial ranching that has been responsible for the majority of deforestation, ahead of logging and the migratory slash-and-burn practices of subsistence farmers. Managing the balance between agricultural expansion and forest preservation is therefore an important current policy focus (OECD, 2005b).

According to the Renewable Fuels Association (2009), Brazil is the world's second largest producer of ethanol after the US, with government support provided through market regulation and tax incentives. In 2008, 65.3 million tonnes of sugar and 24,500 million litres of ethanol were produced, with a large number of 'dual' plants being able to switch between refined sugar and ethanol production depending on price. Increased ethanol demand, both domestically and internationally, has seen the share of sugarcane used in ethanol production

rise steadily (OECD, 2005b). By 2015-16 ethanol production is expected to increase by 37.5 per cent and exports are expected to nearly double (OECD-FAO, 2006).

1.4 Trade

The pre-1990 trade policy of Brazil embodied a range of trade control measures in support of 'self-sufficiency' which taxed and isolated agriculture from international markets. These measures included import tariffs, import quotas and export controls.

During this period agriculture also suffered from an overvalued exchange rate which acted as a disincentive to exports and industry development, resulting in agricultural growth and incomes lagging behind the rest of the economy (Lopes *et al*., 2007). Agriculture was also subject to a Minimum Price Policy (MPP) and government domestic purchases and imports, aimed at providing 'cheap food', ultimately led to stock build-ups, forced sales and depressed domestic prices and farm incomes.

Instead of reforming these policies, the government responded with various 'compensatory' policy interventions, such as subsidised loans and input subsidies for modern production inputs such as fertiliser, all of which ultimately impeded industry adjustment.

Through the late 80s and early 90s, in response to the country's financial crisis, significant trade policy reforms were commenced which removed those arrangements favouring import substitution. For example, export controls were removed and tariffs were reduced across all sectors thereby reducing the implicit taxing of agriculture.

Box 2.1 The Dissolution of Marketing Boards

The wheat, sugar and coffee industries were formerly controlled by marketing boards which controlled production and set marketing quotas, prices and trade flows. In 1990, the Wheat Commission was dissolved and controls over wheat marketing were removed. Price support remained in place, however, with wheat being one of the commodities covered by the minimum price system.

Dissolution of the Coffee Institute in 1989 coincided with falls in the world coffee market. Demands for reform of the International Coffee Agreement (ICA) occurred later in the negotiation of the 1994 ICA when the export quotas and minimum prices that it formerly imposed were removed, leaving the ICA as a forum for exchange of market information.

The Sugar Institute took longer to dissolve because of its significant controls over producer prices, exports and the domestic distribution of ethanol. It was, nevertheless, dissolved in 1995 with all direct controls over sugar and ethanol, except the ethanol mandate, being lifted. The ethanol mandate remains in place and is set annually at a rate varying between 20 and 25 per cent.

Source: OECD (2005b).

The Real Plan was then introduced in 1994 to stabilise macroeconomic factors through the introduction of a fixed exchange rate and controls on government expenditure. This was followed in December 1996 by the MERCOSUR countries (Argentina, Paraguay, Uruguay

and Brazil) signing a protocol for the harmonisation of competition policies within the trade bloc (Box 2.2). Also in 1996, the value added tax on agricultural exports was removed.

Box 2.2 Mercosur

Members of the Mercosur trade bloc are required to impose the common Mercosur tariff over imports from outside the bloc. The common external tariff regime includes 959 agrifood products, with tariff rates ranging mainly between 0 and 20 per cent (sugar is outside the Mercosur regime).

A further measure is a requirement for uniformity of competition policy between members. Brazilian institutions and legislation have become the benchmark and are comparable in terms of oversighting economic activity to the Competition and Consumer Commission and Trade Practices Act in Australia.

Although there are currently provisions for Brazil to provide export subsidies, none have been granted since 1995. Export support measures are confined to export credit facilities and export guarantee insurance is provided by the government.

Source: OECD (2005a).

These Real Plan reforms resulted in a strongly appreciating currency which, when combined with trade reform, again penalised agriculture through high levels of agricultural imports and trade deficits. This in turn led to the floating of the currency in 1999 and a major devaluation of the Real.

Agricultural production then increased from 7 per cent of GDP in 1997 to 10 per cent in 2004. Agricultural sector employment declined slightly from around 25 per cent of total employment in 1997 to just above 20 per cent in 2005, reflecting major improvements in agricultural productivity.

Over this more recent period, agricultural price support was significantly reduced and subsidised credit curtailed which, when combined with currency devaluation, resulted in agriculture becoming highly competitive on international markets. Lopes *et al.* (2007) well summarise these developments and further note that exports became increasingly diversified with increasing exports of lightly-processed products including soybean meal, vegetable oil, chicken meat, bovine meat, swine meat and fruits.

Brazilian Agriculture and the post-2000 period

"The pattern of agricultural growth changed radically and relied mainly on productivity growth. The base acreage planted increased by an average rate of 1.8 per cent a year from 1990 through 2004. Output growth in the same period averaged 4.9 per cent a year. This implies that output had doubled since the 1990 crop year while acreage increased by just under 30 per cent. Investments in research on livestock, poultry and hog production produced outstanding results too.

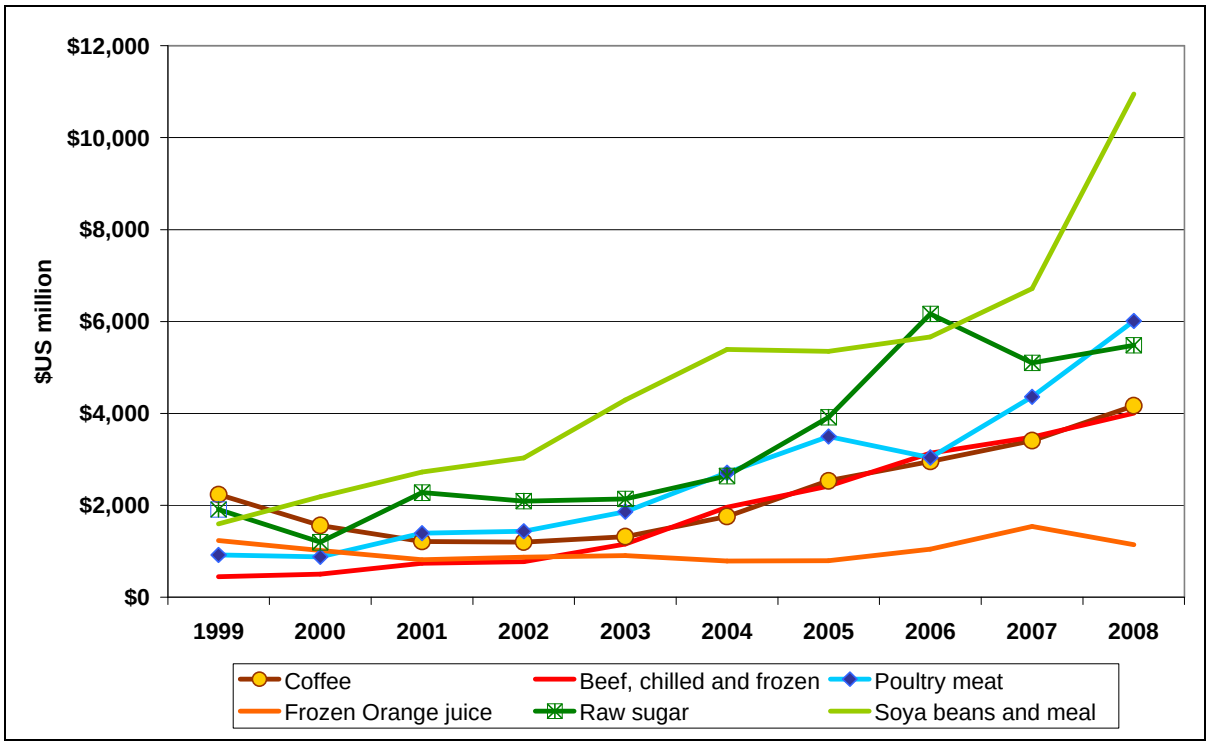
The combination of macroeconomic reforms, agricultural policy reforms and trade liberalization, together with the ability of farmers to implement strong structural adjustment, resulted in unprecedented export-led growth in Brazilian agriculture. The agricultural sector was leading the growth of the country's GDP, with an average rate of growth of 5.3 per cent a year during 2000 to 2004 when the industrial sector was growing at just 1.7 per cent. In 2004, Brazil ranked first in the world in the production of alcohol, sugar, coffee and orange juice; second in the production of soybeans and soybean by-products, beef and tobacco; and third in poultry meat, pig meat, fruits and maize. Brazil also ranks first in the export of alcohol, sugar, coffee, orange juice, soy complex, beef, tobacco, and poultry meat, and third in the export of pig meat. Higher international prices and a booming demand for food abroad contributed to this performance."

Source: Lopes *et al*. (2007). (Page 10)

Most of Brazil's agricultural production is consumed domestically with about 25 per cent exported. In 2008, the value of agricultural and food exports from Brazil was US $37.7 billion with the main agricultural exports, soybeans, soybean cake, raw sugar, green coffee, beef and poultry meat, all experiencing strong growth (Figure 2.5).

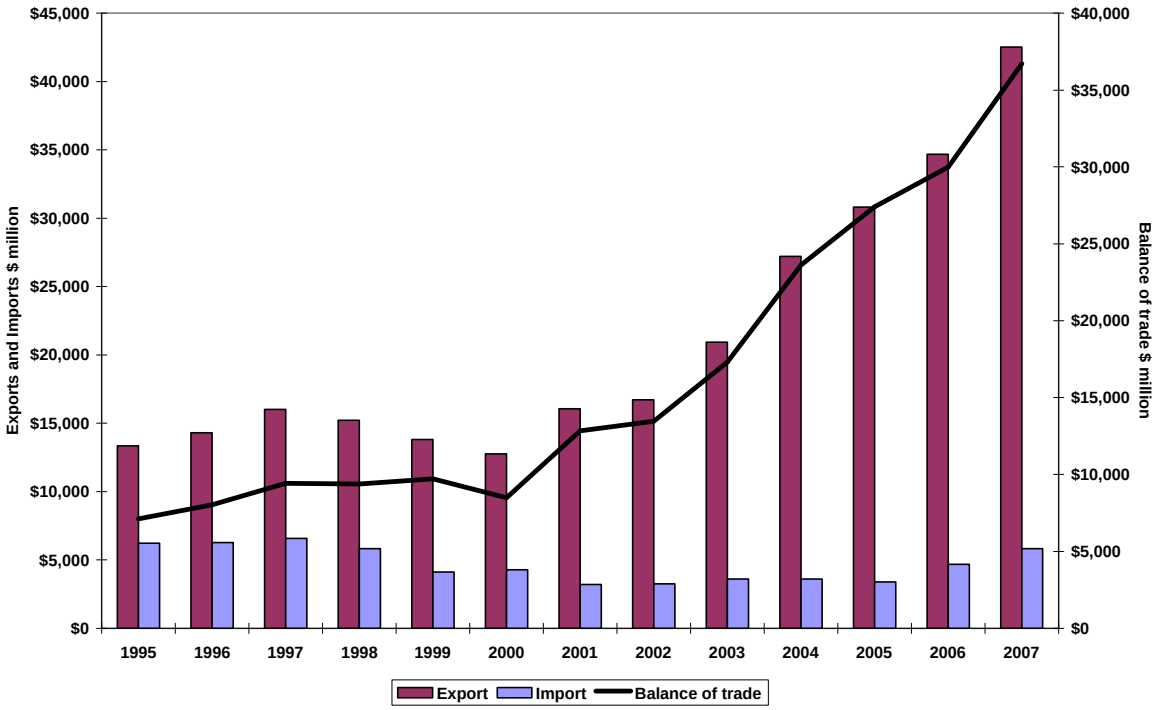
In 2007, agricultural exports exceeded imports by $36.7 billion, giving an export/import ratio of 7:1. The main imports were wheat and wheat flour, rubber, malt, rice, wine and olive oil. The balance of trade in agricultural products (Figure 2.6) has risen sharply since 2000, to almost $30 billion, which is by far the highest of the BRIC economies, followed by India which has a positive trade balance of only $4 billion.

Figure 2.5 Agricultural exports by product



Source: Comtrade (2009).

Figure 2.6 Trade in agricultural products

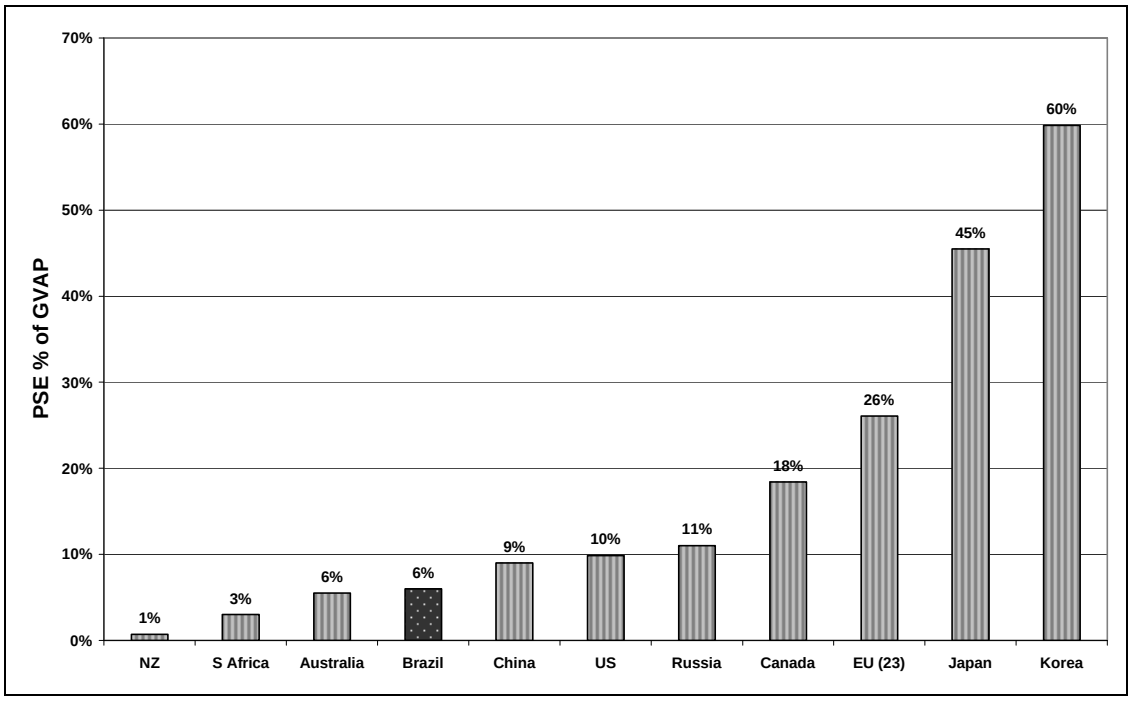


Source: FAOStat (2009).

1.5 Assistance to Agriculture

In 2003, Brazil had the second lowest level of publicly-funded producer support in the world at 4 per cent, behind New Zealand on 2 per cent. Increases in support in recent years to 6 per cent now place Brazil in the fourth lowest position after South Africa, New Zealand and Australia.

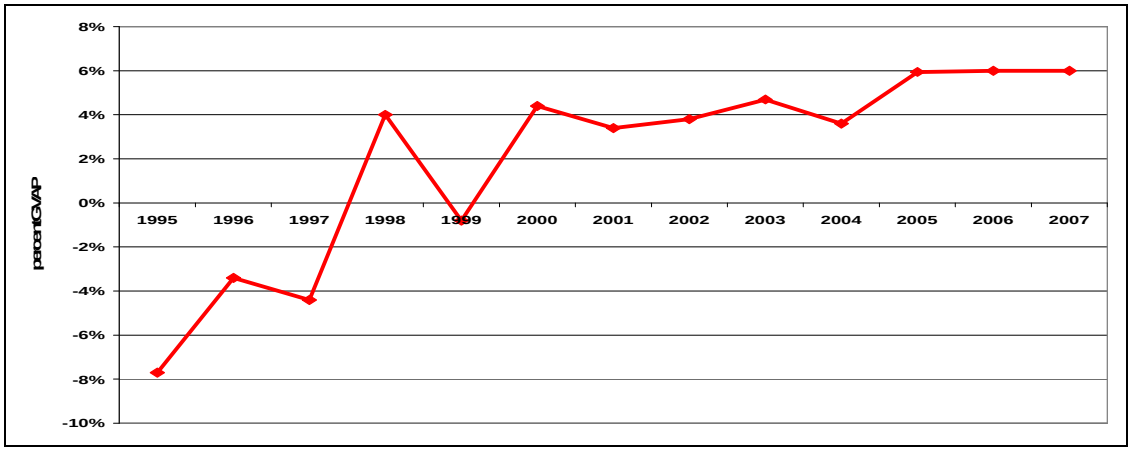
Figure 2.7 Producer support estimate 2007 (% GVAP)



Source: OECD (2009d).

Between 1995 and 2007, producer support (PSE) was negative until 2000 due to price controls applied to domestic food products. Between 2000 and 2004 support was positive but low at around 4 per cent, but has since increased to 6 per cent with an extension of support to the small farming sector.

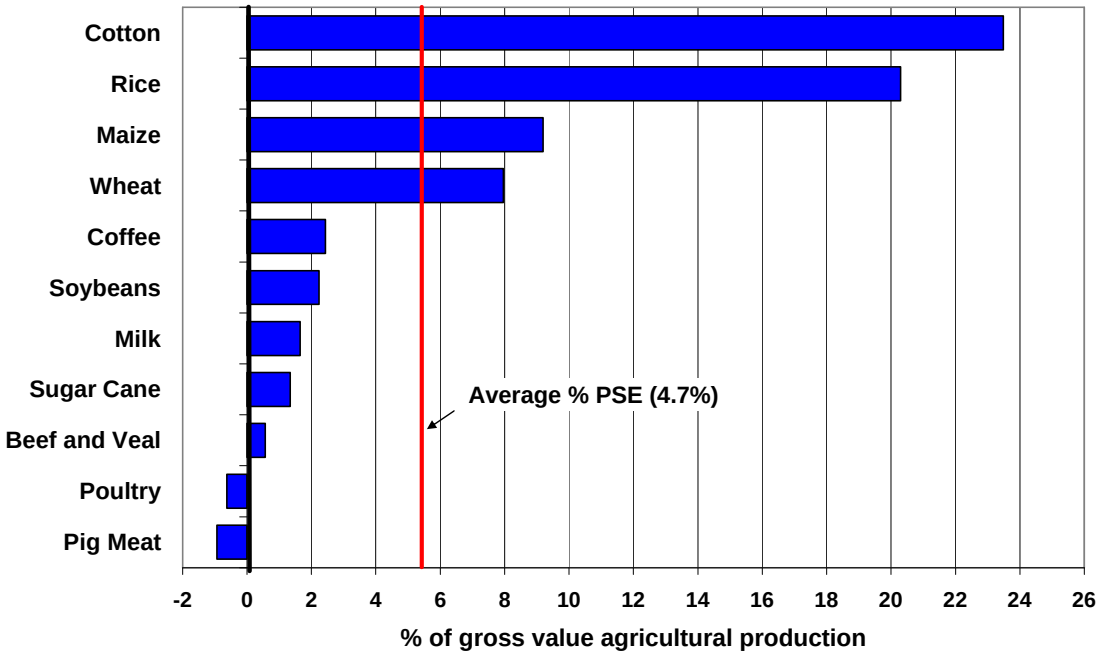
Figure 2.8 Trends in producer support estimate



Source: OECD Database (2009d).

Approximately two-third of agricultural support is provided in the form of subsidised interest rates for rural investments and debt forgiveness. The remainder relates to price support measures for rice, cotton, wheat, maize, coffee, soybeans, sugar and dairy production (Figure 2.9). Since the removal of tariffs with the introduction of the Real Plan in 1996, however, market price support has comprised only a small portion of producer support.

Figure 2.9 Brazilian producer support estimate by commodity



Source: OECD Database (2009b).

Price support consists of guaranteed minimum prices in years and regions where it is considered necessary. The Brazilian Government buys a proportion of the crop, depending on available public funds, with purchases made from small family farms in an effort to provide social assistance to lower income rural households. Sale proceeds are used for anti-hunger programmes. Since the mid-1990s, minimum support prices have generally been below market prices in order to target support to the smaller, less efficient and more isolated producers (OECD, 2007).

To provide further income security and stable prices to small producers, the government also provides a trading system and marketing loans for commodities subject to minimum prices (mainly maize) which act to facilitate the minimum price being achieved. Marketing loans are available up to the value of the anticipated crop which are repaid within several seasons, allowing growers to delay sales when increased supplies push prices down and to make repayments when prices recover (OECD, 2007). It appears, however, that these loan arrangements are increasingly becoming means tested and being targeted at family farming in poorer areas.

Subsidised rural credit has a history going back to the 1960s before hyperinflation and the policy reforms of the 1990s (Helfand, 2001). Over this period, credit was provided to the rural sector at preferential interest rates, but due to the inflation crisis significant loan defaults

occurred and interest payable on non-defaulting loans continued to be negative in real terms and below the rate of inflation (OECD, 2007).

In the mid-1990s, the value of non-performing rural loans was estimated at 30 per cent of outstanding rural credit, which had implications for bank deposits more broadly and led to a programme of significant debt restructuring. Nevertheless, rural debt levels have remained high with outstanding debt in 2004 valued at US$8 billion and overdue repayments at US$1.4 billion (OECD, 2005b).

As a consequence, banks have become more risk averse and have directed lending to the more commercially viable agricultural operations. To further enhance credit access the government has introduced:

- the Unemployment Insurance Fund; and
- the Constitutional Funds, which are regionally directed extra-budgetary development funds specifically for the North, North-East and Centre-West regions.

Since 2003, new credit programs have been introduced specifically targeting family farms as part of government efforts to attack rural poverty (PRONAF program, Box 2.3). Special social welfare programmes such as the 2nd National Agrarian Reform Plan have also been introduced, which target the rural poor (OECD, 2007).

In 2007-08, a new credit line was introduced – PROLAPEC (Program for Integration of Livestock farming with Agriculture). This programme provides credit for investment in crop agriculture on livestock ranches to operate rotational land use and reduce degradation. In 2008-09, it was merged with a new credit line called PRODUSA — The Program for Fostering Sustainable Farming, — specifically targeting areas with badly degraded soils.

Low interest loans are provided to small farm businesses wishing to expand, to unemployed youth aged 18-24 and to the poorest rural labour in the north-east of the country. Subsidised investment loans and input credits are also provided to loan recipients to facilitate the uptake of productive agriculture (OECD, 2005b).

By 2001 it was estimated that at least 400,000 families had been settled on holdings for which they had title, with settlers reporting improved housing and living standards (DIRCP, 2008). The government also launched a land reform programme in 2003, and by 2008 a further 450,000 families had been settled on 38 million hectares, an average of 84ha per family (OECD, 2009). This was facilitated by the consolidation of the National Program for Land Credit which led to an increase in the number of families accessing low interest loans for land purchase.

The part of Brazil where these policies are most likely to have a positive impact on productivity are the Central Western states (Mato Grosso, Goias, Tocantins and Rondonia) where extensive grazing land is being cultivated and settled, mostly for the production of soybean (OECD, 2005b).

The land reform and social welfare programmes are aimed at the rural population, to give security of tenure to one million families, which is a substantial proportion of the estimated 7.3 million rural households in Brazil, 60 per cent of whom are farming families.

Box 2.3 The National Program for the Strengthening of Family Agriculture (PRONAF)

PRONAF finances the farming and non-farming activities of rural producers through direct workforce employment enhancements. Credit programmes can be 'individual' (assigned to a producer for individual purposes) or 'collective' (assigned to a group of producers for collective purposes).

The six PRONAF financing facilities include:

1) Conventional PRONAF: Financial support for implementation investments, enlargement or upgrading farming services and production infrastructure on rural properties or in rural communities.

2) PRONAF Agribusiness: Financial support for investments, including infrastructure that benefits processing and trade of farm production, forest products and extractivism, as well as handicrafts and rural tourism.

3) PRONAF Woman: Financial support for farming women.

4) PRONAF Agroecology: Financial support for investments in agroecological or organic production systems.

5) PRONAF ECO: Financial support for implementation of investments, use and/or recovery of renewable energy and environmental technologies, hydric storage, small hydro-energy use, forestry and adoption of traditional practices, as well as the control of acidity and soil fertility.

6) PRONAF More Food: Financial support for investments in corn, bean, rice, wheat, cassava, vegetables, fruits and milk production.

Source: BNDES (2009).

1.6 Competition Policy

The evolution of competition law over several decades has been instrumental in transforming Brazil into a fully functioning market economy generating sustainable economic growth (Silvia, 2007).

A competition law appears to have been first enacted in 1962 which created the Administrative Council for Economic Defence (Counselho Administrativo de Defesa Economica of CADE). Initially the Council had little impact because its authority extended to only a few private firms.

In 1988 a new constitution established competition as a key feature of the 'economic order'. A privatisation programme was launched, barriers to international trade were reduced and CADE became more active.

The modern era of competition policy in Brazil commenced in 1994 when CADE was reconfigured as an independent agency composed of six commissioners and a President appointed by the President of the Republic and confirmed by the Senate for a fixed term (OECD, 2005b). Certain aspects of enforcement were vested in the Secretariat of Economic Law in the Ministry of Justice and the Secretariat for Economic Monitoring in the Ministry of Finance.

At the same time legislation aimed at promoting and protecting competition - 'On the Prevention and Repression of Violations Against the Economic Order' - was enacted and is administered by CADE.

The Brazilian Competition Policy System (BCPS) regulates merger control, competitive behaviour among Brazilian firms, antitrust issues and economic stability within regulation. The bulk of the substantive provisions of Brazil's competition law appear in three articles of the prevailing legislation (OECD, 2005b). Articles 20 and 21 deal with all types of anti-competitive conduct excluding mergers, while Article 54 deals with acquisitions and similar transactions (see Box 2.4).

Box 2.4 Brazil's competition law # 8.884 "On the Prevention and Repression of Violations against the Economic Order" of June 11, 1994

Article 20 states that, notwithstanding malicious intent, any act in any way intended or otherwise able to produce the effects listed below, even if any such effects are not achieved, shall be deemed a violation of the economic order:

- to limit, restrain or in any way injure open competition or free enterprise;
- to control a relevant market of a certain product or service;
- to increase profits on a discretionary basis; and
- to abuse one's market control.

Article 21 lists various actions that would be deemed a violation of the economic order, to the extent applicable under Article 20. These actions are mostly either horizontal or vertical restrictions and include, but are not limited to:

- The setting of prices or business practices through collusion;
- The limiting or restraint of market access to competitor companies;
- The affecting of third-party prices by deceitful means;
- The discrimination against purchasers or suppliers of a certain product or service;
- The unreasonable reduction of inputs, business practices or production;
- The sourcing or provision of goods below cost; and
- Unreasonably increasing the price of a product or service.

Article 54 states that any acts that may limit or otherwise restrain open competition, or that result in the control of relevant markets for certain products or services, shall be submitted to CADE for review.

The OECD reviewed the activities of the BCPS since the introduction of Law No 8.884 in 1994, both in 2000 and then again in 2005 (OECD, 2005a). They noted that, despite serious handicaps, the BCPS has made significant gains in fostering sound competition policy in Brazil.

Some of the main handicaps identified by the OECD, however, were excess red tape through agency inefficiencies, insufficient and under-trained staff, certain statutory provisions that interfere with efficient and effective law enforcement and a lengthy and under-informed judicial review system, unfamiliar with competition law (OECD, 2005a). Subsequent to these findings, three pieces of legislation proposing to restructure the BCPS by changing important aspects of Law 8884 were tabled in 2005.

The first was a wide-ranging revision of competition law that would eliminate the mandatory analysis of each case by more than one agency by making the Economic Law Office (SDE) a subsidiary of CADE that would henceforth also be composed of an Administrative Tribunal, the Economic Studies Department and the Attorney General's office. The proposal also advocated a pre-merger notification system; changes to the triggering requirements for reporting mergers; and that other changes be made to the substantive and remedial provisions of the law (Silvia, 2007).

The second proposal, packaged as an 'omnibus bill', related to the procedural requirements of sector regulatory agencies and was designed to bring about standardisation of approach (OECD, 2005a).

The third proposed bill advocated that CADE be given exclusive jurisdiction over bank mergers, except where there was an implied risk to the overall stability of the financial system. In such cases, exclusive authority would be vested with the Central Bank (OECD, 2005a).

In 1995, the Brazilian Congress approved amendments to the Federal Constitution which also removed barriers to private sector participation in telecommunications, electricity, and the oil sector. Each of these industries is now subject to scrutiny by a regulatory agency which seeks to prevent anti-competitive behaviour (Silvia, 2007).

1.7 Some Key Points

- Brazilian agriculture serves as a useful case study of the inevitable adjustment path of many developing and emerging economies. It has undergone major transformation as the result of a shift away from protectionist and 'self-sufficiency' policy settings which insulated the sector from international markets and hence reduced agricultural productivity and competitiveness.

- These reforms significantly enhanced the contribution by the agricultural sector to important social outcomes such as rural employment and poverty reduction.

- Brazil also provides an example of the successful transition from industry policy settings to competition law. How this law has been applied in relation to the interests of agriculture warrants further scrutiny for the purpose of conveying the 'lessons learnt' to other emerging economies that are less progressed along the agricultural policy reform path.

- Similarly, efforts to separate farm family welfare policy from industry policy are extremely promising, and a next step might be to consider those further reforms that

would enable the government's farm family welfare objectives to be addressed through measures other than subsidised credit.

- A further important consideration coming from the Brazilian experience is the need for sectors undergoing strong transition and adjustment to have ready access to new technologies suited to the wider range of production opportunities which emerge. A concern is that R&D effort is likely to have been distorted towards those production options previously favoured by minimum support prices and input subsidies.

Agricultural Policy Reform in the BRIC Economies - RUSSIA

1.8 Overview

The Soviet Union's policy of openness (*glasnost*) and restructuring (*perestroika*) between 1985 and 1991 failed to reform the centrally planned economy of the USSR and the federation collapsed at the end of 1991. The Soviet President resigned and vested power in the President of Russia, Russia having previously declared independence along with other former soviet republics (the Commonwealth of Independent States or CIS).

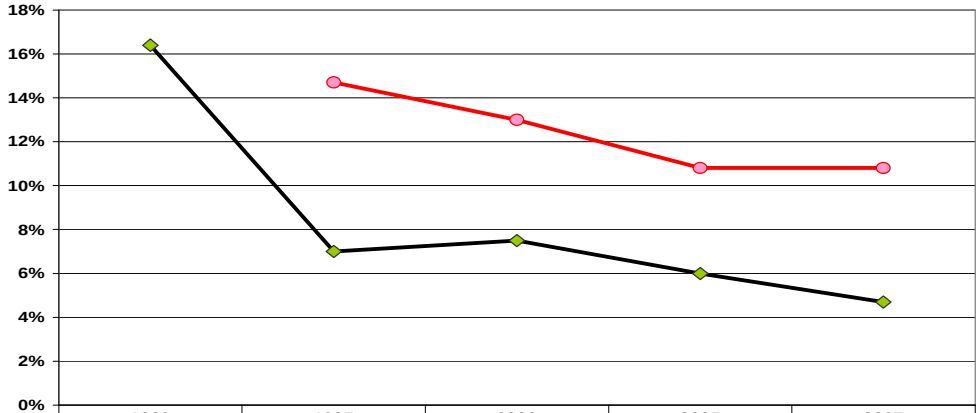
During this period food shortages led to rationing in Moscow for the first time since World War II. As a consequence, the transition towards a market-based economy began with a 'shock programme' where subsidies to unprofitable farms and industries were cut, price controls were abolished and the ruble became convertible. The result was a deep contraction of output throughout the economy.

The impact on the agricultural sector was further compounded by the financial crisis of 1998, initiated in part by the 1987 Asian financial crisis, but fuelled by internal budgetary problems. The financial crisis forced further declines in support to agricultural producers which has since increased in response to the recent emphasis on the development of natural resource-based industries, with agricultural support tending to be dominated by market prices and budgetary subsidies. Producers have also enjoyed subsidised energy prices.

1.9 GDP and Employment

The share of agriculture in GDP fell from 16.4 per cent in 1990 to 6 per cent in 1998, rising to 7.5 per cent in 2000 (World Bank, 2002) and then falling to around 4.7 per cent in 2007 (Figure 3.1). Agricultural employment as a percentage of total employment also declined during this period with the labour force of 74.1 million in 2007, consisting of 10.8 per cent in agriculture (down from 14.7 per cent in 1995) and industry and services making up the balance at 28.8 and 60.5 per cent, respectively.

Figure 3.1 Agriculture in GDP and employment



	1990	1995	2000	2005	2007
Agric % GDP	16.4%	7.0%	7.5%	6.0%	4.7%
Agric % employment		14.7%	13.0%	10.8%	10.8%

Source: World Bank (2009).

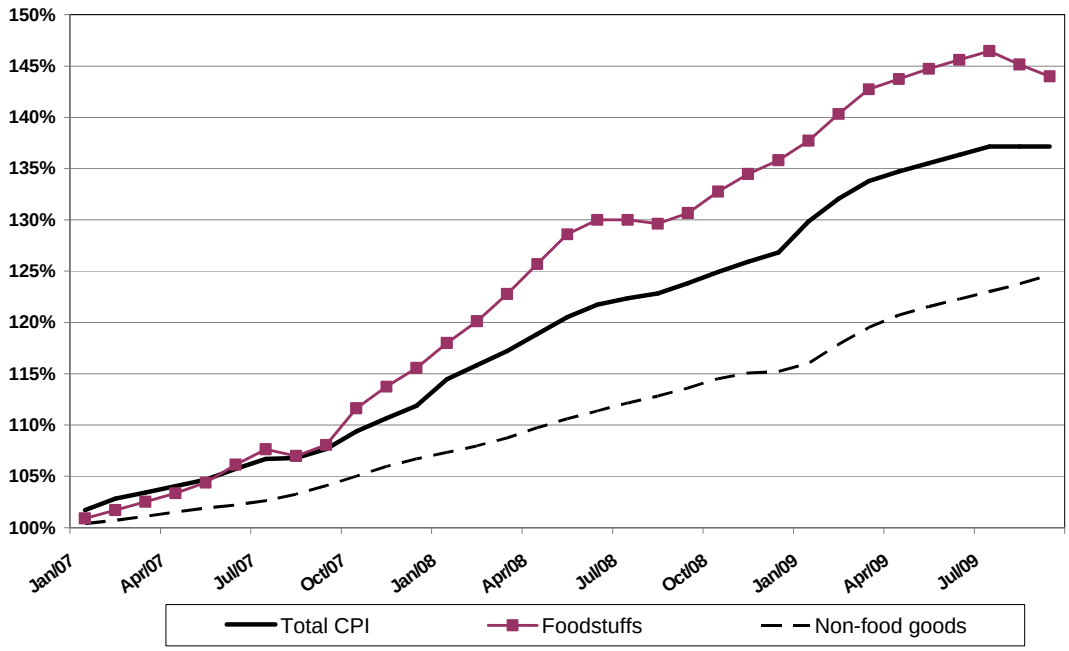
1.10 Incomes and Food Price Inflation

Russia's agricultural sector presents particular welfare concerns, with 18 per cent of the population having incomes below the official minimum level (OECD, 2007). The problem has been heightened more recently by high inflation and rising commodity prices. Food prices, for example, increased by 15.6 per cent from December 2006 to December 2007 and by a further 15 per cent to September 2008 (Figure 3.2).

Family budgets were strongly affected given that food makes up 28 per cent of average household expenditure and 50 per cent for the lowest income group. The government responded with a series of anti-inflation measures, including:

- monetary tightening with the refinancing rate of the Central Bank of Russia being increased and banking system reserve requirements tightened;
- exports were restrained through the imposition of duties on grain exports between November 2007 and June 2008;
- import duties on several key food items (milk and milk products, cheese, some types of vegetable oil and vegetables) were temporarily reduced; and
- an agreement was reached with large food processors and retailers to freeze prices for six 'socially important' food items, including bread, milk and fermented milk, sunflower oil and eggs from October 2007 to April 2008.

Figure 3.2 Recent increases in CPI



Source: Federal State Statistics Service -Rosstat (2009).

1.11 Agricultural Production and Trade

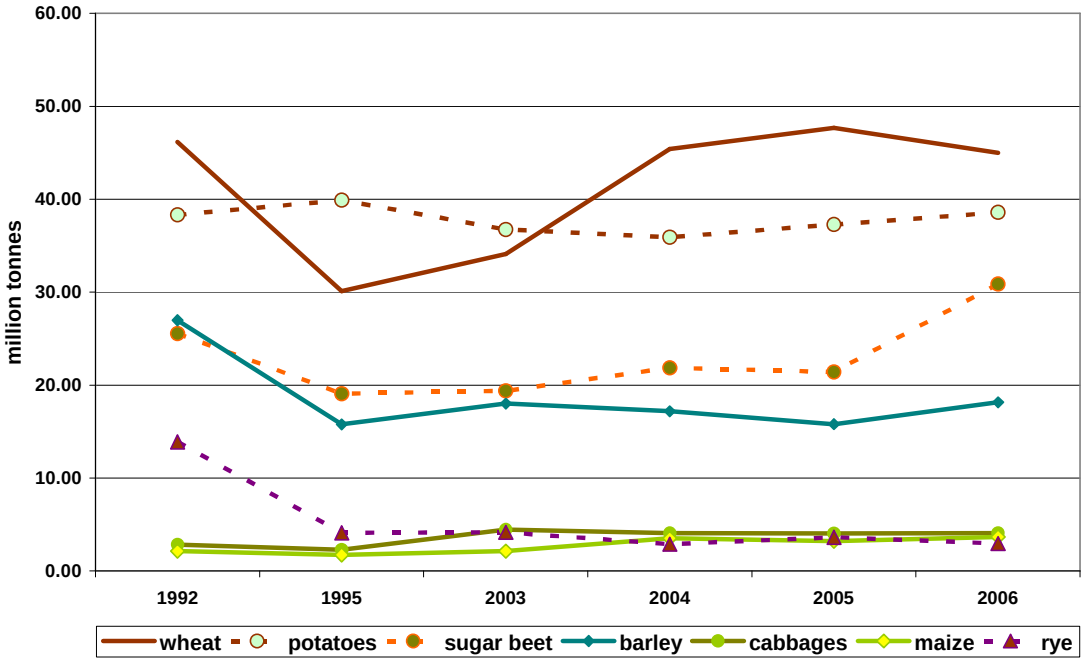
The political and economic turmoil of the late 1980s led to a fall in yields of wheat, maize, rye, sugar beet, sunflowers and potatoes. Between 1988-90 and 1998-2000, grain production fell by 46 per cent with the decline in productivity over the period creating a yield gap similar to that between the Soviet Union and the west in the 1960s (Osborne and Trueblood, 2002).

Prior to the break-up of the Soviet Union in 1991, large-scale production of grains, meat, sugar and cotton occurred on collective farms using highly subsidised heavy machinery and other input. Agricultural policy aimed to increase consumer living standards, to deliver high levels of self-sufficiency in food and raw materials for industry (e.g., cotton) and to produce exportable surpluses in exchange for manufactured products from the satellite states of Eastern Europe (World Bank, 2002). Commodity prices were regulated and direct payments and input subsidies were provided to maintain farm profitability. Interestingly, however, productivity at this time was poor because output increased due to an increase in investment, subsidies and input use, rather than from the more productive use of resources (Johnson and McConnell Brooks, 1983; Liefert and Liefert, 2007). At the time Soviet per capita meat consumption was similar to that in western countries despite per capita incomes being much lower. For this to be maintained, high rates of assistance to producers and consumers were required.

While production of food grains declined at the outset of the market economy, it has since fluctuated over a wide range, though much of this can be attributed to climatic variability (Figure 3.3).

For the period 1992 to 2006, brassica production increased by 43 per cent and sugar beet production increased by 21 per cent to 30 million tonnes in 2006. Barley production for stock feed declined by 67 per cent, from 28 million tonnes to 19 million tonnes, while maize production for stock feed is now 72 per cent higher than in 1992. Rye production has fallen substantially in response to increasing consumer incomes and changing preferences from black to white bread.

Figure 3.3 Crop production

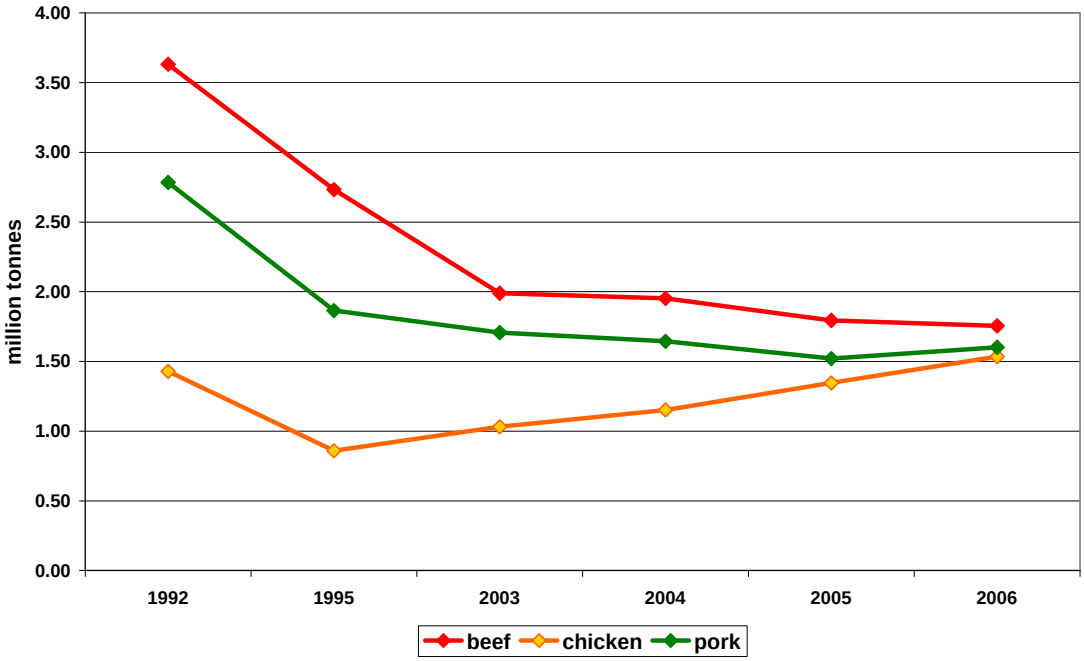


Source: FAOStat (2009).

The trend in cattle, chicken and pig meat production is notably different to the trend in crop production (Figure 3.4). Cattle and pig meat production declined by 50 per cent and 43 per

cent between 1992 and 2007, respectively. Chicken meat declined from around 1.4 million tonnes in 1992 to just over 500,000 tonnes in 1997, thereafter increasing to about 1.7 millions tonnes, which is an overall increase of about 21 per cent over 1992. Chicken meat and pork production now exceed beef production.

Figure 3.4 Meat production



Source: FAOStat (2009).

1.12 Farm Ownership and Production

Agricultural production is characterised by three types of farms: corporate farms (agricultural enterprises), household plots (subsidiary farms) and private farms. Corporate farms are the successors of the Soviet state and collective farms.

While privatised corporate farms operate in much the same way as they did during the Soviet era, producing grains, oilseeds and sugar beet, now they belong to the workers and pensioners who ran them under the Soviet system. Workers were also granted limited ownership rights to small land plots, which had previously belonged to the corporate farm, to cultivate in their spare time. These household, or subsidiary, plots are therefore farmed within the land owned by the corporate farms. Often around 0.4 hectares, they are emerging as increasingly productive and are used to produce vegetables, potatoes and livestock; however, uncertainties remain in relation to their legal title.

Private farms range from around 50 to 60 hectares and are considered the equivalent of family farms in the OECD. They were created from former state farm land sold to individual farmers under a privatisation scheme.

The privatisation of land has not, however, brought about a large change in the structure of land holdings and there are still many legal issues over land ownership and the rights to buy

and sell agricultural land. Banks do not consider agricultural land as collateral so there is little or no mortgage market, which discourages private agricultural investment and development.

It is estimated that corporate farms made up 41 per cent agricultural output in 2005, household plots 53 per cent and private farms 6 per cent (OECD, 2007). Corporate farms produced about 90 per cent of Russia's cereals, sunflower seeds and sugar beet, and about 50-66 per cent of livestock production.

In terms of productivity, three trends are significant. First, while subsidiary plots account for less than 10 per cent of available arable land, they account for more than 50 per cent of the total value of crop production (Osborne and Trueblood, 2002). A disproportionately large share of total commercial production is therefore produced by a small percentage of producers (OECD, 2007).

Second, the 300 most successful corporate farms were, on average, 1000 hectares larger than the average corporate farm and these 300 farms used 2 per cent of the total area sown, but earned 16 per cent of the total revenue from agricultural production (Osborne and Trueblood, 2002).

Third, livestock production is fragmented among a large number of producers. For example, the top 100 livestock producers produce only 0.6 per cent of milk and beef, 1.5 per cent of pig meat, 9.1 per cent of poultry meat (top 55 producers) and 16 per cent of eggs (Table 3.1), but obtain more than 50 per cent of cash receipts.

Table 3.1 Share of top 100 producers in livestock production

	Total number of agricultural enterprises involved in production, 2004	**Percentage of 100 top producers[1] in totals, 2002-04**		
		Agricultural enterprises	**Output volume**	**Cash receipts**
Milk	15,854	0.6	6.6	9.4
Beef	16,407	0.6	7.1	8.1
Pig meat	6,462	1.5	45.0	44.3
Poultry[1]	607	9.1	52.0	56.1
Eggs	626	16.0	57.0	55.9

Source: OECD Statlink
Note: (1) Top 55 producers for poultry.

The performance and size of agricultural organizations is nevertheless changing with the increasing adoption of new technologies. The share of all agricultural resources represented by the top 300 enterprises is reported in Table 3.2 for 2002-2004.

Table 3.2 Share of agricultural resources in top 300 enterprises (2002-04)

Profits	70%
Market Receipts	20%
Farm land	3.5%
Percentage of total number of agricultural enterprises	1.5%

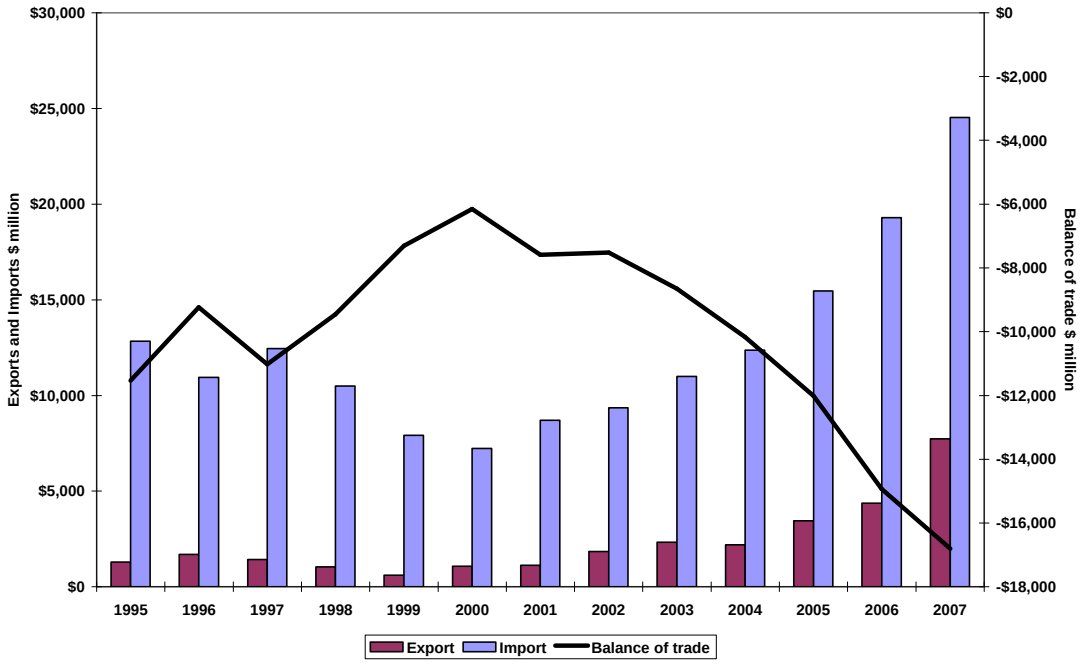
Source: OECD (2007).

Agricultural exports are small relative to imports and small compared to Russia's total exports (OECD 2009a). Grain is the main export commodity with wheat accounting for 47 per cent of total agricultural export earnings in 2007. Sunflower oil and cake accounted for 7.5 per cent of export earnings, while barley and sugar accounted for smaller amounts.

Fresh fruit has become the major import by value, at 12.9 per cent in 2007, followed by pig meat 8.4 per cent, beef 7.3 per cent, chicken meat 4 per cent and raw sugar 4.6 per cent.

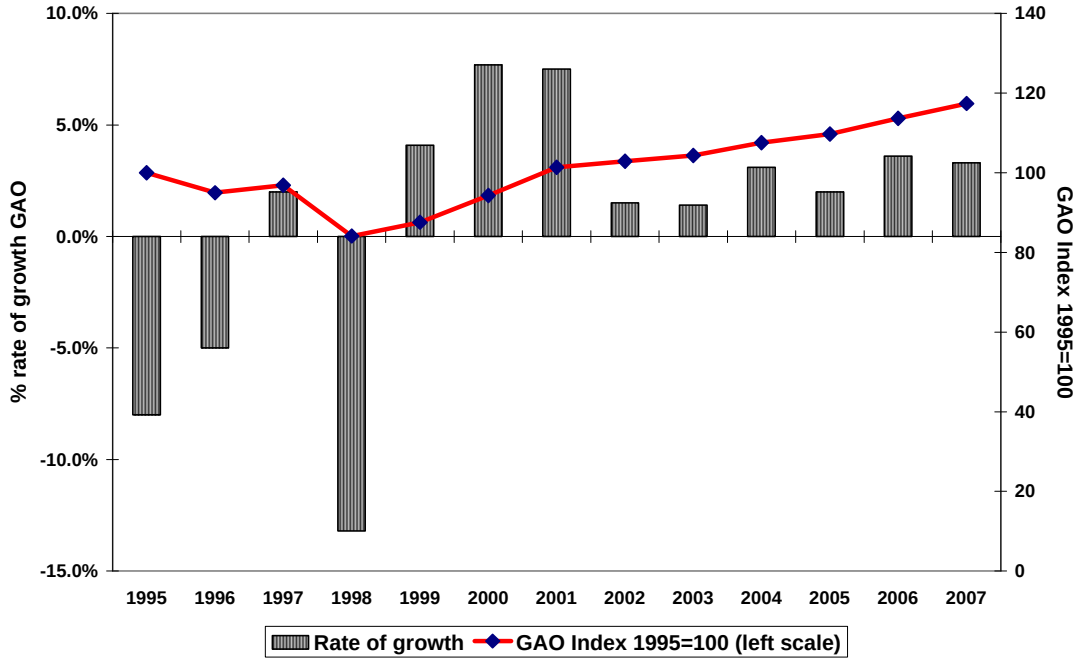
Given that imports of meat products, dairy products, fresh and processed fruits and vegetables, beverages and spirits, sugar and confectionary products, and tobacco products exceed exports of grain, oilseeds, sunflower oil, fish, prepared foods, tobacco products, and animal and vegetable fats and oils, there has been a negative trade balance (Figure 3.5) since the reforms began, widening to US$16.8 billion in 2007 (OECD, 2009a). Arguably, this trade balance was exacerbated by the fragmented nature of agricultural production and remaining regulatory inefficiencies in certain crops such as wheat.

Figure 3.5 Trade in agricultural products



Source: FAOStat (2009).

Figure 3.6 Evolution and annual changes of agricultural output



Source: OECD (2007).

Between 1996 and 2001, gross agricultural output (GAO) was below 1995 levels (Figure 3.6). With recovery in 2001, GAO expanded by around 3.1 per cent in 2004 and by 2 per cent in 2005 (OECD, 2007). GAO is now growing steadily at around 3 per cent per annum; however, agricultural terms of trade have deteriorated as a consequence of slowing agricultural price growth in 2005, a large increase in fuel prices and an appreciation of the rouble.

1.13 Assistance

Agricultural subsidies were equivalent to 80 per cent of the gross value of agricultural production under the Soviet Government (Figure 3.7). The aim was to increase meat supply by increasing livestock numbers, while subsidies on imported feed grains aimed to make up the shortfall in local stocks. Minimum support prices further enhanced subsidy assistance.

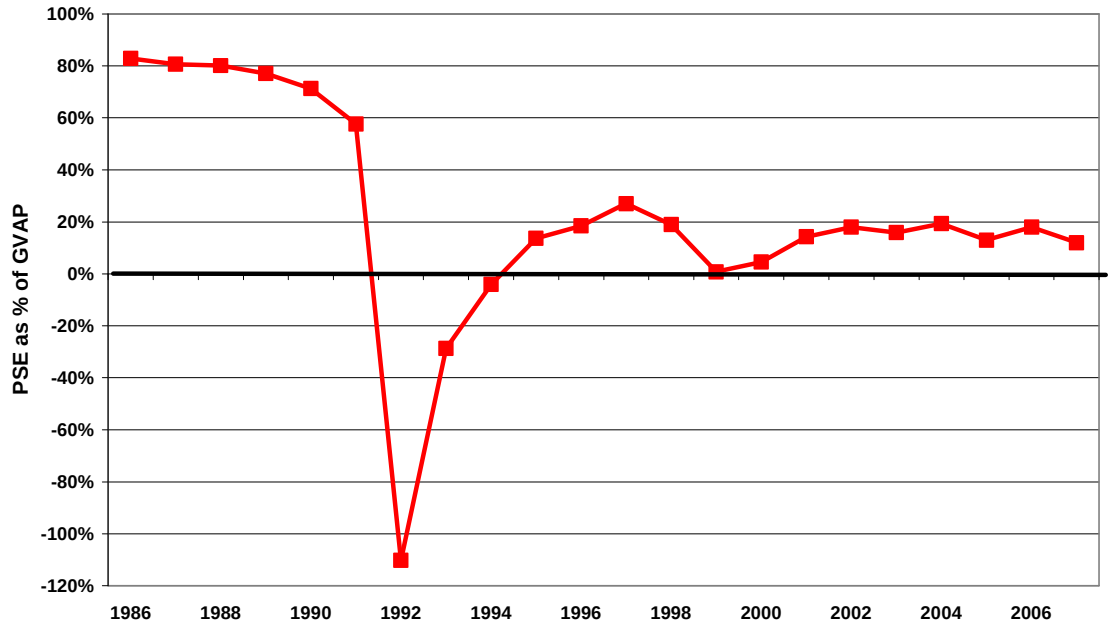
Subsidies were removed in 1992, not as a result of proactive reform, but due to the government's financial predicament. Support for livestock production dropped to minus 110 per cent, causing cattle numbers to decline from over 20.1 million in 1992 to 10.3 million in 2006, while meat imports increased from 89,640 tonnes to 669,817 over the same period.

Agriculture's share of GDP has declined from 16.4 per cent in 1990 to 6 per cent in 2005, while sectoral employment declined from 14.7 per cent of the labour force in 1995 to 10.8 per cent in 2007.

Despite these changes, inputs such as fertiliser, credit and fuel remain subsidised with continuing rationales such as compensation to producers for disparities between input and output prices. In 1995, pressure from the farm lobby resulted in subsidised loans being replaced with a barter-based 'commodity credit' system where input suppliers provided input

such as fertiliser and fuel directly to farmers at no cost, with the government assuming the debt and farmers required to provide certain products, particularly grains, to the Federal Food Corporation.

Figure 3.7 Russian Federation producer support estimate (PSE)



Source: OECD (2009b).

Table 3.3 Cattle numbers and beef imports

Year	Domestic Head Count	Beef Imports (Tonnes)
1992	54,676,704	89,640
1994	48,914,000	n/a
1996	39,696,000	n/a
1998	31,519,900	419,526
2000	28,032,300	282,367
2002	27,106,902	504,737
2004	24,935,140	510,899
2006	21,473,926	669,817
2007	21,514,900	324,426

Source: FAOStat (2009).

After the initial 'shock' reduction subsidy programme, producer support rose to 20 per cent of the gross value of output in 1995-97 (OECD, 2007). It then fell to zero per cent during the 1998 financial crisis, but returned to 17 per cent in 2003-05. Around 74 per cent of support has been market price support, mostly by way of tariff protection for the livestock and sugar industries (OECD, 2007). The livestock industry has also benefited from artificially low domestic feed grain prices, with the remaining 26 per cent of subsidy value being made up of budgetary assistance including input subsidies, output payments and debt rescheduling.

Frequent changes to tariff schedules occurred during the reform period (World Bank, 2002) to stop imports undermining domestic support measures, with protection varying between 0 and 30 per cent for most agricultural products. In 2007, the tariff on imported agricultural goods was 14.7 per cent (OECD, 2007).

While tariffs represent the greatest source of assistance to agriculture, they are most significant for beef and sugar. The tariff on in-quota beef, for example, is 15 per cent and on over-quota beef it is 40 per cent with a quota of 450,000 tonnes having been in place since 2005. In 2005, 50,000 tonnes of over-quota beef was imported, followed by 200,000 tonnes in 2006.

White sugar imports from non-CIS countries are subject to a tariff of US$340/tonne; hence, most imports are from CIS countries (e.g., Ukraine, Belarus, and Kazakhstan). Raw sugar imports (mainly ex-Brazil) are subject to a sliding scale tariff of US$140-270/tonne that is inversely related to the world price, so that when the world price is high, the tariff rate is low.

As well as providing a valuable overview of Russian agricultural policy, Liefert and Liefert (2007) highlight that variations in assistance to agriculture measured by the difference between domestic and border prices are explained not by changes in conventional tariffs but by movements in the real exchange rate and poor transmission to domestic prices. They argue that poor price transmission is due to agricultural policies at the regional level and poor infrastructure development. They therefore conclude that "strengthening macroeconomic stability and improving domestic institutions and infrastructure might do as much or more to reduce price gaps and their distorting effects as would liberalising agricultural and trade policies" (p. 4).

In relation to input subsidy assistance, corporate farms currently enjoy protection from forced bankruptcy through a government system of 'loan forgiveness' which acts to impede the development of farm systems more in keeping with Russia's comparative production advantages. While subsidy assistance remains skewed towards certain corporate farms, the practice of loan forgiveness is being replaced to some extent with subsidised interest rates on agricultural loans.

Box 3.1 Agricultural Subsidies – Price and Income Support

- The major source of price support is border protection.
- Output subsidies are paid to livestock products, with 78 per cent paid to milk production.
- A small subsidy is paid to grow flax and hemp.
- The federal government intervenes in grain markets to smooth seasonal price fluctuations (purchasing about 3 per cent of total grain marketed).

Input Subsidies (the majority of budgetary support)

- Interest rate subsidies may be provided on working capital loans.
- Payments are available for inputs (fertilisers, elite seeds, and insemination material).
- Fuel and lubricants are subsidised (US$178 million in 2006; possibly US$356 million in 2007).
- Disaster relief is provided (US$54 million in 2006).
- Support for capital improvements (state leasing of machinery and pedigree stock; capital grants for construction and renovation of livestock complexes; purchase of new technologies).
- Large-scale debt restructuring for agricultural enterprises occurred in 1994, 1998, 2001, and 2002, mostly for overdue federal tax debts, pension and social insurance contributions.

Source: OECD (2007).

Following the withdrawal of state support, the farm machinery sector also declined during the 1990s. The fertiliser sector was maintained, however, through its ability to export, while petrol prices doubled between December 2003 and December 2005 leading to a temporary government-announced price freeze (OECD, 2007).

The reform of subsidies represents only part of the necessary public policy reforms with Osborne and Trueblood (2002) expressing the view that incomplete reform is responsible for a decline in agricultural productivity. They argue that further reforms that need to occur include allowing insolvent farms to go bankrupt, liberalising land transactions, creating commercial law that protects property rights and providing legislative stability. They further argue that there is no incentive for farmers to produce efficiently if they can roll over debt and avoid bankruptcy; that prohibitions on using land as collateral limits farm's liquidity and agricultural credit market development; that long-term investment and the care of durable assets is undermined by the threat of the expropriation of profits; and that commercial law is inefficient because legislation is constantly changing.

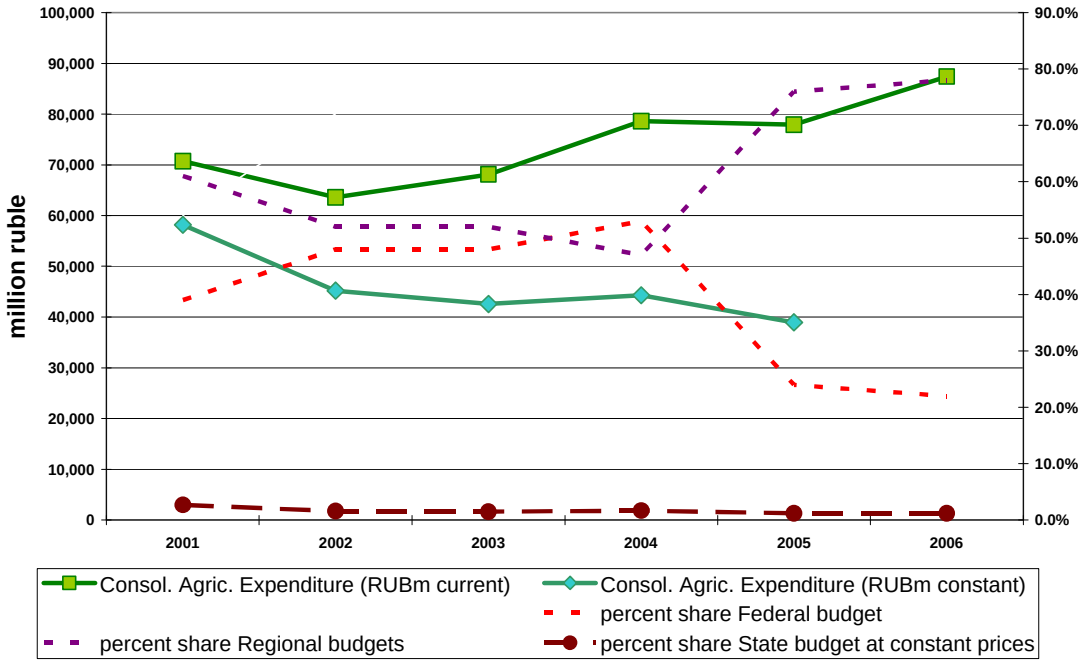
A significant anomaly is corporate farms continuing to enjoy protection from bankruptcy through a government system of 'loan forgiveness'. Farms that obtain the most benefits from the programme appear to be strategically important ones in relation to current food production practices. Nevertheless, loan forgiveness is being replaced with subsidised interest rates on loans for agricultural purposes, with the World Bank noting that at the regional level there are significant price and trade policy distortions. The Russian national market has been fragmented by patchy inconsistent policies (World Bank, 2002).

The provision of agricultural support has been decentralised, with regional administrations taking responsibility for the implementation of support measures previously handled by the federal government (which now focuses on the implementation of special national projects). Regions are expected to co-finance federal budget programs (OECD, 2007).

In 2004, regional administrations were allowed to make autonomous decisions in relation to certain agricultural programmes where the bulk of finance was from federal sources. Some regional authorities also put limits on food prices in order to subsidise local populations and to limit trade flows from the region.

The decentralisation of agricultural support is evident in the trend for consolidated budgetary expenditures, with federal expenditures decreasing as a percentage of the federal budget between 2001 and 2005 and expenditures rising as a share of regional and local budgets (Figure 3.8).

Figure 3.8 Consolidated budgetary expenditures on agriculture



Source: Serova *et al.* (2006).

Since 2000, Russia has enjoyed relatively high GDP growth and rising world prices for its energy exports, which have increased government revenues. In 2005, the government announced that, as part of a new social welfare policy, agriculture would be one of four areas to receive expanded funding, along with health, education and housing. In agriculture, the priority would be on reviving the livestock sector (Liefert and Liefert, 2007).

Russia's current agricultural trade flows indicate that the country has a comparative advantage in producing grain and sunflower seeds and a comparative disadvantage in producing livestock products and sugar. According to Liefert and Liefert (2007), Russian policy and market conditions are working to tax production of the former and support production of the latter. The government appears to be more concerned with reviving the livestock sector than with capitalising on the country's potential as a bulk crop exporter.

Russia's support policies are generally consistent with political economy theory. The livestock and sugar sectors are import-competing and have a comparative disadvantage in the world market. Theory predicts that these features will generate support for the sector. In agriculture as a whole, wages and incomes have fallen relative to the rest of the economy. In the past five years, the share of food in total consumer expenditure has dropped; "from a political economy perspective, these two developments are also consistent with increasing support to agriculture" (Liefert and Liefert, 2007, p. 3).

In summary, the World Bank (World Bank, 2002) concluded that:

> "At the federal level, the overall finding of this report is that there are now relatively small policy-related distortions of input and output prices, as shown by the moderate protection rates averaged across regions (with some exceptions). ..Budgetary transfers to agriculture from the federal government are not large and have fallen over the 1990s —from 0.52 per cent of total GDP in 1995 to around 0.23 per cent in 1999 and 0.19 per cent in 2000. As a percentage of gross agricultural output, federal budgetary transfers have fallen from 3.8 per cent to 1.74 per cent in 1999 and 1.58 per cent in 2000. The more serious policy issues at the federal level are with the legal framework, continued state domination of some markets, and administration of the limited subsidies in ways that undermine market development."

1.14 Competition Policy

The political and economic instability of the 1990s and the subsequent efforts at trade liberalisation mean that institutional arrangements have changed on a number of occasions such that the currency of each law is not clear.

Box 3.2 Chronology of Relevant Laws, Decrees, and Policies

1991: Legislation – Competition and Restriction of Monopoly Activity in Commodity Markets—Administered by the Ministry of the Russian Federation for Antimonopoly Policy and Support of Entrepreneurship Presidential decree – On Liberalization of Foreign Economic Activity on the Territory of the Russian Federation.

1995: Legislation – The Federal Law 'On Natural Monopolies'.

2003: Legislation – The Federal Law 'On Technical Regulating'.

2004: Presidential decree – Federal Anti-monopoly Service of the Russian Federation.

2006: Legislation – The Federal Law 'On Competition Protection' (New anti-monopoly law of the Russian Antimonopoly Service).

2007: Legislation – The Federal Law 'On Development of Agriculture'.

2008: Policy – The State-Owned Agency for the Regulation of Food Prices (the former Federal Agency for the Regulation of the Food Market) will become the largest trader of grain.

The first Russian competition authority, the State Committee for Antimonopoly Policy and the Support of New Economic Structures, was created in 1990. In 1991, after the commencement of Russia's market-based economy, the Competition and Restriction of Monopoly Activity in Commodity Markets law was passed.[3] The promotion of competition and elimination of monopolies were fundamental aims after communism, and the law was an attempt to pre-empt proposals aimed at regulating marketing. It prevents businesses or the authorities from dominating commodity markets and is administered by the Ministry of the Russian Federation for Antimonopoly Policy and Support of Entrepreneurship.

This initial period of reform was also marked by the elimination of controls on foreign trade proclaimed in November 1991 under a Presidential decree entitled "On Liberalization of Foreign Economic Activity on the Territory of the Russian Federation". The only exceptions were the business activities of government-owned utilities for which the State law, the Federal Law on Natural Monopolies, was introduced in 1995. It identifies 'natural monopolies' for the distribution of electricity and oil and gas (electric grid and pipelines); ports, airports and rail networks; and telecommunications systems and postal systems[4] and the regulation of prices and areas of operation.

A 1998 federal government programme provided for the structural reform of monopolies by promoting the creation of new enterprises, particularly in highly concentrated markets, reducing and eliminating entry barriers, creating appropriate financial and organisational infrastructure and promoting competition advocacy (Yacheistova, 2000). This programme, titled '*Demonopolization of the Economy and Promotion of Competition*', was complemented by regional and industry de-monopolisation programmes.

A more recent development has been the commercialisation of the Agency for the Regulation of Food Prices (ARFP), a portfolio of the Minister for Agriculture, which has served as the state agent for grain purchases. Purchases will now be undertaken on a commercial basis in competition with existing private companies. A further development, however, is the possibility of the ARFP assuming monopoly powers over exports with as much as 40 to 50 per cent of grain exports going through the ARFP by 2011.

Russia's initial effort to join the World Trade Organisation (WTO) was by way of the Federal Law, 'On Technical Regulating', which came into force on July 1, 2003.[5] It was designed to speed up the process of bringing Russian legislation into compliance with WTO norms and to promote Russia's accession to the WTO. This law provides guidance on how legislation should be reviewed and amended in order to comply with the WTO Agreement on Technical Barriers and is therefore a mechanism for the review of all the laws applying to agriculture. In November 2004, the Russian Federation subsequently published a list of 74 laws and regulations to be amended and made consistent with WTO requirements.

With Russia yet to become a member of the WTO, arguably there are few major drivers of competition policy development. A further emerging difficulty is that while regional specialisation was pursued in the Soviet era with particular crops grown where they were most efficiently produced, in the modern Federation there now appears to be an unfortunate

[3] Law No 948-1 of 22.03.1991.
[4] No 147-FZ of 17.08.1995.
[5] Law #184-FZ.

tendency towards regional 'self-sufficiency'. This has the potential to give rise to a myriad of poorly designed assistance programmes which will significantly detract from the Federation achieving its true comparative production advantages.

In 2006, the Russian Government set up the National Priority Project for 'Development of the Agro-Industrial Complex'[6] which consists of the three sub-projects:

- Accelerated Development of the Livestock Sector;
- Support of Smallholder Farms; and
- Provision of Accessible Housing for Young Specialists in Rural Areas.

The first of these has the objective of accelerating the development of livestock industries to increase meat and milk production by 7 per cent and 4.5 per cent, respectively. The programme involves preferential investment loans (e.g., an interest rate subsidy) for the construction and modernisation of livestock facilities, subsidised costs for the leasing of pedigree animals and equipment, and the elimination of import duties on livestock equipment for which no similar product is produced domestically.

Support to smallholder farms aims to raise production by 6 per cent and involves subsidised bank loans for small-scale farmers and households, improvements to marketing arrangements through supply and credit co-operatives and a pilot project aimed at developing a land mortgage system. Finally, the housing assistance project is an initiative aimed at attracting young specialists and their families to rural areas (see OECD, 2007 for further discussion).

An OECD study on regulatory reform (OECD, 2005d) also recommended further reforms to improve the business environment. Importantly, from a regulatory best-practice s perspective, they highlighted the need for Russian officials to pursue regular monitoring of the impact of regulatory measures on the business environment and to increase transparency and timely dissemination of information of the current regulatory framework.

1.15 Some Key Points

- Assistance to agriculture in recent years has been moderate; however, that which is provided is at odds with Russia's comparative production advantages. For example, assistance is directed at livestock products and sugar, while grain and sunflower seeds are effectively taxed.

- A study by the USDA finds significant incomplete price transmission between domestic and border prices contributed by movements in the real exchange rate, poor infrastructure and regional agricultural policies.

- Agricultural policy reform towards more market-based settings, as well as changes in the form of agricultural assistance, have been driven by budget considerations rather than by a proactive reform agenda aimed at maximising the efficiency of agricultural production.

[6] The project was set up under a new federal law on development of agriculture.

- With primary growth occurring in energy exports, budgetary assistance to agriculture will become more affordable, increasing the need for an appropriate framework for public policy intervention in the agricultural sector.

Agricultural Policy Reform in the BRIC Economies – INDIA

1.16 Overview

India's agricultural policy has progressed through periods in the 70s and 80s of being biased against agriculture to the current period in which agriculture enjoys positive assistance.

The agricultural sector's contribution to GDP has steadily declined over recent decades due to growth in the services and manufacturing sectors; however, the proportion of the population in agriculture remains high at around 60 per cent and underpins the continuing policy focus of the government on food prices and availability. Nevertheless, high labour retention in agriculture, high rural poverty and more recent declines in agricultural productivity point to the existence of significant policy impediments to capital and labour adjustment.

A particular focus for future policy reform is current domestic food security and price stabilisation policies which continue to have the government directly involved in the setting of agricultural input and output prices. Policy settings which may be impeding agricultural labour adjustment into manufacturing and services also warrant ongoing scrutiny.

Competition law in India is in the early development phase, with agriculture and key policy setting such as those associated with the Food Corporation of India remaining exempt. Competition policy more broadly, as reflected in India's ongoing sequence of Five-Year Plans, put the government in the position of nominating and being responsible for output targets, rather than having government focus on enhancing competitive processes and allowing markets to determine India's comparative agricultural production advantages.

1.17 GDP and Employment

India has experienced rapid growth in its services and manufacturing industries, with GDP increasing from $808.8 billion in 2005 to $1,171 billion in 2007. This rate of overall GDP growth is similar to China; however, India's GDP per head is much lower (Table 4.1).

Agriculture's contribution to GDP has fallen from 30 per cent in 1982 to 14 per cent in 2005 which reflects a four-fold increase in the contribution by the rest of the economy. Over the same period the proportion of the labour force engaged in agriculture fell from only 64 to 51 per cent.

Table 4.1 Growth of GDP: India and China

	China	India
GDP US$ million 2005	2,302,717	808,884
GDP US$ million 2007	3,280,000	1,171,000
GDP per head US$ 2005	1,766	734
GDP per head US$ 2007	2,485	1,043

Source: UN Statistics Database (2009); FAOStat (2009).

As well as having a large proportion of the population still living in rural areas, food expenditure as a proportion of household budgets remains high at around 54 per cent, which explains the ongoing focus of agricultural policy on producer and consumer price stabilisation and food availability (see Pursell *et al.*, 2007 for a broader discussion) and the ongoing political sensitivity to sudden consumer food price increases.

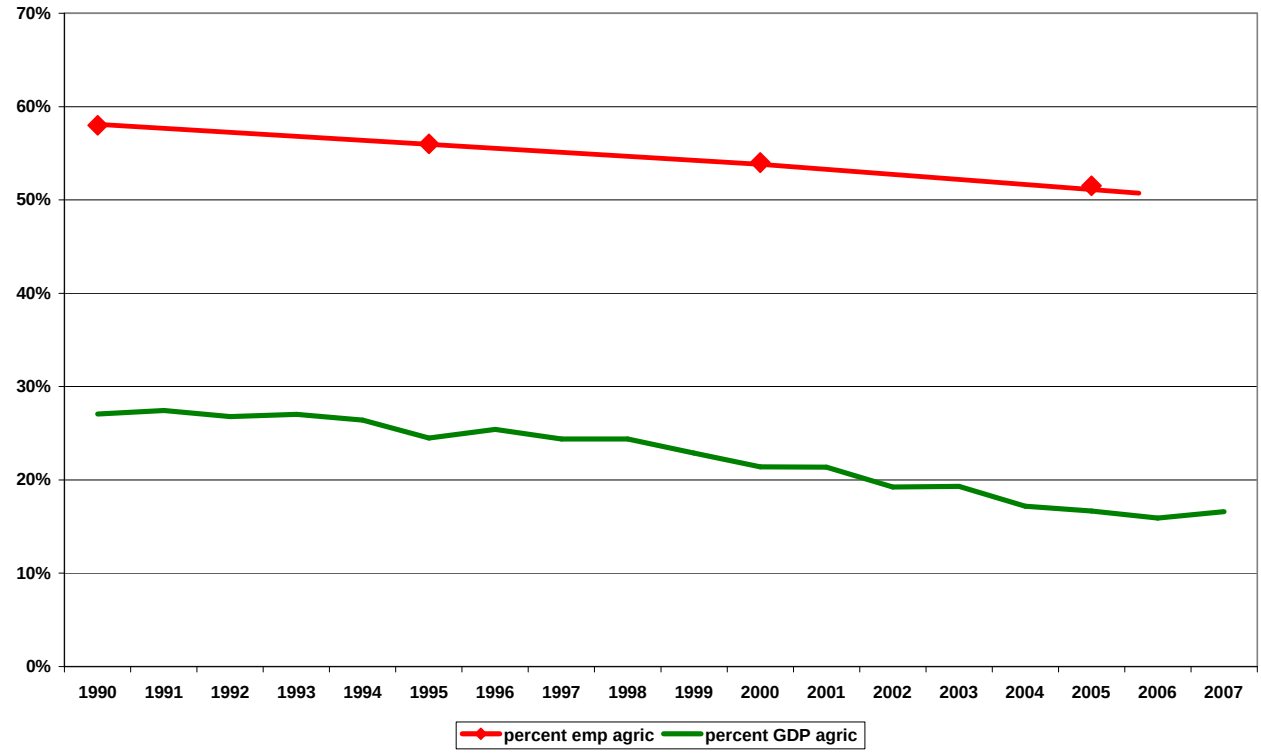
India is therefore similar to China, insofar as they both have rural populations at least three times greater than the total population of any other country. Although China has a greater area of agricultural land, its area of arable land is considerably less and similar to that of India (Table 4.2)

Table 4.2 Comparative size of India and China

	China	**India**
Population (2005)	1,303,720,000	1,101,318,000
Land area (hectares)	932,748,800	297,319,000
Agricultural land (hectares)	556,328,000	180,180,000
Arable land (hectares)	156,327,000	169,650,000
Rural population (2005)	846,777,000	786,428,000
Arable land per head rural pop (ha)	0.18	0.22
Per cent population rural	65	71

Source: UN Statistics Database (2009); FAOStat (2009).

Figure 4.1 Agriculture, GDP and employment



Source: UN Statistics Database (2009); FAOStat (2009); Govt of India Ministry of Statistics Programme Implementation.

1.18 Production

Indian agricultural policy continues to be based on the policy objectives of food security and price stability. The staple food grains of both India and China are rice and wheat, produced largely by small rural holdings. In this, India is less productive than China, with grain production per head of rural population in 2005 being significantly lower (Table 4.3).

Table 4.3 Grain production in India and China

	China	**India**
Rice production (2005) (tonnes)	182,059,138	137,690,100
Wheat production (2005) (tonnes)	97,445,196	68,636,900
Grain per head rural pop (kg)	330	262
Grain per head total pop (kg)	214	187

Source: UN Statistics Database (2009); FAOStat (2009).

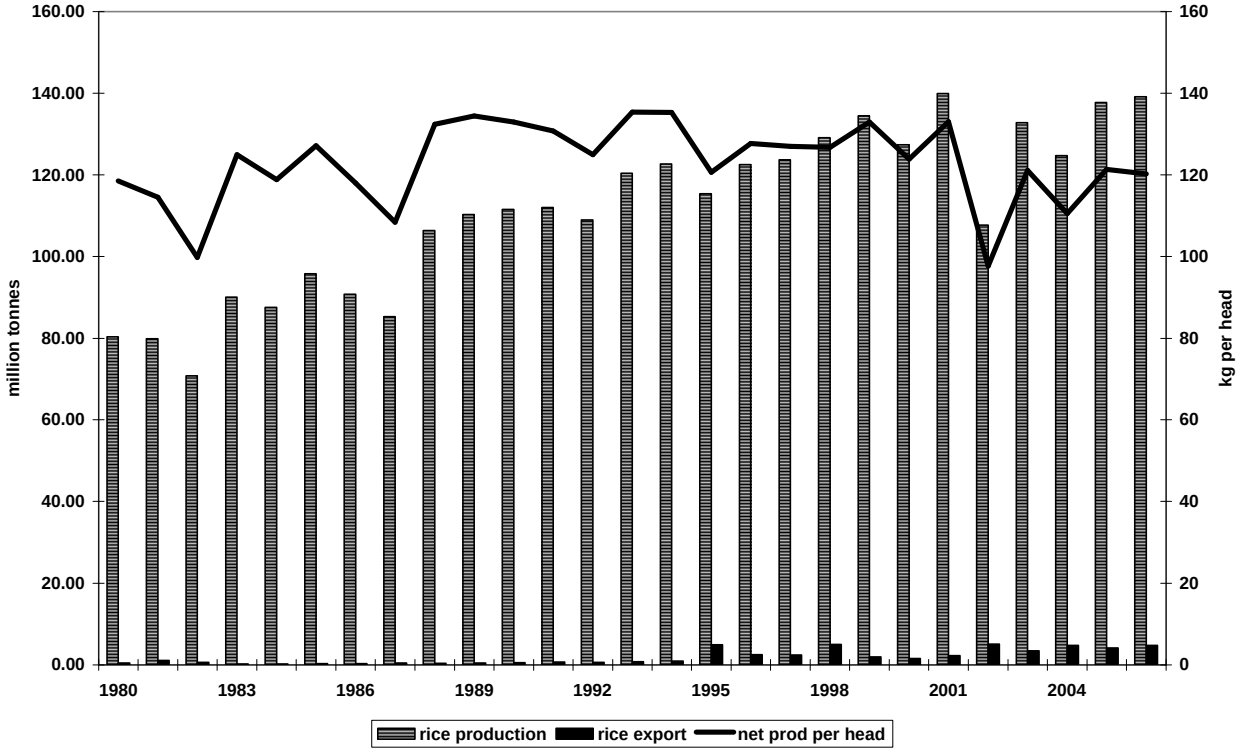
Since independence, India has pursued an agricultural policy objective of food 'self-sufficiency' through market regulation, production subsidies and new technology. The 'Green Revolution', which started in 1965 with US aid, involved the introduction of high-yielding varieties of wheat, rice, and other grains developed in Mexico and the Philippines. Wheat produced the best results, while the production of coarse grains and pulses lagged behind, resulting in reduced per capita availability.

The benefits of the Green Revolution were experienced mainly in northern and north-western India between 1965 and the early 1980s, with substantial increases in wheat and rice production. By 1980, almost 75 per cent of the total cropped area under wheat and 45 per cent of the area under rice was sown with high-yielding varieties. While grain yields continued to increase throughout the 1980s, the dramatic increases achieved between 1965 and 1980 did not continue.

It is generally accepted, however, that Green Revolution technologies are now inappropriate for sustaining further increases in production in line with population growth given their heavy reliance on subsidised inputs and their associated environmental costs, such as nitrate pollution of water-ways and dwindling water supplies.

Food grain production in India has broadly kept pace with population growth since the start of the Green Revolution (Figure 4.2).

Figure 4.2 Rice production, exports and production per head

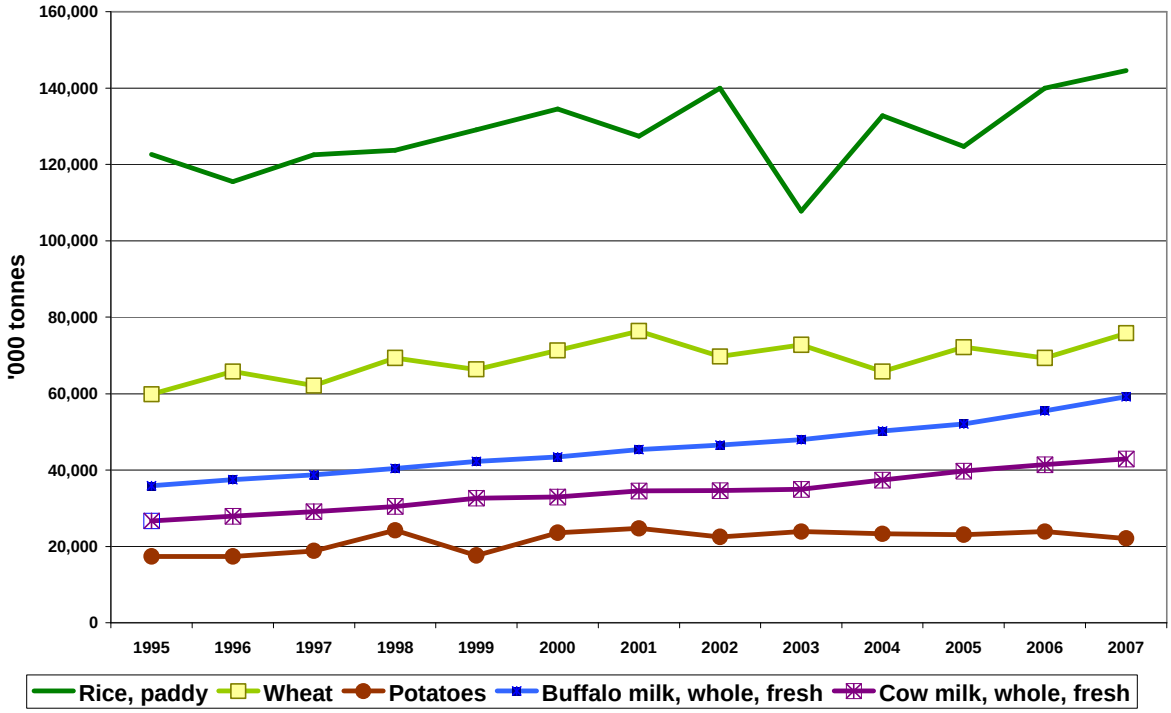


Source: FAOStat (2009).

Production of India's main grain and meat commodities has increased steadily without any significant increase in the area of production; however, milk and chicken meat production have increased rapidly. The steady increase in rice and wheat production has been accompanied by a steady increase in average yields over the past 20 years, while the area planted has remained more or less stable (Figures 4.3 and 4.4).

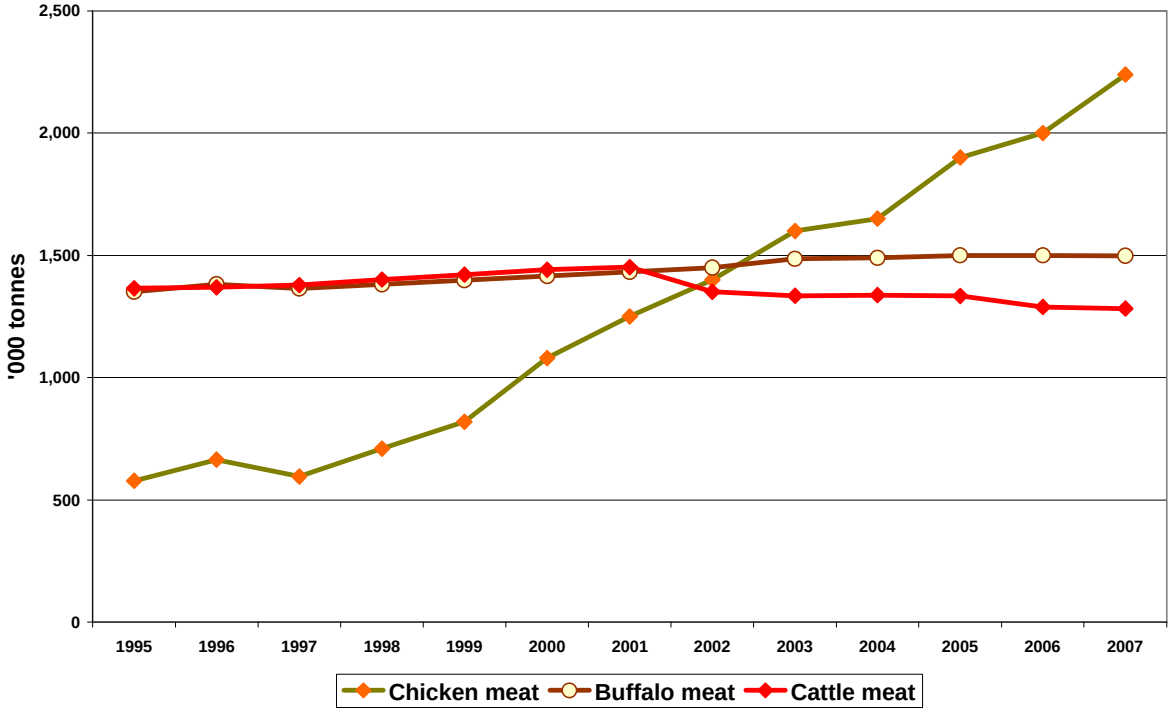
On balance, India's production of fruit, vegetables, rice, wheat and other grains has increased over the 1975 -2007 period, with rice production significantly higher than other crops. Agricultural exports were higher than agricultural imports throughout this period.

Figure 4.3 Production of grain, potatoes and milk



Source: FAOStat (2009).

Figure 4.4 Production of beef, buffalo and chicken meat



Source: FAOStat (2009).

Table 4.4 Rice and wheat yields and area planted

	Rice yield (tonnes per ha)	Wheat yield (tonnes per ha)	Rice area planted (ha)	Wheat area planted (ha)
1990	2.61	2.12	42,686,608	23,501,904
1993	2.83	2.33	42,539,000	24,588,900
1996	2.82	2.48	43,400,000	25,011,000
1999	2.98	2.59	45,160,000	27,523,300
2002	2.62	2.76	41,176,100	26,344,700
2005	3.15	2.60	43,659,800	26,382,900
2007	3.21	2.67	44,000,000	28,035,000

Source: FAOStat (2009).

In the Tenth Five-Year Plan (2002-07), the focus of Indian policy was on raising agricultural output by adopting the three principal strategies of:

- increasing crop intensity through multi-cropping in the same season;
- encouraging more wide-spread adoption of modern technologies; and
- encouraging diversification from low- to high-value crops.

Increased rice and wheat production has largely been achieved through the use of higher yielding varieties and the intensive application of input such as fertilisers, water and pesticides which has given rise to a range of environmental problems

A further worrying development in recent years is strongly declining sectoral productivity (Figure 4.5) which means that while agricultural output is steadily increasing, it is being achieved with increasing levels of inputs. Production efficiency is therefore declining which, in turn appears likely to be related to the increasing application of subsidised inputs and broader incentives that such measures create for the retention of land and labour resources in certain food grain production activities where India does not have a comparative advantage, rather than diversifying into other activities.

Consistent with this prognosis, the poultry industry receives neither subsidised electricity nor water, yet chicken meat production has increased dramatically, with India now being the world's fifth-largest egg producer and the eighteenth-largest broiler producer. Other contributing factors have been growth in per capita income, growing urban populations and falling real poultry prices.

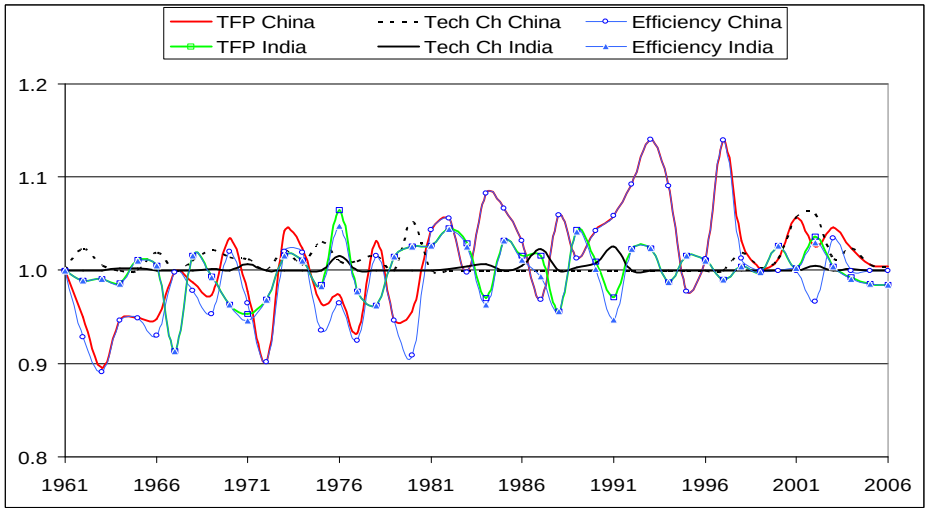
The industry has also vigorously pursued new technologies in areas such as genetics, veterinary health, poultry feed, poultry equipment and processing such that the sector is now characterised by increasing farm sizes, with production units of 5,000 to 50,000 birds per cycle being common. In 1995 there were 300 million chickens in commercial production, rising to 505 million in 2007.

In summary, over a 25-year period, production of traditional food crops has steadily increased, enabling production per head to be maintained in the face of significant population growth. Much of this growth has, however, been stimulated by government subsidies and

stock-piling activity, the cost of which is not only financial but includes adverse environmental outcomes, declining sectoral productivity and lack of resource adjustment into other agricultural activities and sectors.

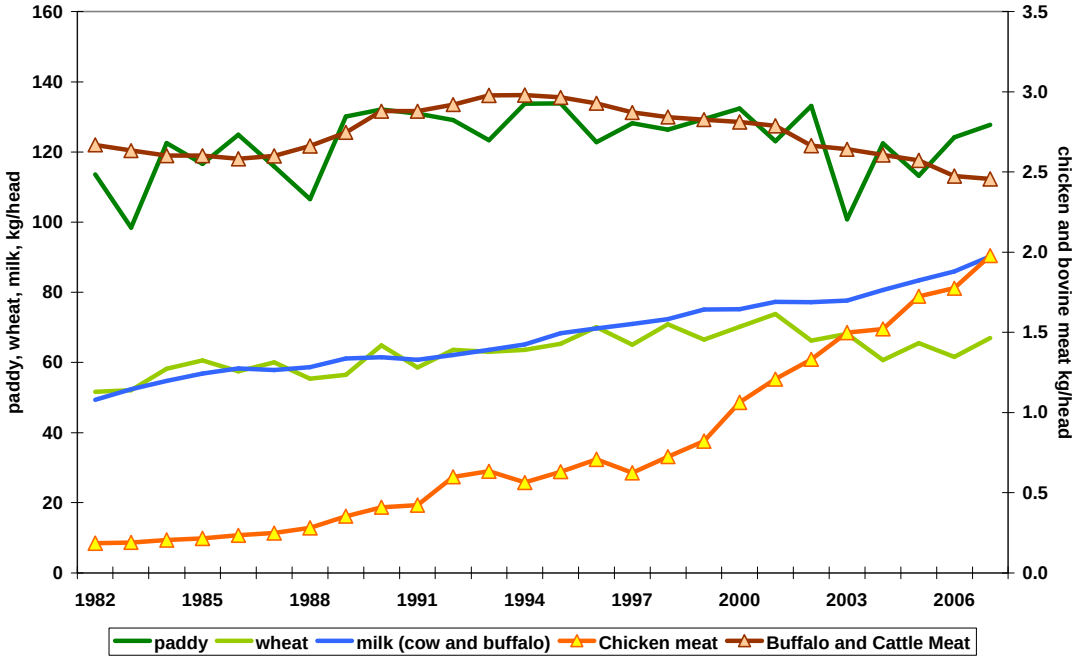
Alternatively, less regulated industries such as chicken meat production have experienced major growth, which indicates the untapped potential sectoral growth that might be associated with reform of India's food grain industries (Figure 4.6).

Figure 4.5 Agricultural productivity trends: India and China



Source: Data from Nin-Pratt (2009).

Figure 4.6 Food production per head



Source: FAOStat (2009).

1.19 Trade

India remains a net exporter of agricultural products, led by rice, oilseed cake and meat, with a net balance of trade in agricultural products that has increased sharply in the past four years (Figure 6.8). China, on the other hand, is a net importer of agricultural products, despite its higher agricultural productivity.

While India's agricultural exports have grown strongly since 2000, their total value of $16.7 billion is only 60 per cent of the value of China's agricultural exports and 39 per cent that of Brazil. More recently, the FAO estimated that in 2007 the value of India's agricultural exports was only 9.5 per cent of the total value of agricultural production, while the corresponding rate for Brazil was 47 per cent.

India's trade policy reforms started in the 1990s with WTO access in January 1995, forcing India to 'bind' agricultural tariffs and remove import quotas. Nevertheless, a regime of high taxation of agricultural imports remains in place, with a basic import duty of around 30 per cent, as well as state taxes and an additional countervailing duty equivalent to India's domestic value added tax.

Import quotas were removed in 2001, with imports 'encouraged' where domestic supply was lower than consumer demand. This applies in particular to cooking oil and pulses, and in 2006 imports consisted of:

- 1.3 million tonnes of chickpeas (62 per cent from Canada, 97 per cent from North America, France, Australia and the Ukraine);
- 60,000 tonnes of lentils (55 per cent from Canada, 20 per cent from Australia); and
- 4.2 million tonnes of vegetable oil (55 per cent being palm oil from Indonesia and 27 per cent being soybean and sunflower oil from Argentina).

Efforts to further liberalise agricultural trade remain focussed on increasing output rather than increasing production efficiency. The Tenth Five-Year Plan (2002-07), for example, includes the following strategies to raise agricultural output:

- increasing crop intensity through multi-cropping in the same season;
- adopting modern technologies;
- increasing productivity; and
- diversifying production from low-value crops to high-value crops and livestock.

However, the concern is the extent to which these strategies are essentially 'driven' by the government through subsidy assistance:

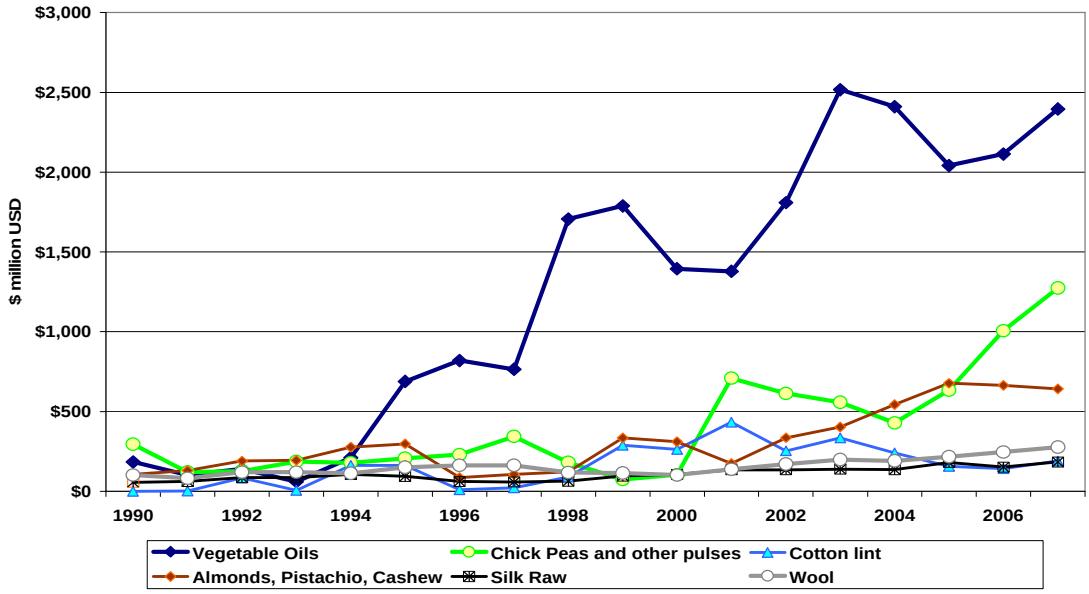
As discussed previously, however, the policy intent of these strategies is being undermined by the adverse productivity impacts of a range of government interventions. Consequently, India's trade in agricultural products is less than it might otherwise be, with the value of agricultural exports in 2007 being only 9.5 per cent of GVAP and imports 4.4 per cent (Figures 4.7, 4.8 and 4.9).

Public investment in the agriculture sector, spurred by the Green Revolution of the 1960s, grew by over 4 per cent per annum in the 1980s. This rate, however, was not sustainable and was followed by a slowdown in public investment, low yield growth, and environmental problems leading to poorer agricultural performance in the 1990s.

During the 1990s, domestic economic reforms and the WTO Agreement on Agriculture constituted two important policy changes. The impacts of the economic reforms were indirect insofar as they raised per capita incomes which in turn led to changes in food consumption patterns. Ironically, this shift in consumption patterns has acted to further highlight the shortcomings of a food 'self-sufficiency' policy focussed on traditional food staples.

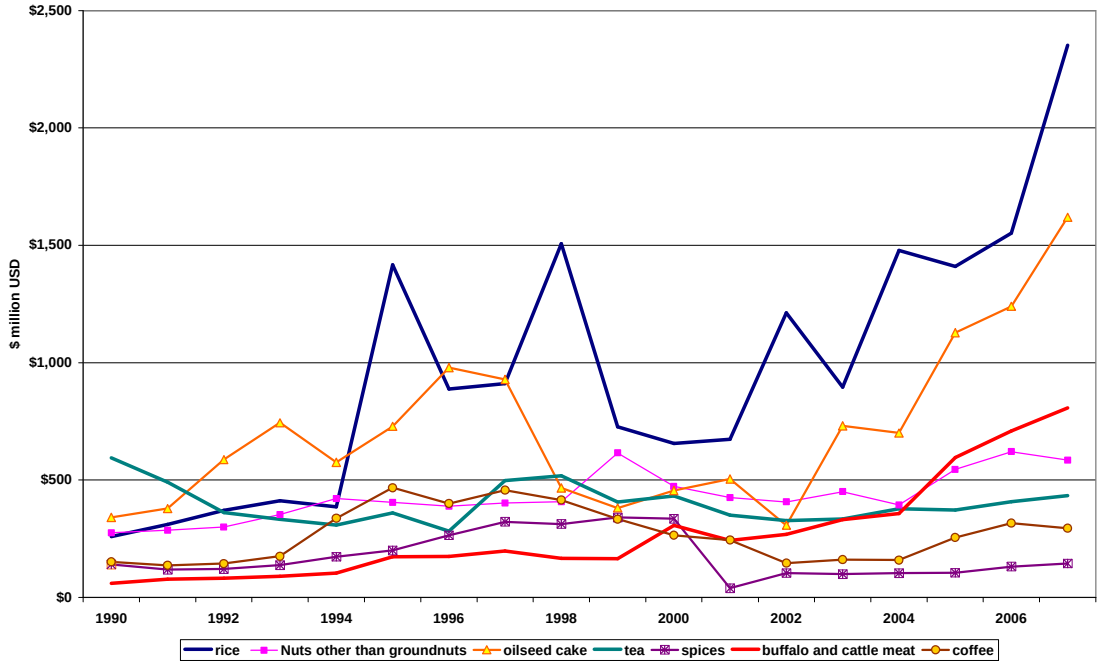
In 2005, a Special Agricultural Produce Scheme (*Vishesh Krishi Upaz Yojana*) was established to promote exports of horticultural, dairy and poultry products. The scheme provides a 5 per cent fob value credit to offset import duties on capital goods and the freight costs on these imports are subsidised. This appears to be an unusual case from a political economy perspective, whereby assistance is being directed to industries where India has a comparative advantage.

Figure 4.7 Agricultural imports



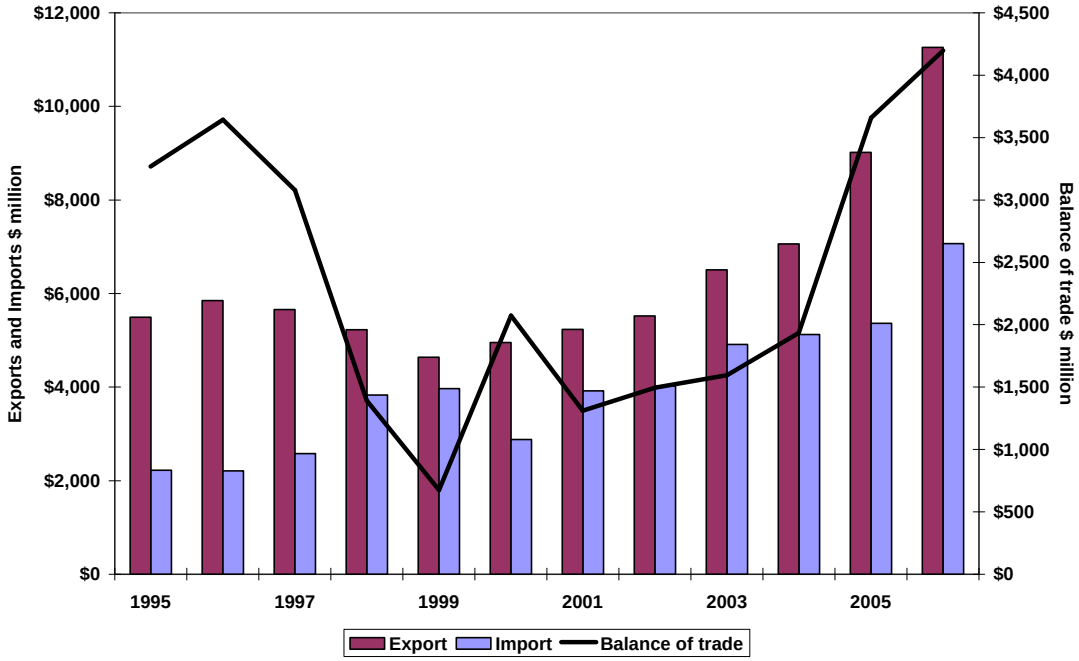
Source: FAOStat (2009).

Figure 4.8 Agricultural exports



Source: FAOStat (2009).

Figure 4.9 Trade in agricultural products



Source: FAOStat (2009).

1.20 Assistance to Agriculture

Agricultural marketing in India remains highly regulated with tight controls on imports and price regulation of food products. While increases in rice and wheat production have more or less kept pace with population growth, regulated prices are used as part of a broader regulatory regime aimed at ensuring affordable food availability.

These policy settings were designed to underpin rural incomes and sustain the production of food grains, while also seeking to prevent increases in the market prices of commodities as demand for them increased. Until 2000, policies included:

- the regulation of prices and distribution channels under the Essential Commodities Act, 1955 (ECA);
- restrictions on the import of agricultural commodities;
- subsidies on fertilisers and rural power; and
- regulated trading infrastructure (markets, storage and distribution).

Minimum Support Prices (MSP) continue to apply to 24 crops, but primarily to rice, wheat and sugarcane. They are applied under the Essential Commodities Act on the advice of the Commission on Agricultural Costs and Prices for distribution to the poor under the Public Distribution System (PDS) at subsidised prices as part of India's social welfare programme. Some state governments further augment the MSP by 20 to 25 per cent.

The Public Distribution System is administered by the Food Corporation of India. It involves government management of procurement, storage and public distribution of the major food grains, pulses and sugar. In 2004-05, of the 197 million tonnes of wheat and rice produced, 42 million tonnes were procured, and 31 million tonnes of that was distributed through the welfare programme (OECD, 2007).

During periods of shortage, compulsory procurement may be undertaken with levies imposed on millers and restrictions on the movement of commodities between states.

Input subsidies are provided for the purchase of fertilisers, irrigation water and electricity used for irrigation and other agricultural purposes. From time to time, input subsidies have also been provided on seeds, herbicides and pesticides.

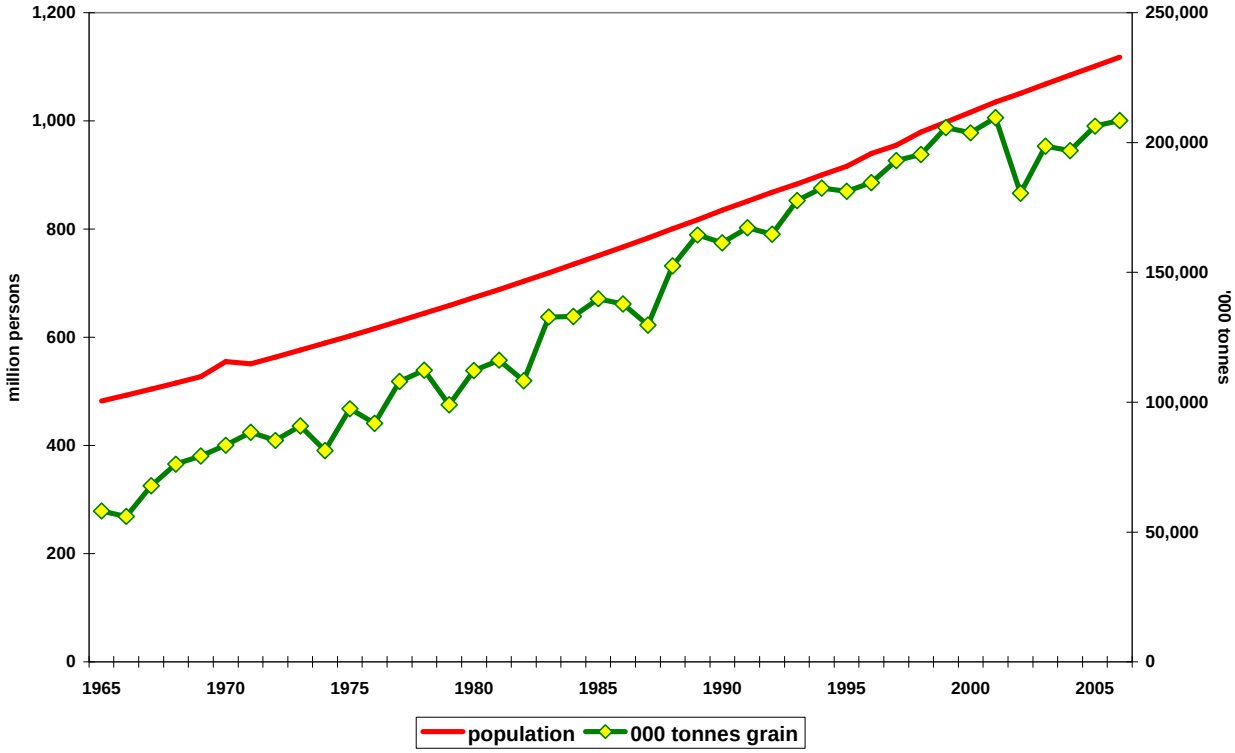
In 2001-02, fertiliser subsidies accounted for 35 per cent of input subsidy assistance, irrigation 37 per cent and electricity 28 per cent. Agriculture is also supplied with un-metered power in most states and farmers pay a highly subsidised lump sum based on the size of their pumps. Both measures contribute to environmental degradation through excessive fertiliser use and the over-exploitation of groundwater supplies.

Various objectives are attached to input subsidies. For example, fertiliser subsidies are argued to be a means to alleviate the impact on agricultural producers of an inefficient, trade-protected, domestic fertiliser industry, with the prospects of lower border protection and increased fertiliser imports reducing the need for ongoing subsidies. Alternatively, it is argued that they were originally intended to increase agricultural production, but more recently they have been seen as an income-support measure.

Nevertheless, subsidies were originally considered necessary to compensate growers for export controls and regulated output prices, but over time they have increased to become a major burden on central and state budgets. Though originally intended to raise agricultural productivity and output by promoting the use of modern inputs, intervention is now seen as an unproductive support measure for farmers (OECD, 2007).

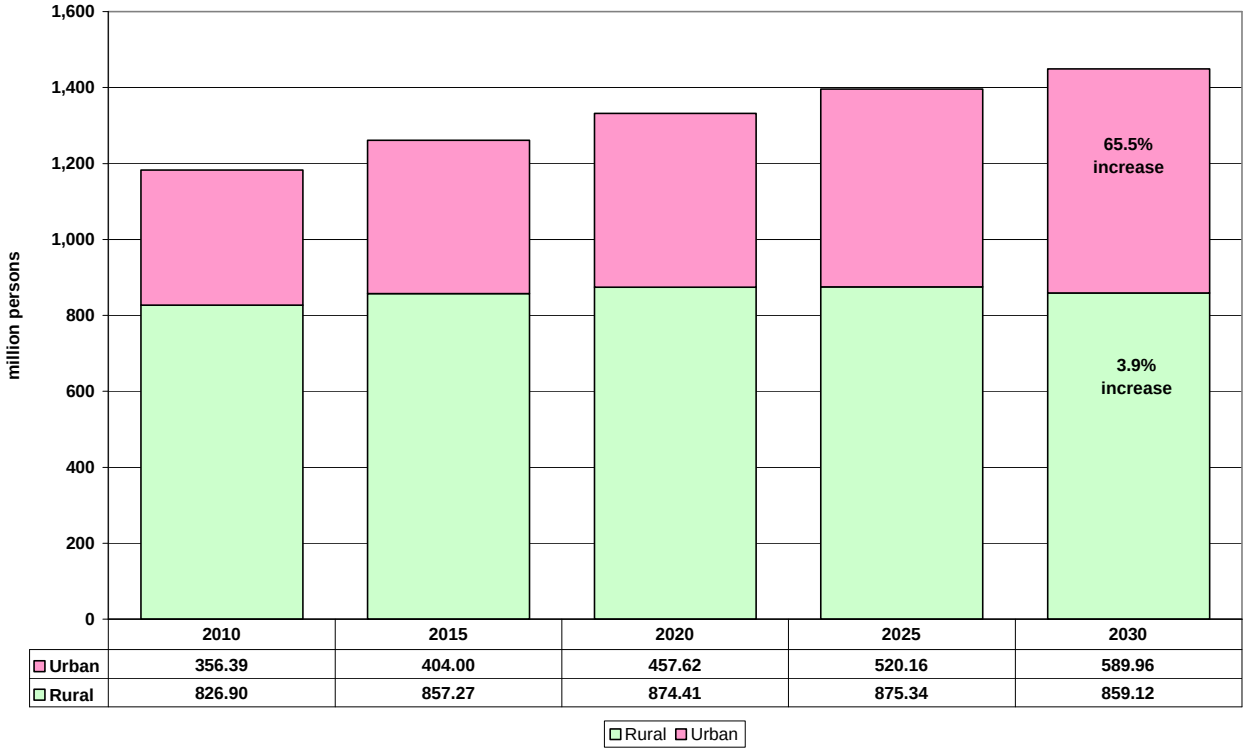
Other domestic policy setting that has a direct impact on price signals and production include a crop insurance subsidy and small farmer credit. Crop insurance is provided under the National Agricultural Insurance Scheme and approximately 16 million farmers are insured. It is available for a limited number of crops and premium rates are based on the area planted, ranging from 1.5 per cent of the sum insured for wheat to 3.5 per cent for oilseeds. Small farmers benefit from a 10 per cent subsidy on premiums which is borne equally by central and state governments. Claims exceeded premiums by Rs. 7 billion (US$159 million) in 2004-05.

Figure 4.10 Population growth and food grain production



Source: FAOStat (2009).

Figure 4.11 Urban and rural population growth projections



	2010	2015	2020	2025	2030
Urban	356.39	404.00	457.62	520.16	589.96
Rural	826.90	857.27	874.41	875.34	859.12

Source: UN Department of Economy and Social Affairs (2005).

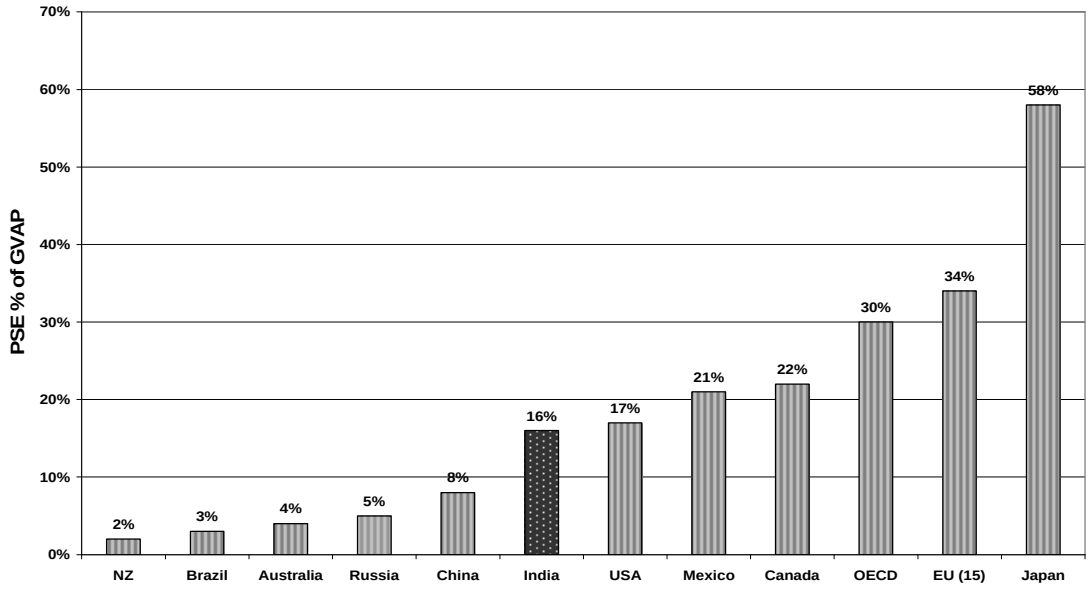
In addition, commercial banks, co-operatives and regional rural banks are required to provide credit to agricultural producers for input purchases at interest rates below the market rate. This is by way of government 'directions' to commercial and co-operative banks which increased small farmer credit by 30 per cent and the number of borrowers to 5 million in 2005-6, despite increasing numbers of indebted farmers having faced crop failures.

In the 2008 Doha Round of negotiations, the BRIC countries were outspoken in their opposition to US and EU agricultural subsidies; India insisted on maintaining support for its poorer rural farmers and a 'special safeguard mechanism' designed to protect farmers from temporary surges in cut-price imports of cotton and rice. This mechanism has been a long-held key demand of Indonesia, India and China, who are concerned about the livelihoods of subsistence farmers.

Assistance to agriculture is higher in India than in any of the other BRIC countries with Orden *et al.* (2007)[7] estimating that in 2007 it was 16 per cent of the gross value of agricultural production (Figure 4.12).

[7] David Orden, Fuzhi Cheng, Hoa Nguyen, Ulrike Grote, Marcelle Thomas, Kathleen Mullen, Dongsheng Sun (2007). "Agricultural Producer Support Estimates for Developing Countries - Measurement Issues and Evidence from India, Indonesia, China, and Vietnam", International Food Policy Research Institute Research Report 152, IFPRI, Washington.

Figure 4.12 Producer support estimate 2002-2004 (% GVAP)

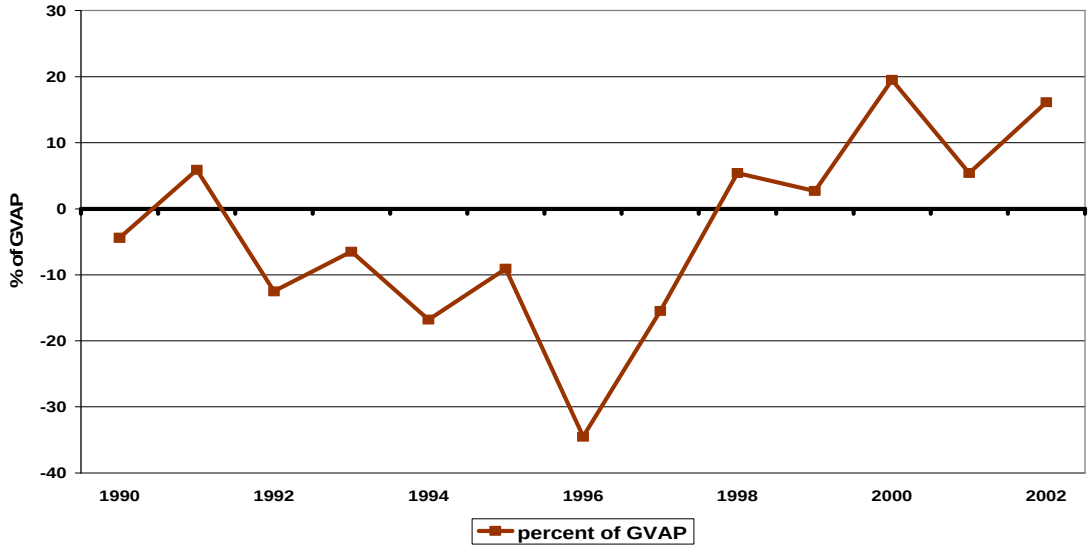


Source: Orden *et al.* (2007).

Producer support between 1990 and 2002 (Figure 4.13) was negative as a result of controlled consumer prices and government procurement, with the transition to minimum support prices and input subsidies from 1999 resulting in positive assistance.

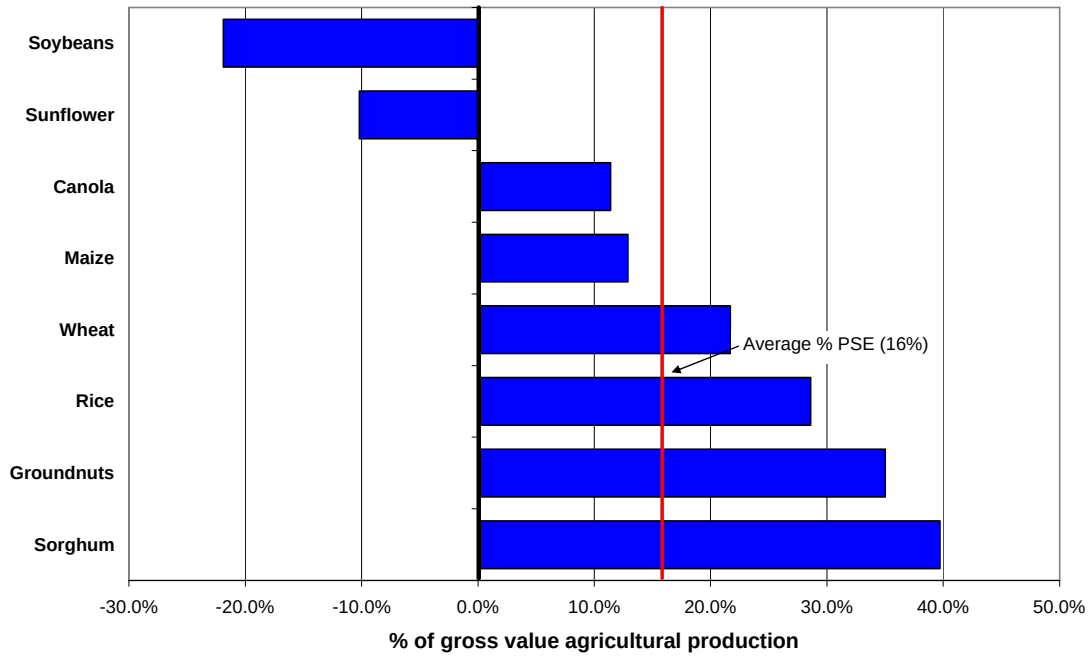
Orden *et al.* (2007) also estimated the PSE per commodity for the period 2002-2004; these showed negative or low rates of assistance for oilseeds, but above-average rates for wheat and rice, and the highest rate for sorghum (Figure 4.14).

Figure 4.13 Producer support estimate



Source: Orden *et al.* (2007).

Figure 4.14 Producer support estimate by commodity - 2002-04 (average)



Source: Orden *et al.* (2007).

1.21 Competition Policy

India's competition policy reforms were largely piecemeal in the 1990s; for example, in 1994, agriculture export policies were liberalised by removing export quotas and minimum export prices, and since 2000 reforms have included the removal of quantitative restrictions on commodity imports, reductions in average import tariffs and the emergence of some private markets and futures trading.

A more specific concern in relation to agricultural marketing is the ongoing appropriateness of the Agricultural Produce Market Regulation Act (APMRA) which establishes regulated wholesale agricultural produce markets with marketing committees composed of farmers, traders, commission agents, local bodies and state government representatives.

More broadly, central and state government agencies retain significant discretion to impose competition restrictions, creating an environment of uncertainty with respect to the role of the government and regulatory intervention. It therefore seems likely that Indian agricultural markets have and will continue to perform below capacity due to the focus of government intervention being on directly influencing input and output prices.

Arguably policy reform needs to 'de-couple' all forms of government assistance from input and output prices. Competition regulation needs to be strategically applied throughout supply chains and positive assistance needs to be re-positioned to support market-based production decisions, such as through farm-level adjustment assistance and providing regional infrastructure.

1.22 Some Key Points

- India's rural policy settings are a source of significant concern. Policies with objectives associated with food security and price stabilisation appear to be contributing to less than optimal rates of labour adjustment, less adjustment into other production enterprises and declining agricultural productivity.

- The Public Distribution System and minimum support prices for certain food crops administered by the Food Corporation of India, along with heavy reliance on input subsidies, appear to lie at the heart of these problems. Substantial government expenditure in relation to these programmes not only limits adjustment with associated adverse impacts on rural incomes and the environment, but also has a high opportunity cost in the form of constrained infrastructure development.

- Important areas for policy reform are removal of regulatory impediments to growth and labour absorption in the manufacturing and services sectors, and progressively decoupling agricultural assistance from agricultural input and output prices.

Agricultural Policy Reform in the BRIC Economies – CHINA

1.23 Overview

In the late 1970s, following a period of state ownership and central planning in which the Chinese economy was largely closed to international trade, economic reform started in a piecemeal fashion. Collectivised agriculture, with state-controlled quantities and prices, was increasingly replaced with market-oriented reforms including gradual liberalisation of prices and the deregulation of quotas.

Since the beginning of the reform period in 1979, policy objectives can be considered in terms of the five successive but overlapping phases of (a) increasing agricultural production through market mechanisms; (b) supporting rural incomes from at least 1998; (c) planning for WTO accession in 2001; (d) developing a competition law; and (e) addressing environmental concerns, particularly since WTO accession.

China's economic growth has created demand not only for more but also for a wider range of food products. As a result, China became a net food importer in 2004 (OECD, 2009a). Higher food prices brought about by sharp increases in international oil prices in 2006-07 led to increases in the cost of energy-based inputs to agriculture and food production, such as fuel, fertilisers and irrigation, slowing the trend towards more market-orientated agricultural policy settings.

1.24 GDP and Employment

The declining importance of agriculture in employment and GDP between 1980 and 2007 (Figure 5.1) follows a common developing country trend (Huang *et al*., 2007); nevertheless, it provides a useful perspective in highlighting the fact that despite impressive agricultural sector growth of 5 per cent per annum throughout the entire reform period, the growth rates of the economy as a whole and of the industrial and service sectors have been as much as two to three times greater since 1985.

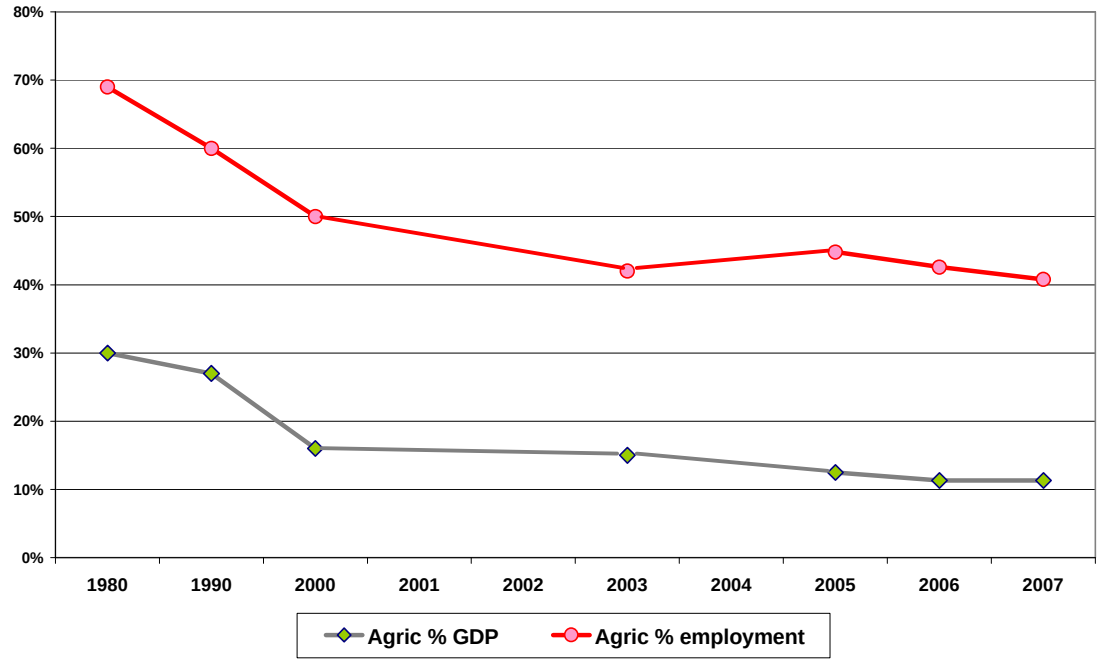
While non-agricultural activities have grown rapidly, agriculture accounted for 40.8 per cent of the workforce and 11.3 per cent of GDP in 2007. The number of people in agriculture is expected to decline further, but this may be constrained by a lack of alternative rural employment opportunities and concerns about rural-urban migration.

A major achievement of the reform period was strong growth in real per capita rural incomes, which is largely explained by the rise in non-agricultural employment opportunities (OECD, 2005a). Between 1979 and 2002, around 400 million people rose above the poverty line of US$ 1 per day at purchasing power parity,[8] although per capita income in urban areas rose by 3.2 times that of rural areas by 2003-04. Anderson and Martin (2008) also report that the number of people in poverty between 1981 and 2004 declined in China from 634 to 128 million, whereas in India the number increased slightly from 364 to 371 million (Table 5.1).

[8] One US dollar per day is the World Bank definition of the poverty line.

A related outcome is that between 1978 and 1996, economy-wide labour productivity grew by 6.6 per cent per annum (OECD, 2005e); however, agricultural labour productivity was lower due to an excess of labour in the farming sector.

Figure 5.1 Agriculture GDP and Employment



Source: OECD (2009b).

Table 5.1: Changes in poverty in Asia, 1981 to 2004

No. of people (million)	**1981**	**1987**	**1993**	**1999**	**2004**
China	634	310	334	223	128
Other East Asia	162	119	86	53	41
India	364	369	376	376	371
Other South Asia	91	102	61	87	75
TOTAL, Asia	1251	900	857	740	615
% of population					
East Asia	58	28	25	15	9
South Asia	50	45	37	35	31

Source: Chen and Ravallion (2007).

Nearly 70 million workers are expected to leave agriculture between 2000 and 2010, plus an additional 2 to 3 million as a result of WTO accession (OECD, 2005e). An initiative introduced in the late 1980s to employ workers leaving agriculture involved the creation of new rural non-agriculture industries by township and village enterprises (TVEs). While this has been successful, TVEs employ only a fraction of the number of displaced agricultural workers.

Rising living standards have stimulated food processing and agribusiness industries which are providing opportunities for economic diversification. China's Eleventh Five-Year Plan for 2006–2011, includes a "New Rural Development" programme, with one reform measure being to address 'rural backwardness' by abolishing fees and taxes on agricultural production, i.e., to have no tax on 'peasants'. Nevertheless, the circumstances of Chinese peasants present a challenge to social stability (Yao, 2007), particularly in increasing the provision of infrastructure and welfare benefits in rural areas.

1.25 Production and Trade

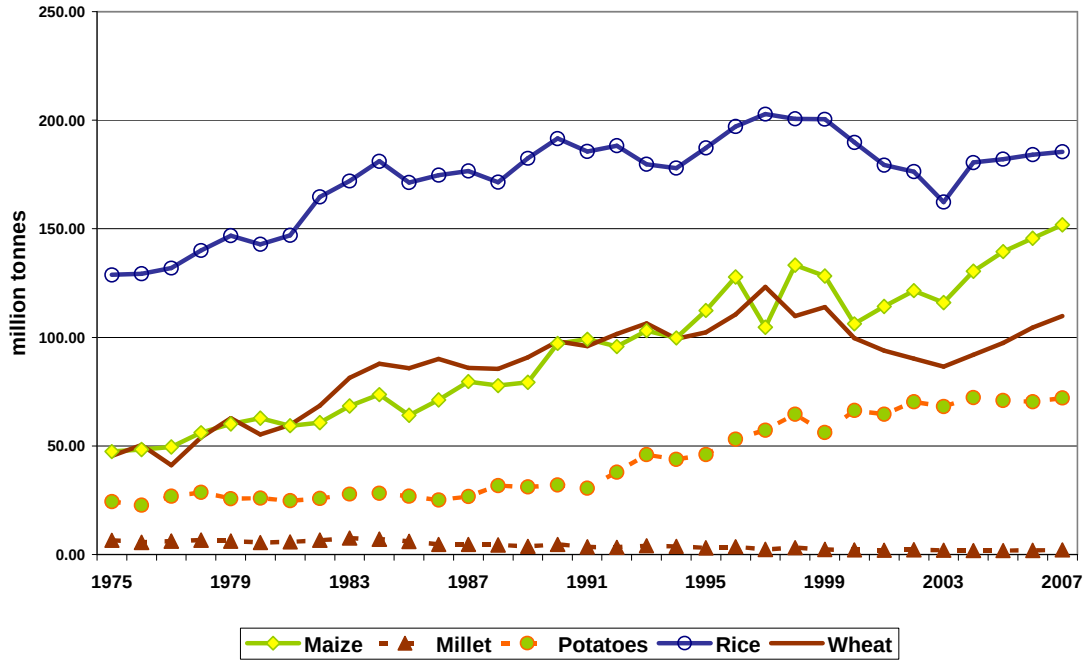
China's current agricultural policy objectives and instruments flow from the key priority of the Eleventh Five-Year Plan to "build a new socialist countryside". OECD (2009a) states that:

> "Within this broad framework, food security through 95% self-sufficiency in grain production, doubling rural households' income by 2020, improved food safety, environmental protection, agricultural competitiveness, and improved social and technical infrastructure in rural areas can be identified as major objectives related to agriculture, farmers and the countryside (so-called three nongs)" (Chapter 4, p. 5).

Key food crops include rice, wheat, potatoes, corn and millet (Figure 5.2) as well as barley, peanuts, tea and apples (Figure 5.3), while key non-food crops include cotton and oilseeds. Although cereals are the predominant crop, total crop production has declined as farmers were permitted to grow alternatives (OECD, 2005c). Other significant food commodities include wild harvest, aquaculture fish and meat products.

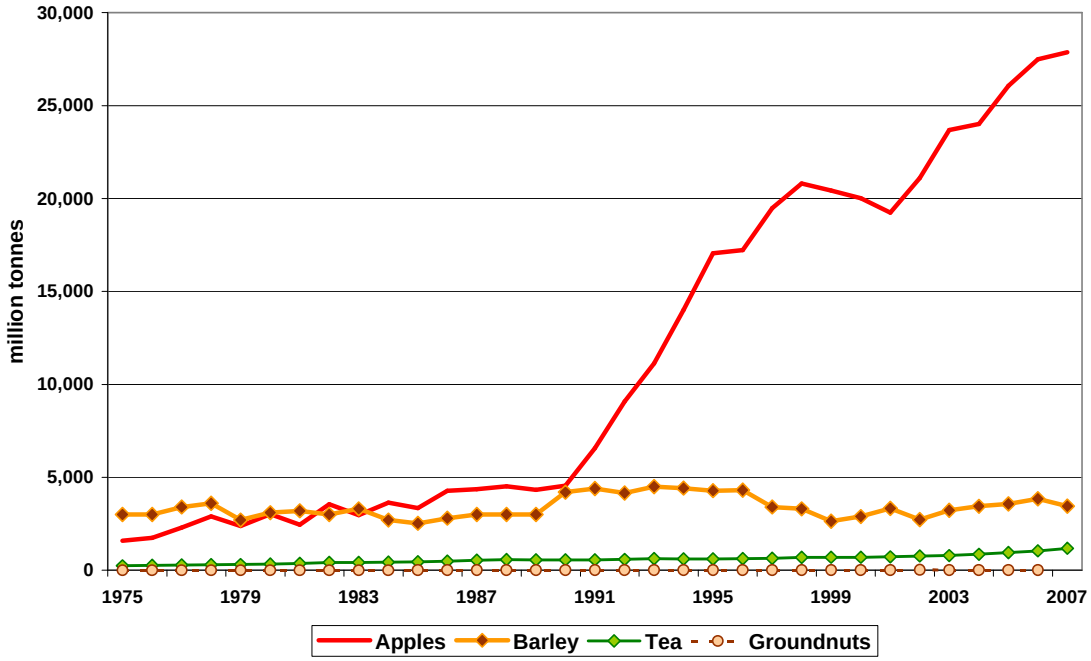
China's so-called 'livestock revolution' (Rae, 2008) has made China the largest livestock producer in the world, accounting for 23 per cent of global output in 2002, that is made up of 49 per cent of the world's pig stocks, 32 per cent of cattle stocks, 14 per cent of sheep stocks and 23 per cent of goat stocks (OECD, 2005e). Rae (2008) concludes that while the livestock revolution has had a tremendous impact on domestic industry, it has had little impact on China's international trade and increasing exports will require improvements in "food safety, disease status, inspection systems and other concerns of importers" .

Figure 5.2 Production – maize, millet, potatoes, rice, wheat



Source: FAOStat (2009).

Figure 5.3 Production – apples, barley, groundnuts, tea



Source: FAOStat (2009).

Significant trends between 1990 and 2003 (OECD, 2005e) have included:

- an increase of almost 90 per cent in gross agricultural output, with crop and livestock production up 60 per cent and 145 per cent, respectively;
- a decline in grain prices resulting from increased production;

- a change in the composition of production, particularly a decrease in crop production from 65 per cent to 50 per cent of total primary production value;
- an increase in livestock production from 26 to 32 per cent and an increase in fisheries production from 5 to 14 per cent;
- a substantial decline in cereal production, the key crop, as a share of total crop production;
- impressive increases in vegetable and fruit production; and
- the shifting of poultry and pork production from 'backyard' to 'specialised' operations.

More recently, Huang *et al.* (2008), drawing on data from the China Livestock Yearbook for 2005, report a trend towards increasing 'concentration' in livestock production. Large-scale commercial operations account for 38 per cent of total pig meat production, 58 per cent of milk, 30 per cent of beef, 44 per cent of sheep meat, and 53 per cent of egg production. Huang *et al.* (2007) more generally find that China has diversified gradually away from coarse grains into fine grains, from fine grains into high-value crops, and from high-value crops into livestock and aquaculture as per the dynamics of China's comparative advantage.

Overall, productivity has therefore increased significantly since the reform period began in 1979 and significant farm-level adjustment has occurred. With exposure to international prices, farmers would normally be expected to expand their scale of operations to take advantage of opportunities in horticulture and livestock production. However, this adjustment may be impeded by the structure of agricultural production, China's grain security policy and environmental degradation.

The structure of agricultural production is affected by *de facto* land ownership by village collectives. Land tenure is based on land lease contracts (e.g., 30-year contracts), whereby individual farm households can lease land owned by village collectives. They can use, sub-lease or transfer the land, but have no rights to sell it. Initially, this system raised productivity and provided a degree of equity compared to the communal system. It ensured rural populations had access to land and could be, at a minimum, self-sufficient in food. In this regard, land can be viewed as part of China's social security system, being a guarantee of a subsistence income if rural wage earners lose their employment elsewhere in the rural economy. More recently, criticisms have been levelled at local leaders of village collectives for assuming the role of landowners, and leasing or selling the land to external investors without the support of local farm households.

Another production-related challenge is the small size of agricultural production units which affects economies of scale. In 2005, there were some 200 million farms with an average size of 0.65 hectares. Furthermore, the combination of scarce land resources and abundance of labour has led China to produce more of labour-intensive crops, such as fruits and vegetables, and discouraged production of land-intensive crops, such as grains and oilseeds (OECD (2005e).

A further aspect of agricultural production that has implications for economic efficiency objectives is China's 'grain self-sufficiency' policy. Established during the Cold War, the policy relates to food security that, while costly in economic and productivity terms, will be hard to abandon given the experiences of the 1958–60 famine. The OECD (2005e) interprets China's grain security objective as producing 95 per cent of its own grain requirements; however, two further elements of China's approach to food self-sufficiency are

the market supply of food (notably grains) and the non-market supply of food consumed directly by farm households. In the early 1990s in particular, this meant that food products had to be available at affordable prices, and hence, buffer stocks in the form of national and local grain reserves were considered essential.

Regarding environmental issues, efforts to achieve higher agricultural productivity through greater applications of fertilisers, pesticides and mechanical input have led to severe problems of land degradation, desertification, soil erosion, water pollution and loss of biodiversity and these problems now present risks to future agricultural productivity and incomes. At 280 kg per hectare, China's use of fertilisers is one of the highest in the world and the potentially damaging impacts on soil organic matter and water quality (e.g. ,nitrogen pollution) are significant (OECD, 2005e).[9]

Despite the enormous challenges facing China's agricultural sector, the generally agreed view is that China has benefited from accession to the WTO according to its competitive advantage (Chen, 2008). In general, experts argued that based on China's resource endowments and comparative advantage, after entry into the WTO China's land-intensive farming sector would shrink but its labour-intensive horticulture sector, its animal husbandry sector and its processed agricultural product sector would expand. As a result, China would import more land-intensive agricultural products, such as grains and vegetable oils, and export more labour-intensive products, such as vegetables and fruits, animal products and processed agricultural products. Chen's test of this thesis confirms that labour-intensive processed export goods have increased (Figure 5.4) as have imports of land-intensive commodities (Figure 5.5).

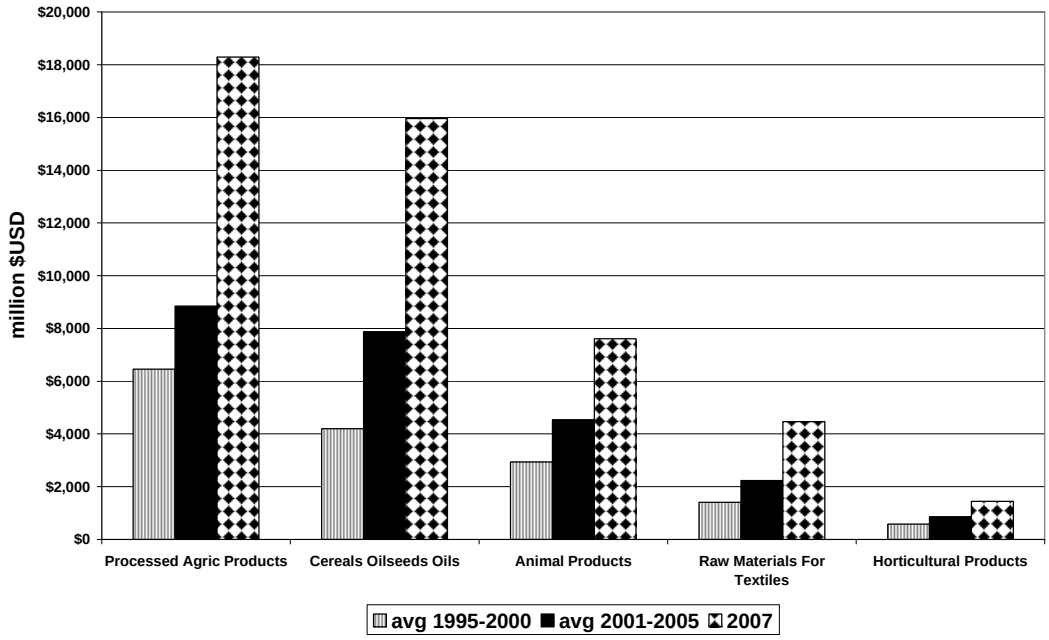
Chen (2008) also reports that since the 2001 WTO agreement, the value of China's agricultural trade has increased dramatically to US$50.44 billion, a 90 per cent increase from 2001 (Figure 5.6). Agricultural imports also increased more rapidly than exports, with the annual growth rate averaging 31.5 per cent between 2002 and 2005, while exports grew by 11.7 per cent.

Huang *et al.* (2007) provide a longer-term perspective over the past 25 years and find that "net exports of land intensive commodities such as grains, oilseeds and sugar have fallen, while exports of higher valued, more labour intensive products have risen. In other words, China has begun to export those commodities in which it has a comparative advantage" (p. 13). Importantly, the researchers highlight the fact that the shift in production to more high-value crop and livestock products combined with an expansion in off-farm work opportunities has resulted in rural incomes increasing by 6 per cent per annum between 1980 and 2000, or from 771 to 2,347 yuan.

It is worth noting that a fundamental change in agricultural trade occurred in 2003-04 when imports began to exceed exports significantly, a change that can be attributed to the growth in imports of wheat, soybeans and cotton. At the same time, however, the share of China's agricultural trade relative to total trade declined from 11.4 per cent in 1995 to 3.4 per cent in 2008 (Figure 5.7).

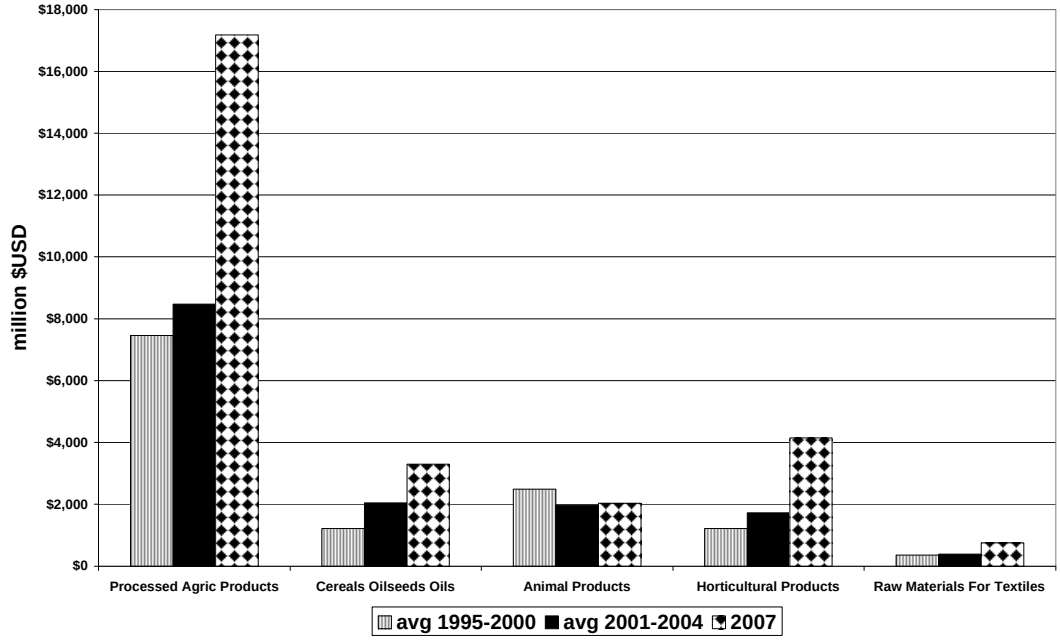
[9] Huang *et al. (2008*) report 302 kg per ha in 2004.

Figure 5.4 Agricultural exports



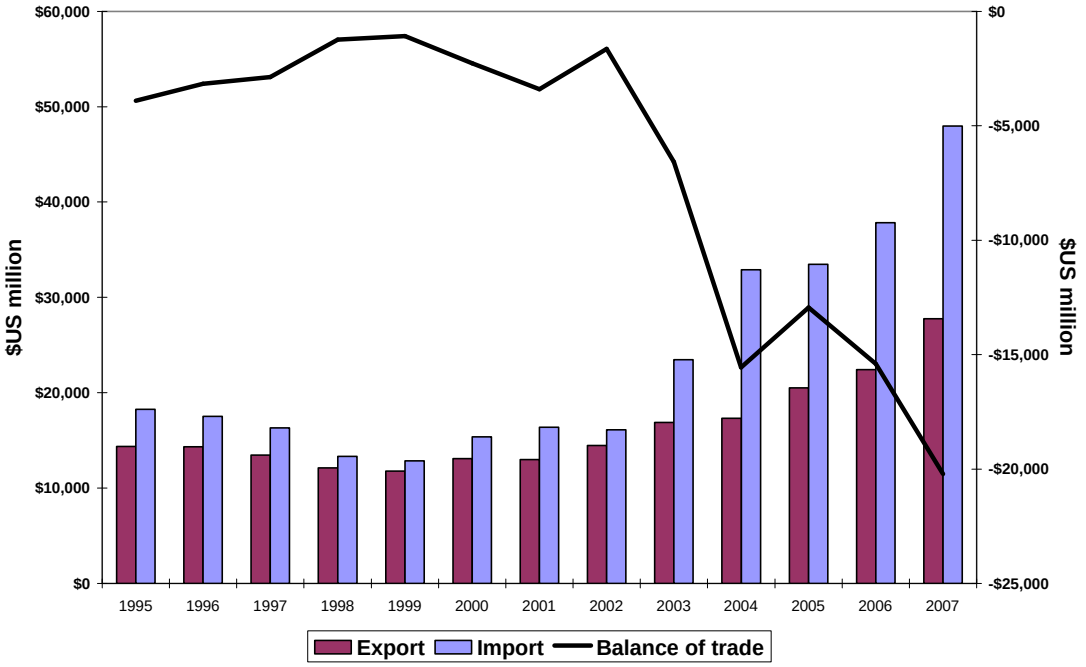
Source: FAOStat (2009).

Figure 5.5 Agricultural imports



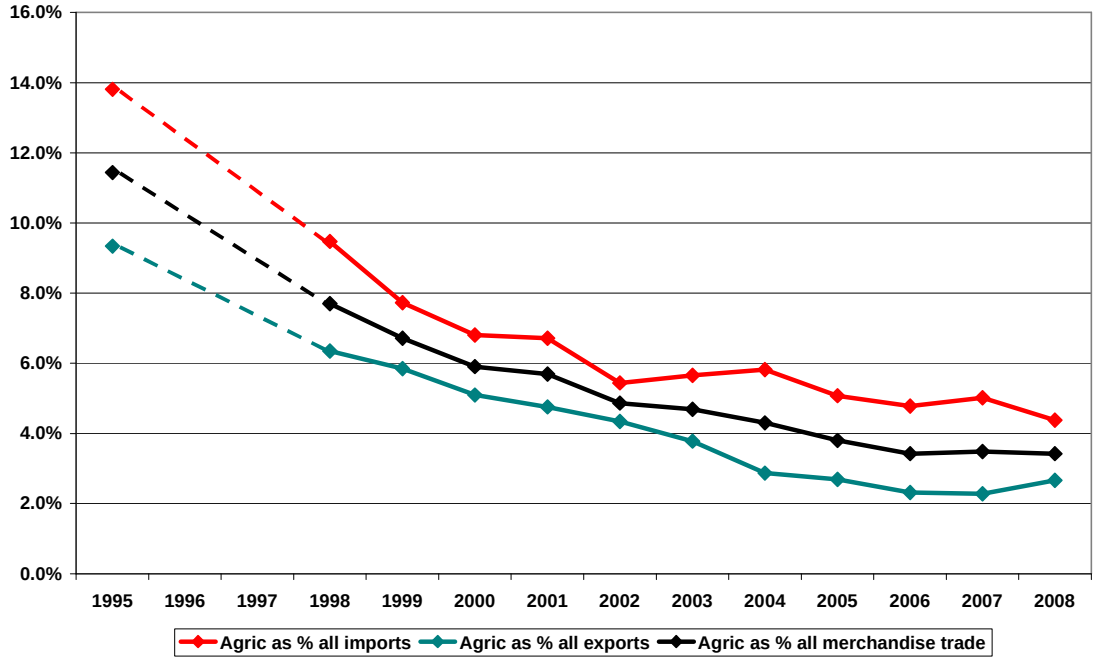
Source: FAOStat (2009).

Figure 5.6 Trade in Agricultural products



Source: FAOStat (2009).

Figure 5.7 Agricultural trade as proportion of total merchandise trade



Source: UN Comtrade (2009).

1.26 Assistance

Apart from grain production, there is very limited direct government intervention in the production, pricing and marketing of agricultural products. Government plans and targets have been replaced by market forces and agricultural productivity has increased in response (OECD, 2005e).

However, the physical constraints on China's land and environmental resources make it difficult to increase land productivity further. Fertiliser use is already exceptionally high and the scope for increasing pesticides is limited by their adverse environmental impact. Water shortages and other environmental problems pose increasing barriers to higher land productivity.

Yao (2007) makes the point that total expenditure on subsidies is much more affordable for rich, developed countries than for China, which has about 40 per cent of its total employment in agriculture. In addition, farmers cannot exert the same amount of power on the political process as in OECD nations: first, trade associations have to be affiliated with a government agency, so they are not independent and, second, the large number of small, fragmented farm holdings, makes it difficult to organise the farming sector into a persuasive lobby.

Assistance provided to China's farmers is therefore low by world standards (Figure 5.8) and assistance has fluctuated from low levels through the 1990s, rising to 9 per cent of gross farm receipts in 2007. A concern, however, is that the mix of measures used to support China's farmers is, like in many developing countries, dominated by price support and input subsidies, which are among the least efficient and most trade-distorting ways of providing agricultural assistance (OECD, 2005c).

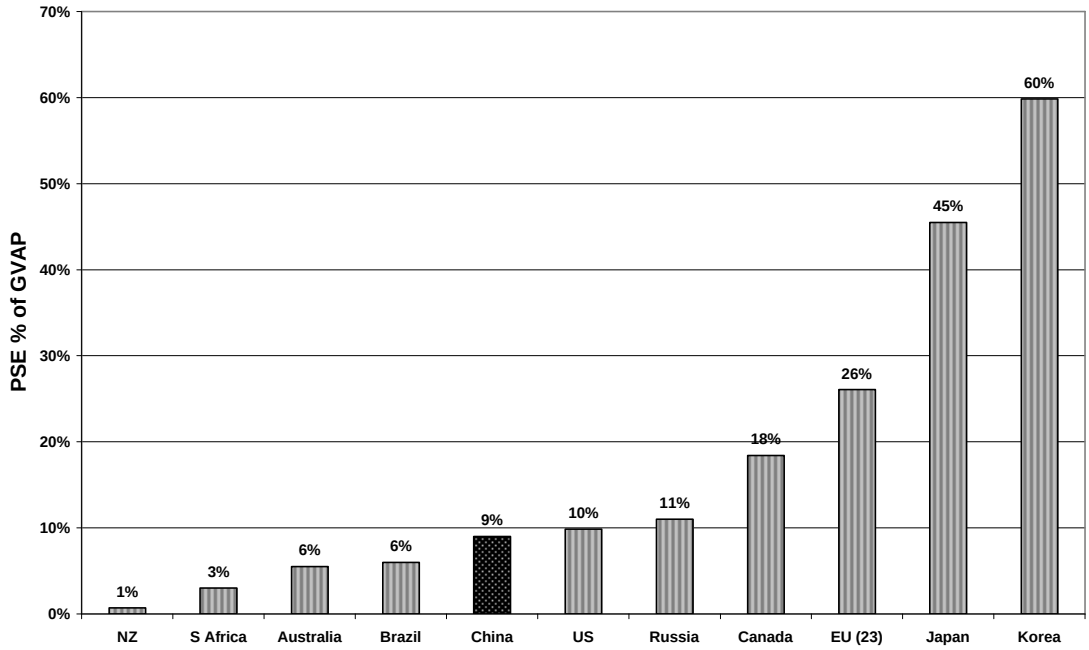
Over the 1995 to 2005 period, PSE was 3 per cent in 1995–1997 (Figure 5.9), increasing to 9 per cent in 2005–2007 (OECD, 2009b) as a result of both market price support and growing budgetary support for farmers.

Huang *et al*. (2008) report that support to producers increased from an average of 3 per cent in 1995-97 to an average of 8 per cent in 2003-05. The increase can be attributed to the government's setting of minimum prices for selected grains, direct payments to grain producers and subsidies (for higher quality grain, soybean seeds and selected machinery). They also report that minimum prices for indica and japonica rice came into effect in 2004, with the same rate applied in 2005. Support was increased in 2006 and extended to include wheat. When the price of wheat fell below minimum prices, stocks were purchased by state-owned warehouses at minimum prices.

While producer support is low overall, when assessed on a commodity basis (Figure 5.10), higher levels of support are found to apply to commodities that face competition from imports including sugar, sheep meat, cotton and soybeans. Export commodities such as maize also receive higher support.

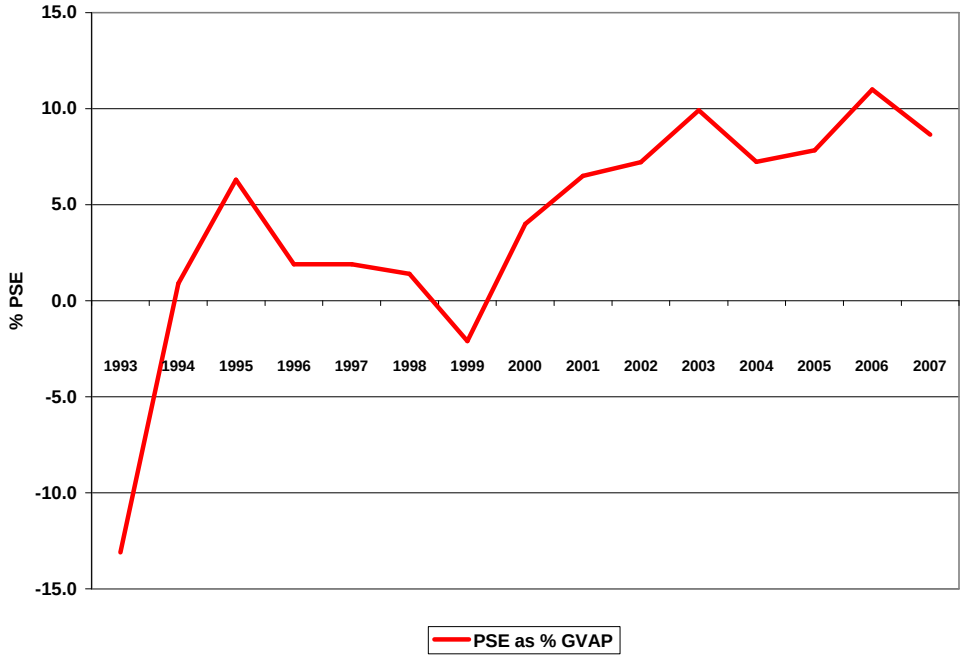
In contrast, there were declining levels of support for rice, milk, beef and wheat in 2007 (Figure 5.10), with support for milk producers declining by 67 per cent. This may have been in response to improved farm-gate prices having increased faster than production (Figure 5.11).

Figure 5.8 Producer assistance – BRICs and others 2007



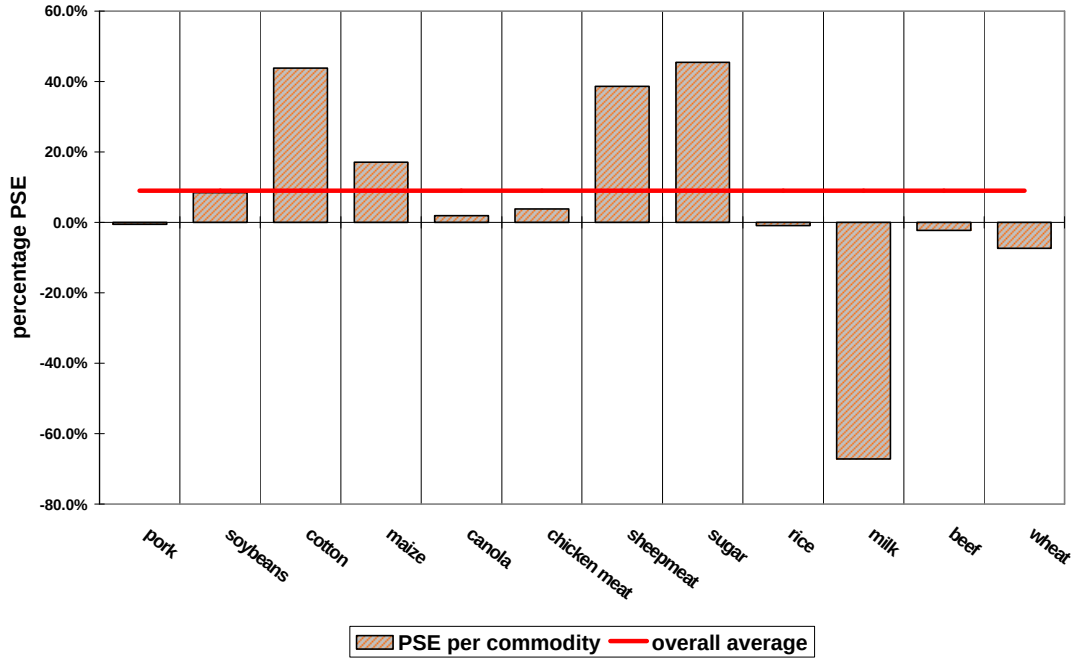
Source: OECD (2009b).

Figure 5.9 Producer assistance



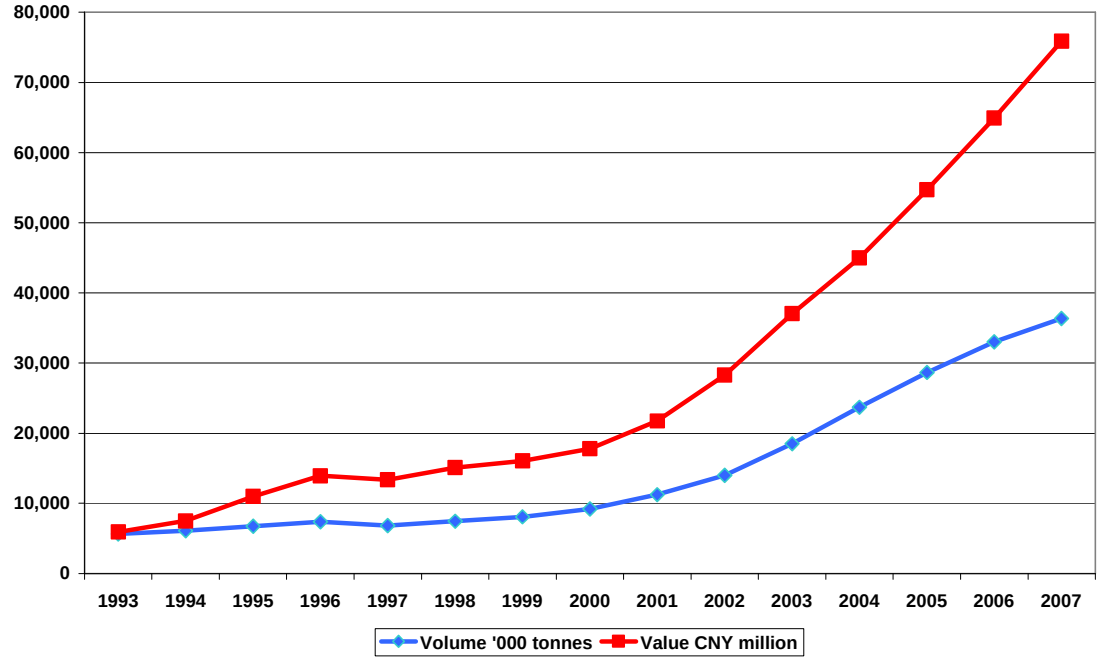
Source: OECD (2007, 2009b).

Figure 5.10 Producer support estimate by commodity 2007



Source: OECD (2007, 2009b).

Figure 5.11 Milk production and revenue at the farm gate



Source: OECD (2007, 2009).

The National Development and Reform Commission sets minimum prices for grains each year (e.g., early indica paddy rice; middle and late indica paddy rice; japonica paddy rice; white wheat; and red and mixed wheat), with prices being closely tied to the grain reserve system of the State Grain Administration which sets aside 3-5 per cent of grains for animal feedstock and human consumption.

Price support means that prices received by producers are 5 per cent higher than in world markets, and at least 20 per cent higher for cotton, sugar and maize. Wheat prices are 10 per cent lower (Huang *et al.*, 2008b).

China's ability to compete efficiently in world markets will to some extent be undermined by these arrangements, and grain security objectives will result in the retention of land in less profitable production systems. Farmers, in turn, will be denied the opportunity to compete in a less regulated commodity markets and to adjust into alternative enterprises, such as horticultural or livestock production.

Yao (2007) expresses the view that many medium and large State-Owned Enterprises (SOEs) 'continue to receive generous state subsidies while smaller SOEs have been privatised. For example, SOEs are eligible for 'easy loans' to enable them "to survive competition from non-state actors as well as imports" (p. 191).

A long-held perspective, therefore, is that domestic price support policies for the purpose of achieving grain self-sufficiency targets require a protectionist policy for grain trade. Opening the market to grain imports, for example, from Australia or the United States, would undermine the price support programme, making it financially unfeasible.

A further problem common to many developing countries is that the banking sector is largely state-owned and considered inefficient[10] with a high non-performing loan ratio at 25–30 per cent (OECD, 2005e). A fundamental issue therefore is that in the absence of efficient commercial lenders, the government is forced to, and expected to, become the 'banker' to entities throughout the supply chain.

The OECD (2005b) also reports on the total support estimate (TSE), which, in addition to PSE, includes agriculture infrastructure expenditures and direct budgetary transfers to consumers (Table 5.2). While the TSE indicator is 3.3 per cent of China's GDP for the 2000-2003 period, this percentage is much higher than the OECD average and suggests a relatively high burden of agriculture support on the Chinese economy. However, it also reflects the economic importance of agriculture in a relatively poor economy, and is partly due to large budgetary investments in agriculture infrastructure, to improve productivity. These expenditures are a positive feature of China's policy as such support has desirable long-term impacts and minimal distorting effects on production decisions and on trade.

In relation to tariff assistance, Yao (2007) argues that China is quite liberalised. In 2002, China and India had applied tariffs of 15.3 per cent and 36.9 per cent, respectively, compared to Brazil at 10.2 per cent, the United States at 12.3 per cent and the EU at 29.3 per cent (Table 5.3).

[10] Note that the global credit crisis of October 2008 led to massive state intervention in the ownership or financial bail-out of banks with inadequately secured loans in the US and some EU countries.

Table 5.2 Policy measures in Total Support Estimate (TSE)

Domestic policy measures	
State pricing	State pricing and state procurement up to 2004. Now only applies to tobacco—a state monopoly.
Input subsidies	Farmers pay lower charges for water, electricity and transport, but the level of subsidy is difficult to estimate.
Credit subsidies	Consisted of preferential loans to state marketing organisations to the end of the 1990s; now discontinued except for grains.
Direct payments	Farmers receive a subsidy based on the area of land they sow to rice, wheat or corn (trial in 2002, national implementation in 2004).
Payments for returning farmland to forests	Under the 'grain for green' programme (beginning in 1999) a cash subsidy and a grain allocation (now converted to a cash equivalent) is paid to farmers retiring each mu (1/15 hectare) of ecologically vulnerable land from agricultural production.
Agricultural taxes	Until 2004 farmers were required to pay agricultural taxes in cash or kind, and fees to local governments and collectives, and to volunteer labour to build communal facilities. A reform programme has been underway since 2004, but the details are not reported.
Trade policy measures	
Tariffs	Import tariffs on agro-food products declined from 45% to 15% between 1992 and 2005 and remain at that level under the WTO accession agreement.
Tariff rate quotas (TRQs)	WTO provisions allow China to allocate TRQs to STEs and non-STEs and to apply TRQs to wheat, rice, corn, sugar, cotton, wool and some vegetable oils (oilseeds are subject only to a tariff).
State trading	Declining in significance but still important for key commodities, notably TRQ commodities.
Export subsidies	No export subsidies as a WTO accession commitment; used to apply to corn (maize) and rice.
General services provided to the agricultural sector as a whole	
Agriculture infrastructure	Investment in pollution control, land rehabilitation, transport and irrigation infrastructure maintenance and development—the largest component of the government's budgetary support.
Research and development	Relatively small and tending to decrease.
Agricultural schools	Small but increasing.
Inspection services	Increasing expenditures on inspection services—significant work to upgrade food safety standards.
Public stockholding	Governments maintain buffer stocks of food grains consistent with food security policies.
Consumer-support measures	
Food price subsidies	There has been a significant decline in subsidies for price increases of staple food products for urban consumers.

Source: OECD (2005e).

Table 5.3 Applied tariff structures: Brazil, China, US, EU, India

	Brazil 2003	China 2002	USA 2003	EU 2003	India 2002
Mean	10.2	15.3	12.3	29.3	36.9
Median	10.0	13.0	4.4	14.4	30.0
Standard deviation	6.0	11.5	29.6	40.2	25.8
Variation coefficient	0.58	0.75	2.4	1.37	0.7
Maximum tariff	55.0	71.0	350.0	277.2	182.0
No of tariff lines	959	1,044	1,829	2,091	690
No of tariff lines = 0	79	80	388	403	17
No of tariff lines >30%	4	130	167	633	108

Source: Ministério do Desenvolvimento, Industria e Comércio Exterior, Brazil; United States International Trade Commission.

A recent OECD report (OECD 2009b) updates the situation regarding farm assistance with a major channel of support being tariffs, tariff rate quotas, state trading, and minimum prices for rice and wheat. A second channel of support is identified as that provided through input subsidies including subsidies for agricultural chemicals (e.g., fertilisers), improved seeds, agricultural machinery, and support provided through direct payments to grain producers for rice, wheat and corn based on the area sown (for income support reasons). There are also conservation programmes of payments to return agricultural land to forests, which are called 'grain for green' programmes and reflect increasing environmental concerns.

Input subsidies include a programme to compensate farmers for increases in the cost of agricultural inputs (fertilisers, pesticides, plastic films and diesel) and by 2008 had become one of the most important heads under budgetary transfers supporting agriculture (OECD, 2009b). The programme has led to the over-use of fertilisers and increasing environmental damage. Other input subsidies include preferential prices for electricity and water, support for sowing improved quality seeds and support for insurance schemes.

The OECD goes on to draw attention to the plight of the Chinese government in 2007 when confronted with a CPI increase of 4.8 per cent, the highest in over 10 years, which involved increases in food prices of 12.3 per cent. Measures taken to curb and offset those pressures are summarised in Table 5.4.

Table 5.4 Policy measures to curb food price inflation

Disincentives for grain exports	In December 2007, the government removed grains, soybeans and their derived flour products from the VAT export rebate; in January 2008 provisional export taxes on the same group of products were imposed; in addition, grains and grain flour products became subject to export licence management.
Disincentives for ethanol exports	In January 2007 the government removed the 13% VAT rebate on ethanol exports; the government also stopped approving any new grain-based biofuel processing plants in 2007 and 2008.
Disincentives for fertiliser exports	In mid-February 2008 the government imposed export duties on four kinds of fertilisers; for the period of April-September 2008 this measure was further reinforced by a 100% special duty on fertilisers and related material exports.
Incentives for food imports	In May 2008, the government temporarily reduced import tariffs on selected food products.
Increased budgetary support for agricultural production in 2008	Higher support for farm machinery purchases; increased subsidies for inputs such as fuels, fertilisers and improved seeds; increased direct payments for grain producers; new pilot insurance schemes for crop and livestock producers.
Increased supply of grains	From government-held stocks and a request to increase frozen meat reserves at the province level.
Increased prices	Increase in minimum purchase prices for wheat and rice in 2008.
Food price caps and consumption subsidies	To reduce inflation expectations, in January 2008 the government announced price controls on cooking oil, pork, eggs, instant noodles, milk and grains in addition to temporary price freezes on gasoline, natural gas and electricity.

Source: Adapted from OECD (2009a).

1.27 Competition Policy

China's competition policy framework has continued to involve a top-down approach focused on complying with WTO accession requirements and the implementation of an anti-monopoly law.

Internal market reforms were extensive during the reform period up to WTO accession, and are on-going, but are currently constrained by grain security and rural income objectives. The institutional arrangements in agriculture remain complex (OECD 2009a), with national programmes often being modified by sub-national governments to match local conditions. Therefore, policy implementation at the sub-national level can differ and contradict national policies intended to promote market-based approaches.

In 2007, the Anti-Monopoly Law was passed in China and came into force on August 1, 2008. The law prohibits anti-competitive monopoly agreements and misuse of market power and transactions that lead to a concentration of market share, merger control, and administrative monopolies (the anti-competitive effects of misuse of government power). The new law prohibits competitors from:

- fixing or changing the price of commodities (including services);
- restricting production or sales volumes;
- market sharing (dividing sales markets or markets for the supply of raw materials);
- restricting the purchase of new technology or equipment, or the development of new technology or products; or
- conducting boycotts.

While the law is derived from European antecedents that are generally in line with international norms (i.e., modern rule-based decisions), some of the provisions have distinctive Chinese characteristics (i.e., a continuing role for state power). More will become clear when implementation regulations are published.

The European Commission has noted that competition policy is essential if China is to have a sound competition regime. This means that governments, in setting competition policy, should promote market mechanisms. Targets of reform include addressing fragmentation in the domestic market to create a level playing field, avoiding trade dumping and eliminating inefficiencies in state-owned enterprises (or eliminating the enterprises). To this end, the European Commission has sectoral dialogues with China on a range of issues including agriculture, competition policy, SPS issues, and trade policy.[11]

China's accession to the WTO on December 11, 2001 made its intentions on competition policy reforms clear. Morrison (2006), for example, noted that China has agreed to the following initiatives:

- to reduce the average tariff for industrial goods and agriculture products to 8.9 per cent and 15 per cent, respectively (with most cuts made by 2004 and all cuts completed by 2010);
- to limit subsidies for agricultural production to 8.5 per cent of the value of farm output and eliminate export subsidies on agricultural exports;
- to grant full trade and distribution rights to foreign enterprises within three years of accession (with exceptions, e.g., certain agricultural products, minerals, and fuels);
- to provide non-discriminatory treatment to all WTO members. Foreign firms in China to be treated no less favourably than Chinese firms for trade purposes;
- to implement the WTO's Trade-Related Aspects of Intellectual Property Rights (TRIP) Agreement upon accession;
- to accept a 12-year safeguard mechanism, available to other WTO members, in cases where a surge in Chinese exports causes or threatens to cause market disruption to domestic producers;
- to fully open the banking system to foreign financial institutions within five years; and
- to permit joint ventures in insurance and telecommunications (with various degrees of foreign ownership allowed).

Agricultural reform is also influenced by the Agricultural Law (amended in 2003) and the Grassland Law (OECD, 2005e). These laws outline government statements of intent and

[11] European Commission's External Relations website: http://ec.europa.eu/external_relations/china/intro/sect.htm#Agricultural_dialogue

provide guiding principles, rather than committing the government to specific actions and binding obligations.

Competition within China's huge internal agricultural market is generally considered inefficient given the oversupply of labour and the fragmentation of wholesale and retail markets. Wholesale markets are a recent development having been usurped in the past by SOEs. WTO accession in 2001 led to additional policy and institutional reforms to improve the competitiveness of Chinese products in both domestic and foreign markets. This development was an extension of liberalisation trends established in the 1990s that included market-based pricing for most agricultural products and reducing controls on marketing channels. Since 2004, tobacco has been the only product with a centrally set (i.e., federal) price.

Competition policy is influenced in part by the role of STEs such as COFCO (China National Cereals, Oils and Foodstuffs Import and Export Corporation), with their share of agri-food exports being 44 per cent in 2003 (OECD, 2005e). Following WTO accession, state trading was permitted for rice, corn, soybeans, tea, cotton and silk.

Competition policy is also affected by the foreign exchange rate. Chinese officials argue that China's currency policy promotes economic stability within China and changes to exchange rates have to be managed within a given trading range. On July 21, 2005 China re-valued its currency to 8.3 yuan to the US dollar, noting that the yuan's future value would be calculated according to a basket of currencies. The exchange rate in August 2008 and November 2009 was the same: 6.83 yuan to the US dollar. Chinese control of the foreign exchange rate will continue to incur criticism from the United States and elsewhere on the basis that the yuan is undervalued and provides China with an unfair trade advantage.

1.28 Some Key Points

- Along with Brazil, China has an impressive agricultural adjustment record associated with agricultural policy reform which has resulted in strong growth in rural incomes and substantial reductions in rural poverty.

- Agricultural production is shifting from land-intensive food grain production to labour-intensive products, such as aquaculture, horticulture and livestock.

- Increasing rural incomes have, in turn, stimulated demand for food processing and agribusiness industries which provide increased regional employment and income opportunities.

- China has been able to manage major population adjustment out of agriculture, and innovative transitional programmes, such as the establishment of Township and Village Enterprises, appear to have played a valuable strategic role.

- Despite China's successes in transforming its agricultural sector, food security objectives continue to underpin continuing price and subsidy assistance, which provides an ongoing focus for policy reform.

- Competition policy reforms in China, as in many other developing countries, have been heavily influenced by WTO accession. As with India, government objectives and policy setting associated with food security act to impede the consideration of a more competition-based approach to agricultural policy.

ATTACHMENT 1 – Policy Reform and Productivity

The 'drivers' of agricultural productivity have long been the subject of research; however, analysts have struggled to develop a useful public policy framework which captures the various causal factors involved.

Australia's Productivity Commission has gone some way to correcting this problem with its 'theme chapter' in its 2007-08 Annual Report titled 'Enhancing Australia's Productivity Growth' (Productivity Commission, 2008). The paper identifies Australia's increasing multifactor productivity growth (MFP) through the 90s and the subsequent slowing post-2000, with agriculture being one of the sectors most affected. The Commission notes that in the late 80s and 90s market competition increased due to factors such as:

- international trade reform;
- increased labour market flexibility;
- macroeconomic stability;
- financial market efficiency; and
- better regulation of infrastructure providers.

This enabled the reorganisation of production and work practices which allowed firms to reduce costs and take advantage of technology developments. They then posed the question of whether these reforms and associated productivity gains have run their course, with the prognosis that "further policy reforms are needed if Australia is to continue to improve living standards while meeting the challenges of demographic and environmental change".

The productivity framework developed by the Commission identifies incentives, flexibility and capabilities as underpinning innovation.

Understanding Innovation

Incentives – the external pressures and disciplines on organisations to perform;
Flexibility – the ability to make changes to respond effectively to market pressures (incentives); and
Capabilities – the human knowledge capital, as well as infrastructure and institutions, that are needed to make the necessary changes.

Importantly, the Commission highlights that innovation is not just about research and development, but about continual learning, and experimenting by firms and responding to client needs, and therefore incentives, flexibility and capabilities are highly interactive.

The supply-side-driven R&D model is questioned on the basis that incentives are required to drive change, to present opportunities and to apply capabilities. They conclude that "competition provides the fundamental incentive for organisations to pursue changes necessary to succeed, through innovation and productivity gains".

Relevant to agricultural policy, the Commission notes that while barriers to international trade and domestic contestability can dull incentives for innovation and productivity, so too can production and investment subsidies that insulate firms from more competitive rivals.

Further evidence presented by the Commission in support of the framework is that much of the innovation on which productivity improvements at the firm and economy-wide levels depend, does not involve technologies developed by innovating organisations. For the bulk of innovation activity, they therefore argue,that competition provides sufficient incentives for private enterprises, without the need for taxpayer support. So, while recognising the importance of factors such as appropriate levels of education and R&D as necessary conditions, they are not sufficient conditions, and of themselves will not directly 'drive' productivity. Instead, incentives such as those presented by policy reform are found to be the fundamental drivers of productivity growth.

The Commission's public policy framework is therefore of fundamental importance to unlocking further rounds of productivity improvements in the agricultural sector of many developing and transition economies. The clear message is that policy reform, policy reform processes and the 'openness' of economies hold the key to these gains, rather than simply increasing expenditures on subsidies and R&D.

The Link Between Policy Reform and Productivity: Some Recent Studies.

Fuglie and Schimmelfennig (2010) consider agricultural productivity growth in China, India, Indonesia, the former Soviet Union and Eastern Europe on the basis that these countries are large agricultural producers and therefore important to international food security. In reference to a range of studies, they report that India and China have experienced accelerated rates of multi-factor productivity growth following policy and institutional reforms, but China has experienced much greater growth which is attributed to more fundamental institutional changes and greater structural transformation of their economy.

In Indonesia, an important source of productivity growth has been the increasing opportunity associated with diversifying into high valued and export commodities with less reliance on growth from traditional food staples. In the former Soviet Socialist republics and Eastern Europe, productivity growth was found to be aligned with the various transition stages of these economies, with all countries showing a close link between productivity growth and the pace of economic and institutional reforms.

They further reported that for the 1978–2004 period, agricultural output grew by 4.6 per cent in China, 4.0 per cent in Indonesia and 2.5 per cent in India. Circumstances contributing to these outcomes were the reduced rates of growth of rural populations in China and Indonesia due to improved absorption rates into other sectors of their economies, which contrasted with India's expanding rural population.

The Key Conclusion

"In all three countries institutional and policy reforms that strengthened peasant agriculture and liberalised markets are considered important by creating incentives for farmers to allocate resources more efficiently and exploiting their sectoral comparative advantage. This has proved to be a pivotal source of productivity growth in the agricultural sectors of these countries".

Source: Fuglie and Schimmelfennig (2010: p.)

Nin-Pratt *et al*. (2009) provide further insights into the agricultural productivity performance of China and India by correlating structural breaks in TFP for the two countries with policy reforms. They too found strong acceleration in agricultural TFP in China after 1979 and in India after 1974, but found that China's agricultural sector has clearly outperformed India's, again due to more fundamental policy and institutional reforms.

In China, growth in the manufacturing sector was found to be important in absorbing agricultural labour, and in doing so provided incentives for labour-saving technology adoption in agriculture. The very limited changes to Indian agricultural and manufacturing policy are therefore found to explain India's slower productivity growth. They further found that as a result of policy reform in the two countries, GDP per capita more than doubled in India and increased seven-fold in China.

After the reforms in both countries, the authors report further differences, with China's growth linked to growth of the industrial sector, reduced trade barriers and foreign investment. India's reforms during the 80s were less aggressive, with an important outcome being 10 per cent of China's population remaining below the international poverty line of one dollar per day compared to more than one-third of India's population.

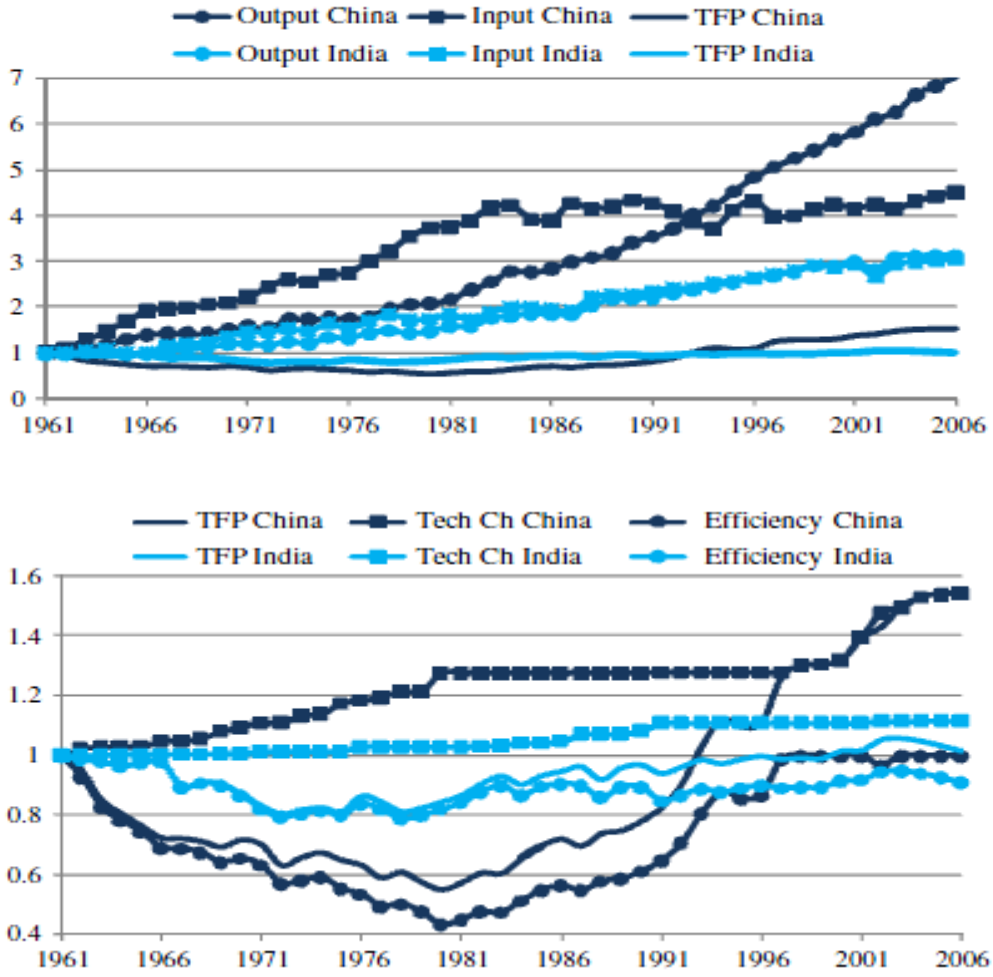
From Figure 1 it can be seen that in China TFP growth is low during the 1974-83 period but strongly accelerates during the 1980s and 90s to around 5 per cent per annum. In India, agricultural TFP was negative prior to 1974, and then increased gradually to only 0.3 per cent over the 1991–2006 period. India's TFP growth was constrained due to the lack of improvement in technical efficiency which declined from 1961 to the late 1980s, but then increased slowly. In 2006 they found that agricultural production efficiency was 20 per cent less than what it could be and similar to the 1960s. Significantly, the authors find that the data contradict the expected positive effect on India's agricultural productivity of the early green revolution period from 1965-1966 to the mid-1970s.

The results for the reform period in India and China are therefore found to be markedly different. They find that:

> "…agricultural growth benefited from more fundamental institutional reforms in agriculture that transformed the sector, increasing efficiency and accelerating technical change. No equivalent change is found in India, where agricultural policy changes were mainly adjustments to reduce the negative effects of policies that were not favourable for

agriculture, in most cases by increasing subsidies for inputs, credit etc. After the 1991 reforms, the negative effects of macroeconomic policies on agriculture were substantially reduced, but no major policy changes toward agriculture were put in place. In contrast with China, no structural change in India's agricultural TFP series could be found during the reform years."

Figure A1. Cumulative agricultural productivity growth and its decomposition into technical change and efficiency in China and India.



Source: Nin-Pratt *et al*. (2009).

A further study linking policy reform with agricultural productivity is titled 'Reforms and agricultural productivity in Central and Eastern Europe and the former Soviet Republics: 1989–2005 (Swinnen and Vranken, 2009). Importantly, they found that the reform of regulations associated with the communist era initiated major readjustments in factor allocations and consequent productivity growth.

A particularly important finding was that factor adjustments and the associated growth and productivity gains are critically dependent on certain preconditions such as factor market reforms elsewhere in the economy. This, in turn, gives rise to some sense of 'efficient reform sequencing' as being highly relevant to how agricultural sector reforms are considered in transition economies.

These reform preconditions include:

- the ability of other sectors to absorb surplus agricultural labour, thereby reducing labour availability in agriculture and encouraging new technology adoption;

- land reforms and privatisation which reduce adjustment costs in response to commodity deregulation and which enable the gains from agricultural policy reform to be distributed more efficiently; and

- access to commercial credit to enable efficient farm-level capital upgrading decisions to be made in response to further policy reforms.

Reflecting the importance of these preconditions, the authors found that in Central Europe, the Balkans, the Baltics and the European CIS, for each country the partial productivity indicators fell following the policy reform period followed by recovery, with the extent of the declines and recoveries related to the extent of pre-reform distortions.

ATTACHMENT 2 – Competition Policy and Competition Law

The term competition policy can be used to describe the range of market interventions by government which influence resource allocation. On the other hand, competition or trade practices law can be viewed as a component part of a country's competition policy settings.

Australia's recent National Competition Policy initiative reflected this perspective, requiring that all legislation that influenced resource allocation (i.e., 'competition' in the broadest sense) be regularly reviewed. Reviews required that legislation should not restrict competition (resource allocation) unless it could be demonstrated that the benefits to the community as a whole outweighed the costs, and that the objectives of legislation could only be achieved by restriction competition. Institutional arrangements were also established to monitor the rigour with which legislation reviews were conducted, with penalties imposed on state and territory governments that were considered in breach of their review obligations (Davenport, 2007).

Another useful competition policy perspective is provided by White (2008), where 'industrial policy' is portrayed as often standing in juxtaposition with competition (or trade practices) law. The author highlights that most countries traditionally have industrial or sectoral policies, such as regulated commodity prices and input subsidies, designed to influence resource allocation.

In relation to agriculture, the tension between industrial policy, which is often about 'rent seeking' and income redistribution, and competition law is highlighted by agriculture often being formally exempt from antitrust laws.

It is also the case that industrial policy often provides a competitive advantage to certain agricultural businesses and statutory bodies; however, the changed incentives associated with sectoral regulation often cause producers to become 'locked into' certain production patterns which, in turn, slows adjustment and productivity growth.

OECD's Positive Reform Agenda

Consistent with the previous discussion, the OECD has developed its Positive Reform Agenda (OECD 2002) which seeks to promote best-practice regulatory settings through the endorsement of a set of policy goals agreed to by the OECD Committee for Agriculture in 1998. These goals require that the agri-food sector:

- is responsive to market signals;
- is efficient, sustainable, viable and innovative, so as to provide opportunities to improve standards of living for producers;
- is further integrated into the multilateral trading system;
- provides consumers with access to adequate and reliable supplies of food, which meets their concerns, in particular with regard to safety and quality;
- contributes to the sustainable management of natural resources and the quality of the environment;

- contributes to the socio-economic development of rural areas including the generation of employment opportunities through its multifunctional characteristics, the policies for which must be transparent; and
- contributes to food security at the national and global levels.

The OECD's Positive Reform Agenda is a response to Producer Support Estimates in OECD countries continuing to be dominated by output-based support and input subsidies, which, in turn, "necessitate the use of trade protection policies which further amplify the net costs of inefficient domestic policies" The OECD states that "by reducing the need for border measures, domestic reforms make it easier for reforming countries to reach agreement in a multi-lateral context" (Davenport *et al*., 2007, p. 7).

The Positive Reform Agenda therefore calls for governments to be clear about their policy objectives and to define them in a measurable way that lends itself to the assessment of alternative policy instruments. This, in turn, increases transparency and reduces the influence of politics in decision making.

There is growing concern, however, in relation to the ability of countries to apply these principles and the approach. Typically, domestic agricultural policy objectives are stated in very broad terms, such as supporting farm incomes, promoting rural development, or progressing 'food security'. Such terminology, however, provides little clarity in relation to the specific market failures which are intended to be addressed, or the respective role of the government *vis-à-vis* other stakeholders in achieving those objectives.

While the merits of market-based policy approaches are generally well accepted, the persistence of poor agricultural policy settings opens for further debate the issue of dealing with strong 'rent- seeking' behaviour by sectoral interests. These situations necessarily have their solution in understanding the underpinning values and incentive systems at play. Ultimately, in addition to espousing best-practice policy principles, there may be a need to consider how institutional reforms within government might enable the full range of social values involved in policy settings to be considered.

Agricultural Policies in Non-OECD Countries

A number of recent studies have profiled agricultural policy developments in developing countries. For example, the OECD report "Agricultural Policies in Non-OECD Countries" (OECD 2007) provides valuable insight into policy trends in eight non-OECD countries including Brazil, Russia, India, China and South Africa. The key findings were that:

(a) agricultural support remains dominated by market price support measures and input subsidies, the least efficient and most distorting ways of providing agricultural assistance;

(b) more targeted forms of support not linked to production are increasingly being sought to pursue specific goals, such as raising the incomes of poor farm households, promoting rural development and protecting the environment; and

(c) the ad hoc nature of many recent policy developments has failed to provide the predictable policy environment that is essential for growth and development.

The OECD succinctly summarises the policy challenges facing these economies by saying that agriculture is typically being viewed as the vehicle for solving broader social welfare and food security concerns and that the necessary focus of long-term policy reform is a shift away from closed economies, self-sufficiency and import substitution.

References

Anderson, K. and Martin, W. (2008). *Distortions to Agricultural Incentives in China and Southeast Asia*, World Bank Development Research Group, Agricultural Distortions Working Paper 69.

Barros, G. (2008). Brazil: The challenges in becoming an agricultural superpower, in L. Brainard, and L. Martinez-Diaz (eds.), *Brazil as an Economic Superpower? Understanding Brazil's Changing Role in the Global Economy*, Washington, DC.: Brookings Institution Press.

BNDES (2009). National Development Bank (Brazil) website. http://www.bndes.gov.br/english/pronaf_in.asp.

Chadha, R., Pratap, D. and Tandon, A. (2008). *Agricultural Trade Liberalisation in a General Equilibrium Framework*, International Workshop on 'Agricultural Trade Liberalisation and Domestic Market Reforms in Indian Agriculture', New Delhi, http://www.ncaer.org/downloads/Lectures/ACIAR-NCAERWorkshop08/Session%203%20Paper%202.pdf.

Chen, C. (2008). China's agricultural trade following its WTO accession, in C. Chen and R. Duncan (eds), *Agriculture and Food Security in China*, ANU e-Press, Canberra.

Chen, S. and Ravallion, M. (2007). *Absolute poverty measures for the developing world, 1981-2004*, Proceedings of the National Academy of Sciences of the United States, Development Research Group, World Bank, Washington DC 20433.

Comtrade (2009). UN publications, New York. http://comtrade.un.org/db/default.aspx.

Davenport, S. (2007). *Reform of Australia's Statutory Marketing Arrangements: Lessons for India's Reform Program*, Paper presented to the 51st Annual Conference of the Australian Agricultural and Resource Economics Society Conference, Queenstown, New Zealand.

DIRCP (2008). *Agrarian Reform 2003-2006: Much more than Land*, Ministry of Agrarian Development, Department of Internal Relations and Commercial Development, http://www2.mre.gov.br/cgfome/Apresenta__o_London%5B1%5D.ppt#277,1,Slide 1.

FAO (2002). *Project on Livestock Industrialization, Trade and the Social-Health-Environment*, Food and Agriculture Organisation of the United Nations, Rome. http://www.fao.org/WAIRDOCS/LEAD/X6170E/x6170e2k.htm.

FAOStat (2009). Statistics database: *FAOStat*, Food and Agriculture Organisation of the United Nations, Rome. http://faostat.fao.org.

Federal State Statistics Service (Rosstat) (2009). *Consumer Price Indices to September 2009*, Department of Price and Finance Statistics Moscow, Russian Federation 107450.

Fuglie, K. and Schimmelfennig, D. (2010). Introduction to the special issue on agricultural productivity growth: a closer look at large, developing countries, *Journal of Productivity Analysis*, 33(3), 169–172.

Goldman Sachs (2001). *The World Needs Better Economic BRICs*, Global Economics Paper No. 66.

Goldman Sachs (2003). *Dreaming with BRICs: the Path to 2050*, Global Economics Paper No. 99, http://www2.goldmansachs.com/ideas/BRICS/BRICS-dream.html.

Goldman Sachs (2005). *How Solid are the BRICs?*, Global Economics Paper No.134, http://www2.goldmansachs.com/hkchina/insight/research/pdf/BRICS_3_12-1-05.pdf).

Government of India Ministry of Statistics and Programme Implementation http://www.mospi.gov.in/mospi_cso_rept_pubn.htm.

Helfand, S.M. (2001). The distribution of subsidized agricultural credit in Brazil: Do interest groups matter? *Journal of Development and Change* 32(3), 465–490.

Huang, J., Rozelle, S., Martin, W. and Liu, Y. (2007). *Distortions in Agricultural Incentives in China*, World Bank Development Research Group, Agricultural Distortions Working Paper 29.

Huang, J., Chen, C., Rozelle, S., and Tuan, F. (2008a). Trade liberalization and China's food economy in the 21st Century: Implications to China's national food security,in S. Rozelle and D. Sumner (eds.), *Agricultural Trade and Policy in China* (pp.55-80). Burlington, VT: Ashgate,

Huang, J., Liu, Y., Martin, W. and Rozelle, S. (2008b). *Agricultural Trade Reform and Rural Prosperity: Lessons from China*, National Bureau of Economic Research, NBER Working Paper No. 13958.

International Monetary Fund (2009).World Economic Outlook Database, http://www.imf.org/external/pubs/ft/weo/2009/01/weodata/index.aspx

Jayasuriya, S., Kim, J. and Jumar, P. (2007). *Agricultural Market Integration in India*, International Workshop on 'Agricultural Trade Liberalisation and Domestic Market Reforms in Indian Agriculture', New Delhi, http://www.ncaer.org/downloads/Lectures/ACIAR-NCAERWorkshop08/Session%203%20Paper%202.pdf.

Johnson, D. G. and McConnell Brooks, K. (1993). *Prospects for Soviet Agriculture in the 1980s*. Bloomington: University of Indiana Press.

Liefert, W. and Liefert, O. (2007). *Distortions to Agricultural Incentives in Russia*, USDA, Economic Research Service, Agricultural Distortions Working Paper 08.

Lopes, M. R., Lopes, I. V., de Oliveira, M. S., Barcelos, F.C., Jara, E. and Bogado, P.R. (2007). *Distortions in Agricultural Incentives in Brazil*, Agricultural Distortions Working Paper 12, World Bank Development Research Group.

Matthey, H., Fabiosa, J. and Fuller, F. (2004). *Brazil: The Future of Modern Agriculture?*, Midwest Agribusiness Trade Research Information Centre Briefing Paper 04-MBP 6, Ames, Iowa State University.

Ministério do Desenvolvimento, Industria e Comércio Exterior, Brazil http://www.ftaa-alca.org/busfac/ctyindex/bra_e.asp

Morrison, W. (2006). *China-U.S. Trade Issues*, CRS Issue Brief for Congress, Congressional Research Service, Washington, DC.

Nin-Pratt, A., Yu, B. and Fan, S. (2009). Comparisons of agricultural productivity growth in China and India, *Journal of Productivity Analysis*, 33(3), 209-223.

OECD (2002). *Agricultural Policies in OECD Countries: A Positive Reform Agenda*, Organisation for Economic Co-operation and Development, Paris.

OECD (2005a). *OECD Review of Agricultural Policies - Brazil,* Organisation for Economic Co-operation and Development, Paris.

OECD (2005b). *Competition Law and Policy in Brazil,* Policy Brief, Organisation for Economic Co-operation and Development, Paris.

OECD (2005c). *OECD Review of Agricultural Policies in China,* Organisation for Economic Co-operation and Development, Policy Brief, Paris.

OECD (2005d). *Regulatory Reform in Russia: Enhancing Market Openness through Regulatory Reform*, Organisation for Economic Co-operation and Development www.oecd.org/dataoecd/14/48/34985306.pdf.

OECD (2005e). *Agricultural Policy Reform in China*, Policy Brief, Organisation for Economic Co-operation and Development, Policy Brief, Paris.

OECD (2007). *Agricultural Policies in Non-OECD Countries: Monitoring and Evaluation*, Organisation for Economic Co-operation and Development, Paris.

OECD (2009a). *Agricultural Policies in Emerging Economies: Monitoring and Evaluation*, Organisation for Economic Co-operation and Development, Paris.

OECD (2009b). *Monitoring Farm Support and Evaluating Policy - Producer and Consumer Support Estimates*, OECD Database 1986-2007, Organisation for Economic Co-operation and Development, OECD Publishing, Paris. www.oecd.org/document/11/0,3343,en_2649_33797_43352651_1_1_1_1,00.html

OECD-FAO (2006). *Agricultural Outlook 2006-2015,* Organisation for Economic Co operation and Development, OECD publishing, Paris.

OECD Statlink http://www.oecd.org/document/39/0,3343,en_2649_201185_33882798_1_1_1_1,00.html

Orden. D., Cheng, F., Nguyen, H., Grote, U., Thomas, M., Mullen, K. and Sun, D. (2007). *Agricultural Producer Support Estimates for Developing Countries - Measurement Issues and Evidence from India, Indonesia, China, and Vietnam*, International Food Policy Research Institute Research Report 152, IFPRI, Washington.

Osborne. S. and Trueblood, M. A. (2002). *Agricultural Productivity and Efficiency in Russia and Ukraine: Building on a Decade of Reform*, Market and Trade Economics Division, Economic Research Service, United States Department of Agriculture, Agriculture Economic Report No 813.

Productivity Commission (2008). Annual Report, Productivity Commission Annual Report Series, Commonwealth of Australia, Melbourne Australia. http://www.pc.gov.au/__data/assets/pdf_file/0009/83709/annualreport0708.pdf

Pursell, G., Gulati, A. and Gupta, A. (2007). *Distortions to Agricultural Incentives in India*, Agricultural Distortions Working Paper 34, World Bank Development Research Group.

Rae, A. (2008). China's agriculture, smallholders and trade: driven by the livestock revolution, *Australian Journal of Agriculture and Resource Economics*, 52 (3), 283–302.

Renewable Fuels Association (2009). Washington DC. http://www.ethanolrfa.org/industry/statistics.

Serova, E., Karlova, N., Shick, O. and Tickhonova, T. (2006). *Report on Main Policy Developments in Russia*, Organisation for Economic Co operation and Development, Paris.

Silvia, J. (2007). *Emerging Market Competition Policy: The Brazilian Experience*, http://works.bepress.com/cgi/viewcontent.cgi?article=1000&context=joseph_silvia.

Swinnen, J. F. M. and Vranken, L. (2009). Reforms and Agricultural Productivity in Central and Eastern Europe and the Former Soviet Republics: 1989-2005, *Journal of Productivity Analysis*, 33(3), 241-258.

UN Comtrade http://comtrade.un.org/

UN Department of Economy and Social Affairs (2005). *World Urbanization Prospects*, http://www.un.org/esa/population/unpop.htm.

UN Statistics Database (2009). http://unstats.un.org/unsd/snaama/ National Accounts Statistics.

United Nations Statistics Division (2010). Population: http://unstats.un.org/unsd/demographic/products/dyb/DYBHist/HistTab01.csv

United States International Trade Commission http://www.usitc.gov/

White, L. J. (2008). *The Role of Competition Policy in the Promotion of Economic Growth*, Law & Economic Research Paper Series Working Paper No. 08-23, New York University School of Law.

World Bank (2002). *Food and Agricultural Policy in Russia: Progress to Date and the Road Forward*, World Bank Technical Paper No. 523, by C. Csaki, J. Nash, V. Matusevich and H. Kray, Washington, DC.

World Bank (2009). World Economic Outlook Database.

Yacheistova, N. (2000). *Competition Policy in Countries in Transition – Legal Basis and Practical Experience*, United Nations, New York and Geneva.

Yao, S. (2007). Chinese Agricultural Reform, The World Trade Organisation and Preferential Trade Negotiations, Chapter VI in *Agricultural Trade: Planting the Seeds of Regional Liberalisation in Asia* (ST/ESCAP/2451), Trade and Investment Division, United Nations Economic and Social Commission for Asia and the Pacific, www.unescap.org?tid/publication/tipub2451_chap6.pdf.

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