Towards Efficiency in Brazilian Agriculture

Garry Smith

Brazil is aiming to make its agricultural sector more competitive by reducing government intervention and bringing domestic prices more closely in line with those prevailing on world markets. Resources will then be redirected from less efficient agricultural activities to those with a competitive edge. But the reforms have an important proviso: they have been drafted so as to cushion the worst impacts on small producers.

Brazil is an important participant in world agricultural markets. Its agricultural sector represents a large part of the total economy. In contrast with most OECD countries, the share of agriculture in Brazilian GDP (at 14%), trade (25% of exports) and the labour force (27% of employment) is still relatively high, although it has been declining for some time.

The most important annual crops – soyabeans, maize, rice, beans, cotton, sugar and cassava – accounted for more than 80% of the total cultivated area in 1991, a share which has held relatively stable over the years. Coffee, cocoa and oranges are the most important tree crops and together occupy some 9% of the cultivated area.

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Crop production, on average, requires about ten times more workers per hectare than does livestock production. But the combination of a change in the crop mix (there was, for example, a 70% drop in the area given to wheat) and the under-utilisation of land on large holdings by absentee landlords, who were using the land as a hedge against inflation, have brought about a reduction in the cultivated area since 1988, and with it lower employment in agriculture.

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The average size of farms in 1985 (the year of the last agricultural census) was 64 hectares, a figure which had held more or less constant over the previous decade. The total area devoted to crops, livestock and mixed operations (agriculture/livestock) increased by about 28% since 1970, reaching 330 million hectares in 1985; livestock activities are responsible for some two-thirds of this figure. In 1985, some 3 million farm units with less than 10 hectares made up about 53% of the total number of rural establishments in the country, but accounted for only 4% of total arable area. The 50,000 or so establishments with more than 1,000 hectares comprise 0.86% of the number of rural establishments and 44% of the total area.

But agricultural property in Brazil is not only concentrated; it is also to a large extent used inefficiently. Recent studies indicate that 70% of the area within properties larger than 1,000 hectares is not in production. This high concentration and low degree of land use are a continuous source of social tension. Unclear property rights reduce the incentives for investment, especially in improved pastures and other farm structures which cannot be removed. There are no threats to established and clearly productive farms but the growth of the landless movement, because of the rise in the number of displaced people in rural areas through the reduction in agricultural employment, and the support it receives from various urban groups (not least the Catholic church), may change matters.

The rate of migration from countryside to city has been high in Brazil. The population has more than doubled since 1960 – but the rural population, which in 1970 was an estimated 41 million, had declined to 36 million 21 years later, with the urban population increasing from an estimated 52 to 111 million in the same period. The agricultural sector was not affected as severely as the rest of the economy by the macro-economic instability experienced by Brazil in the 1980s and ’90s: agricultural employment went from about 18 million in 1970 to 23 million in 1985, the year of the last census, but is estimated to have fallen since then. Also as a proportion of the workforce agricultural employment – 34% in 1971 – has declined by 1993 to an estimated 27%.

The move to the cities was influenced by the existence of cheap food policies, which discriminated against agriculture by depressing returns, and by the introduction of legislation that increased substantially the costs of labour,
especially permanent workers. There are indications that migration to the urban centres has slowed down in more recent times.

**Towards Competitiveness**

Economic reform, begun in the late 1980s, has accelerated with Brazil’s membership of the Mercosur agreement, the South American common market implemented in 1995 (and comprising Argentina, Brazil, Paraguay and Uruguay). The transition to open markets in the agricultural sector in Brazil in particular has nonetheless been gradual in order to cushion any adverse impacts on small producers.

Until the mid-1980s, the Brazilian Minimum Price Programme (MPP), first implemented in 1943 with the creation of the Commission for Production Financing (CPF), was the cornerstone of Brazilian agricultural policy. At first, minimum prices were established for a specific group of commodities: rice, black beans, maize, peanuts, soya beans and sunflower seeds. Over the years, the programme widened its coverage to encompass about 40 other commodities and their by-products; ranging from farm products of national importance to regional items like guaraná and carnauba wax\(^1\) (important crops for poverty-stricken areas) to ensure a minimum return to producers, and to poultry, pork and milk powder. (Sugar, coffee, wheat and cocoa, which together account for about a quarter of the value of total crop production, were outside the MPP and were administered separately by specialised agencies which operated as marketing boards.)

In the late 1980s and early ’90s, several reforms were implemented in economic policy. Previously, the government had purchased a substantial amount of agricultural commodities within the operations of the MPP. But it gradually became evident that these practices were no longer affordable or desirable, with the result, in 1988, that agricultural policy began to be reformed.

The process began when the government created a stock-release price mechanism (PLE) establishing ceiling and floor prices for maize, rice, beans, wheat, beef and cotton. Public stocks were released when the market price was above the PLE. This system was created to reduce the risk premium required by the private sector to operate in a market where government interventions created an institutional risk, over and above the natural market risks. (The government had been in the habit of selling public stocks without notice to traders, thus creating additional price risk. However, some analyses have suggested that the new procedure has created instability in prices received by farmers for some crops such as wheat and soya beans.)

Other measures to deregulate agricultural markets were taken in the beginning of 1990, at the start of the administration of President Hernando Collor; the most important being the elimination of the marketing boards for sugar, coffee, cocoa and wheat. And although wheat remained in the minimum price programme, the subsidies directed at it were halted, along with the government monopoly on wheat imports.

After 1993, with the continuing budget difficulties, government resources to defend the price-band system were no longer available and the policy was discontinued. The government has announced another round of deregulation for the crop year 1996–97, including the phasing-out of minimum prices, which will henceforth be restricted to small farms, and the transfer of price-risk and price-management policies to options markets. For example, ‘merchandise guaranteed certificates’ are being established. These are issued by producers or co-operatives who will have a certain amount of a commodity available at harvest time. The certificate, which is traded in commodity exchanges, is supported by a bank which guarantees the quality and quantity of the merchandise to the purchaser, with the operation liquidated by actual delivery of the product.

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2. Guarana is a fruit of the Amazon region which is collected by the native Indians both for their own consumption and for sale as an additive in soft drinks produced in Brazil; carnauba wax is a regional product extracted from palm leaves for use in shoe polish and as furniture wax.
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Recurrent public deficits have imposed severe restrictions on the allocation of funds to agriculture as well as to other sectors of the economy. During President Collor’s administration, for example, from 1990 to 1993, agricultural expenditures were reduced by 50% in real terms, marketing loans among them.

The Brazilian economy is now in the midst of an economic stabilisation programme, which began in 1994 and is known as the ‘Real Plan’ (named after the currency, the real). The aim is to implement fundamental macro-economic reforms (mostly reduction in public expenditures). Inflation has been reduced from a monthly 30–40% to 1–2%. But the tight supply of money has required high interest rates, which have hit farmers, many of whom are heavily indebted, particularly hard.

Uncertainty about the availability of funds has made the situation worse for many farmers. Farm credit from the federal government is declining; the Banco do Brasil (a state-owned commercial bank) can no longer provide cheap credit to the sector as it did in the past, thus limiting access to credit for the more than 60% of Brazilian farmers who require loans to be able to buy inputs. The system has effectively collapsed and demand for credit for agriculture is being met with ad hoc, annual measures.

The government’s withdrawal from production, marketing and financing of agriculture is starting to attract the private sector to these activities. New private instruments to finance storage activities are being developed and a market in securities backed by commodities with certificates of deposit and warrants is being created. It is expected that the volume of production and marketing credit available in the future will be substantially influenced by these private initiatives.

Trade Reforms

In addition to reforming domestic policy, Brazil has implemented trade reform, eliminating quantitative controls on agricultural exports in 1989 and virtually all non-tariff barriers, throughout the economy, from the beginning of 1990, when a unilateral tariff change reduced the average tariff from 32% to 14% over three years. The average tariff in the reform was 20% and the rates ranged between 0 and 40%. Most manufactured goods, including capital goods, such as machinery, plant and equipment and the like, were included under the 20% import tariff. Import tariffs of 30% fell upon some chemical products, wheat, some food products and some durable consumer items such as televisions and video-recorders.

Following the change, agricultural commodities had tariffs ranging from 0% for cotton and edible beans, to a maximum of 10%, except for milk powder; where there was a tariff of 32%, imposed by Brazil after the loss of a GATT dispute panel on countervailing duties imposed against the European Union. In addition to crop products, Brazil implemented a tariff reduction on all livestock products in 1990. Tariffs on beef, poultry, pig and sheep meat were reduced from 15 to 10%, milk powder tariffs from 25 to 20%, and butter and cheese tariffs from 25 to 20%.

With the start of the Mercosur treaty in 1995, this process of tariff reduction moved even further. The final tariff schedule under the Common External Tariff of Mercosur ranged from 6 to 20%. These tariffs are low relative to the degree of protection that existed before and when compared to the other price distortions that existed for agricultural commodities.

One of the most significant developments for Brazilian farmers since the joining of Mercosur was the elimination of a state tax (referred to as ICMS, or Imposto sobre Circulação de Mercadorias e Serviços) on primary and semi-processed agricultural exports in 1996. The ICMS tax on exports varied from 5 to 13%, depending on the state and commodity. This tax was a major component, along with an overvalued exchange rate, of what has come to be known as the ‘Brazil Cost’, the difficulty Brazilian agriculture faces in competing on world markets.

Indeed, the agricultural export sector in Brazil has been handicapped by being taxed, while value-added industries in general (textiles, shoes and car industries, for example) have been highly protected regardless of their international competitiveness. The elimination of the tax, equivalent to a 5% devaluation of the real, should provide immediate benefits to farmers producing commodities for export by lowering their costs and boosting demand from foreign buyers.

Less pervasive government intervention and the opening-up of the agricultural sector to trade is expected to direct resources from less competitive agricultural production activities (such as wheat production) to more efficient ones. For crops, this is likely to mean further expansion in production and exports of soyabeans – the major success of Brazilian agriculture which now accounts for about half of world soya-meal trade and a third of the global soya-oil market. Brazil has long been one of the world’s major producers of sugar, too, and in recent years has been the leading cane producer, with annual production of around 10 million tonnes. Export earnings from sugar have fallen over the last two decades as a result of an increasing allocation of sugar cane, amounting to about two-thirds of annual output, to the production of gasohol under the Proálcool programme, which was created to reduce Brazil’s reliance and dependency on imported oil – but it is currently under review, since it involves large government subsidies.

Traditional export commodities such as coffee and cocoa have become less and less important...
as a source of export revenue in recent years, although coffee prices have increased recently. In contrast, the value of exports of soyabeans and orange juice have gone up substantially, with soyabeans more than doubling and orange juice growing by a factor of 15. These commodities, together with livestock products, mainly poultry, pork and frozen, cooked and corned beef, accounted for about 15% of export revenue in the period 1991–95 and are important items in the trade with OECD countries, principally the United States and the European Union.

Wheat is the single most important agricultural commodity imported by Brazil. Although trade has fluctuated in past years, imports of wheat are on the rise again, and currently average around 5.5 million tonnes. Imports of rice and maize have increased between 1991 and 1995. Brazil has also become a sizable market for milk and dairy products, with imports growing steadily over the same period, the major suppliers being the European Union and the Mercosur countries. Because of the traditional shortage during the off-season (from July to December), Brazil imports beef from neighbouring Mercosur countries and some European countries in this period to help stabilise domestic prices.

With a more open economy in the 1990s, and with the creation of Mercosur, the Brazilian agricultural sector is becoming more closely aligned with world markets. This development, together with a move to less government intervention, is giving impetus to the modernisation of Brazilian agriculture. Provided the reform process continues on track and needed investment to improve infrastructure and productivity in some sectors takes place, Brazil can be expected to play an even larger role in world agricultural markets in the next century.

Confidence Indicators

Teresa Santero and Niels Westerlund

Judgements on the cyclical position of the economy - and its likely evolution - are important inputs into economic policymaking. Acquiring the information to allow an evaluation of economic circumstances, both current and future, is thus an important challenge for economists. 'Confidence indicators', obtained from readily available surveys conducted among consumers and business managers in most countries, offer some help.¹

How the economy is likely to behave can be forecast only on the basis, obviously enough, of past and current data. But assessment even of the current economic situation is often made difficult by the delays in obtaining many crucial economic indicators, like the growth in domestic consumption or investment, the rate of unemployment or the evolution of public consumption or public investment.

By way of compensation, indicators of the confidence of consumers and businesses - in the form, for example, of consumers' expectations of (un)employment, of the intentions of business to revise production plans or change the number of employees, of expected new orders, and so on, all information which is readily obtained from simple and rapid surveys - are widely used as substitutes. These confidence indicators are useful in assessing the position of the economy in the economic cycle, that is, in telling at what stage is the economy in the periodical succession of expansions and contractions of output growth experienced by all industrialised countries, and how close it is to a shift in that trend. They are useful also in forecasting aggregate output.

Confidence measures often play a prominent role in assessments of conjunctural developments because they summarise the opinions of the main agents involved in taking economic decisions - consumers and business managers - on their current and future economic conditions. But the subjective nature of confidence raises questions about the solidity of conclusions based on them. In theory, confidence does not play a major role in the analysis of economic behaviour; and in practice it cannot be observed or measured directly. Any evaluation of confidence must therefore rely on indicators which are often partial, qualitative and subject to various interpretations.

Surveys capturing judgements on past, current and expected economic developments give analysts of the business cycle information they can use as proxies for confidence. This involves a

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The presumption that before a specific business activity is undertaken, an opinion has been formed and can therefore, to some extent, be measured and labelled as ‘sentiment’, ‘expectations’ or ‘confidence’. Surveys of business and consumer sentiment contain a small number of questions, generally of a qualitative nature, which can be answered quickly by managers and households. Questions are generally formulated as multiple choice, requesting answers of the type ‘up’, ‘same’ or ‘down’, ‘improve’, ‘unchanged’ or ‘worsen’, and so on. The replies convey judgement on recent trends, on the current situation and on expectations of near-term developments in a range of variables.

Survey results for each question involve a figure for each qualitative answer, reflecting the frequency distribution of answers expressed by respondents. The resulting data are normally compiled as ‘balances’ by subtracting the number answering ‘no’ (or ‘worsen’) from the number answering ‘yes’ (or ‘improve’). This procedure allows the presentation of a single figure as a summary of responses to each question and representation of changes in those responses over time by a single time-series.²

What, empirically, do the numbers reveal? There are four possibilities: confidence indicators may move ahead of changes in economic variables, may be fully coincident with their movements, may follow them with some delay, or may be completely unrelated. For example, the general opinion of consumers may be expressing deep concern about the condition of the economy some way ahead of the time when activity is starting to show signs of slowing down or deteriorating; they may express pessimism only when growth in output has already started to slow down and unemployment to increase; their confidence may wane only after the general economy has deteriorated consider-

2. Polling institutes generally present balances over long periods, omitting the percentage of ‘no change’ replies, which implies a loss of information about the degree of uncertainty of economic agents.
3. The first release of GDP data occurs in the United States and the United Kingdom towards the end of the first month following the quarter. In Canada, France, Germany and Japan, the lag is around two months, while in most other countries publication delays vary between three and six months. Moreover, surveys often provide information on aspects of economic developments where genuine statistics do not exist: business inventories and major spending intentions of households, for example. They may therefore give a more highly detailed picture of how changes in the business cycle are transmitted through the economy.
Confidence indicators are obviously most useful for analysis and forecasting when they lead cyclical economic movements. But if they merely coincide with, or even follow, economic developments, they may still be helpful since they are generally available sooner than ‘hard’ economic data - confirmed measures of production, employment, consumption and so on. Indeed, by far the most important advantage of confidence measures is speed. In most countries it takes less than a month to process the information, whereas ‘hard’ data are often not only released with delays of two to three months or more but are also subject to subsequent revisions.

**What Information Content?**

A careful analysis of the relationship between confidence indicators and variables summarising economic performance, like output growth, investment or consumption, sheds some light on the extent to which confidence figures can be trusted as instruments for assessment of current and future performance. Indicators of the business climate track quite well the general trend of real GDP; large and rapid changes in confidence, whether at the turning-points of the economic cycle or during periods of economic expansion or recession, are likewise consistently associated with similarly strong movements in output (Figure 1).

Yet simple statistical correlation analysis suggests that the time-sequence of these relationships varies widely across countries and across time within countries. General rules for all countries cannot therefore be formulated about the information contained in business confidence indicators or whether they can be used to forecast output. As a result, the relationship between confidence indicators and economic variables should be examined in each country, and analysts should be aware that it may not be stable through time. Small variations in confidence, by contrast, are not generally found to have an echo in movements of aggregate output. The relationship to other economic variables closely reflecting decision-making by enterprises, like real business investment, shows similar characteristics. More sophisticated statistical analysis confirms that business-confidence indicators contain, in general, useful information for projections of real GDP and real business investment.

Consumer-confidence indicators likewise appear to provide a good picture of major cyclical swings in aggregate output and in real private consumption, which is the concrete expression of consumers’ decision-making (Figure 2). When large changes in business confidence are observed, indicators of consumer sentiment may help detect substantial changes in output and growth of real consumption, although in general they fail to track small swings in those variables and to show a consistent sequential behaviour. The statistical relationship between consumer-sentiment indicators and economic variables nonetheless appears weaker and less reliable than that of business-confidence indicators to the same variables, which suggests that consumers are more sensitive than business managers to events unrelated to business-cycle fluctuations (as, for example, the weather, elections, political scandals, important sports events, new discoveries, epidemic diseases and so on). As a result, consumer-confidence indicators are less useful for short-term forecasting purposes.

**Turning-points in the Business Cycle**

Cyclical turning-points are notoriously difficult to predict even with the help of sophisticated econometric models. Can, therefore, confidence indicators provide an ‘early warning’ of such changes in the economy? To answer that question, business-cycle phases (upturns and downturns) have first to be identified and dated. One way to this end is to track the fluctuations in economic activity around its long-term trend or ‘potential’ position, and to associate peaks and troughs of the cycle with maximum and minimum deviations from trend. This method of dating the business cycle has some advantages over
Confidence Indicators

The Questions in Business and Consumer Surveys

Business and consumer surveys are conducted in different ways across countries and vary in detail, but there are common features.

Business surveys typically cover managers’ judgements on the following points:
- production and employment (past and future)
- order inflows and stocks (foreign and domestic)
- inventories of finished goods and raw material
- expected developments in prices
- the general economic situation of the country (past and future)
- limits on production
- sufficiency of current production capacity
- export expectations
- current capacity in use.

In consumer surveys, households are normally asked about:
- their financial situation (past and future)
- the general economic situation of the country (past and future)
- cost of living trends (past and future)
- major purchase intentions (sometimes specifically on buying cars, acquisition of real estate, and renovation of their residence)
- unemployment prospects
- developments in prices
- savings intentions.

Both business- and consumer-confidence indicators indeed track turning-points of major cycles well. But the lead patterns vary considerably over time and across countries making it difficult to use sentiment indicators mechanically to predict the turn-around of the cycle. It also appears that upper turning-points (peaks) are more accurately determined by business and consumer surveys than lower ones (troughs). The turning-points of minor cycles, by contrast, do not seem to be well reflected in confidence data.

Empirical evidence confirms the usefulness of measures of business sentiment in providing information about the economic situation and for the purposes of prediction. In particular, large changes in confidence appear to signal a sizable concurrent or future change in output growth relative to trend. Indeed, a noteworthy change in growth is unlikely to be sustained if not rapidly accompanied by a large change in confidence. But business indicators, which in most countries contain relevant information for the prediction of output and real investment, tend to perform better than those of consumer confidence, which may be more easily affected by factors unrelated to near-term business-cycle fluctuations and are rarely found to contain any relevant information for the prediction of output or real consumption.

The empirical evidence further warns that indicators convey different information and have different time-relationship with economic variables in each country. As a result, the information contained in sentiment indicators and its relevance in the analysis of business cycles can hardly be generalised. The most appropriate use of these indicators for economic analysis thus has to be explored country by country.