

# Revitalising Australia's productivity growth

Report by Access Economics Pty Limited for  
**IBM Australia**

## EXECUTIVE SUMMARY

Information and communications technology together with public policy reform have played an integral part in Australia's productivity growth. During the 1990s, a range of policy reforms freed up the Australian business environment. This, combined with emerging information and communications technologies (ICT) resulted in improved productivity and living standards.

Since the turn of the century Australia's performance in terms of productivity growth has slowed considerably. Where productivity was around 90 per cent of that in the US in the 1990s, it has now fallen to 80 per cent. Ongoing reform and innovation are critical to achieving these 1990s levels of productivity growth once again.

## PRODUCTIVITY

Productivity is important for economic development as it enables per capita income growth and raises living standards. However, productivity is a difficult concept to measure and it is even more challenging to accurately quantify the various factors impacting on productivity. In Australia, two of the most important factors underlying productivity are:

- ❑ microeconomic reform, and
- ❑ technological progress: in particular, innovations associated with the Information and Communication Technology (ICT) sector.

It is, however, a complicated task to measure the influence of these on the economy. The impact of these factors is diffuse and they are affected by the state of the economic cycle. Furthermore, many of the benefits associated with them are not captured explicitly (for example, the improved convenience to households through the availability of internet access is hard to quantify). Also, the prices of various technological inputs are difficult to assess.

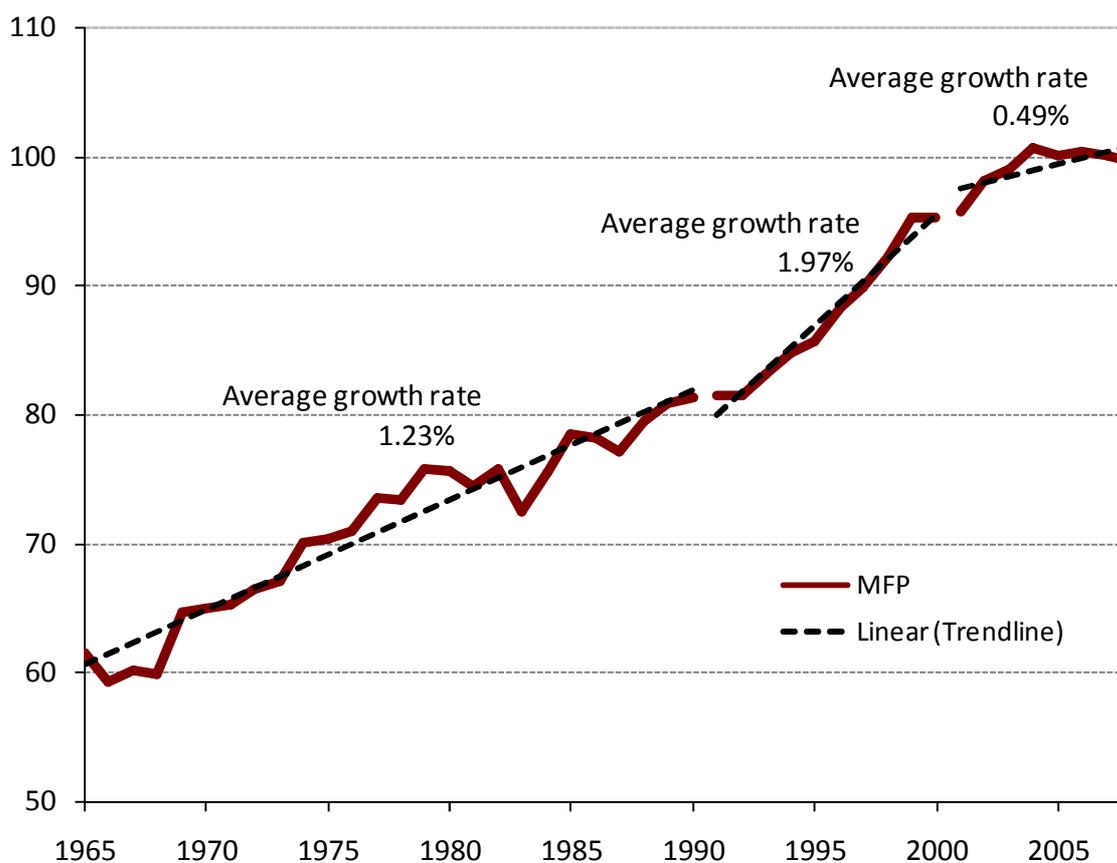
Due to these difficulties, the empirical literature does not provide fully consistent messages. As an example, the Productivity Commission strongly emphasises the benefits from microeconomic reform in terms of improving productivity, while also commenting on the role of ICT. More recently, DCITA has placed a much greater emphasis on ICT and its role in enhancing productivity.

Notwithstanding these differences, there is a consistent theme that emerges in the literature, namely the importance of appropriate microeconomic reform and technological progress in enhancing productivity. In other words, a competitive environment that encourages investment in ICT and new technology will lead to increased productivity.

## AUSTRALIA'S PRODUCTIVITY PERFORMANCE

Australia's multifactor productivity (MFP) growth since 1965 is summarised in Chart 1. The figures show that over the period 1965 to 1990, Australia's MFP grew at just over 1.2% per annum. Over the period 1990 to 2000, MFP growth increased to just under 2.0% per annum. Since the turn of the century, however, the average annual growth rate has fallen to 0.5%.

**CHART 1: AUSTRALIAN MULTIFACTOR PRODUCTIVITY IN THE MARKET SECTOR**



2007=100

Source: ABS Australian System of National Accounts, Cat. no. 5204.0 (31 October 2008)

The strong growth during the 1990s period was closely related to economic reforms underway at the time, such as the liberalisation of trade policy and microeconomic reform that increased the competitive pressures faced by Australian industry. These reforms provided the impetus for firms and individuals to become more efficient and improve productivity. However, this productivity growth appears to have slowed over the past decade.

In light of this slowdown in productivity growth, and despite recent global economic developments, it is imperative that further reform be implemented to encourage innovation. The Productivity Commission identifies three areas that policy should focus on – incentives, flexibility and capability. Therefore, any impediments to these factors must be addressed so that inefficiencies can be reduced.

Providing firms with the incentive to innovate is critical to resuming the strong growth path seen in the 1990s. Experience in Australia and indeed the rest of the world has shown that competition provides the impetus for firms and individuals to innovate. Removing regulation that prevents competition within an industry or sector will encourage firms to operate more efficiently.

Similarly if firms are not able to utilise new techniques and technologies due to structural rigidities in the regulatory environment they cannot undergo much needed transformation. For example, new labour saving technology will be of no use if firms are not free to modify their processes to take advantage of it.

Lastly, firms need to be capable of evolving. Having the incentive to change and the flexibility to do so is pointless if a firm is not capable. Policies that encourage the development of human capital, skills, etc. will assist firms to adopt new technologies and adapt them to their particular circumstances.

## THE ROLE OF ICTs

Several industries stand out as good examples of how policy can influence efficiency without direct intervention. A recurring theme amongst these seems to be the use of ICTs as an agent of change. Although it is difficult to tease out the effects of ICT on productivity at the aggregate level the data at the sectoral level has shown links do exist. A report prepared for NOIE in 2004 estimated that between 65 per cent and 85 per cent of the productivity gains made in the manufacturing industry were attributable to technology related factors. Furthermore, many of the industries that have responded to reform have used ICTs as an integral part of their transformation.

ICTs enabled the transformation in the wholesale sector from a warehousing mentality to a distribution model which brought with it increased efficiencies. As processes evolved to include developments such as just in time ordering ICTs were used to automate systems. They played a pivotal role in increasing efficiency when they were used for ordering, stock taking, goods tracking, etc. Technologies such as barcoding and radio frequency identification tags facilitated new streamlined business processes and contributed to the strong productivity growth in the sector.

Retailing also benefited from ICTs when they were introduced in outlets to handle tasks ranging from automatic reordering of stock through to point of sales processing. Tasks that traditionally relied upon a shop assistant were moved onto the customer in certain parts of the industry. For example, in service stations the advent of self service petrol pumps connected to remote registers reduced labour requirements.

## LOOKING FORWARD

The electricity and water sectors provide examples of where further gains may be made in future. The Productivity Commission has estimated that efficiency savings in these industries would amount to more than \$1 billion per annum if effective reforms are implemented.

Price signals within the electricity market prevent informed decisions to be made by many consumers. Indeed some 13 per cent of the total gains are estimated to come from improved demand side response. ICTs in the form of smart metering will enable price signals to be transmitted throughout the entire supply chain from producer to consumer and allow efficient purchasing decisions to be made at each stage.

Moreover there are larger efficiency gains available elsewhere within the network. The National Electricity market is not yet fully integrated across state borders which inhibits competitive bidding. Reducing the transmission congestion in these areas will lead to a higher level of competition within the supply network and lower costs. The Productivity Commission estimates prices could be as much as 2 per cent lower if this, and other improvements, were made to the network.

At present there is no effective market for urban water. While water trading takes place in some parts of the network the cross jurisdictional exchange of water is almost nonexistent and does not take place between rural and urban water markets. The lack of a water market means price information is not transmitted between urban and rural water users within the

same area, between users in different areas or to end users in urban markets. Investment in information systems and improved communications between jurisdictions, together with improved physical infrastructure, would bring with it significant gains.

Furthermore, the system does not presently recognise the underlying scarcity value of the water. Instead the pricing regime is based on the costs of supply the water, the value of the water does not enter the equation at any point. The present system of water restrictions highlights this.

Despite being in one of the worst dry spells in history the price of water in urban markets remains unchanged. The lack of pricing signals makes it impossible to ration supply based on prices. Improved, smarter systems would allow a more transparent pricing mechanism to be implemented and enable users at all levels to make decisions based on the value they place on water. It is estimated the present system of water restrictions costs some \$900 million per year highlighting the efficiency gains that can be made.

Of course each of these innovations can be made only if the underlying infrastructure exists.

Transport and communications infrastructure are noted as being highly important due to their capacity to provide a platform for innovation. This type of infrastructure provides the basis for developing databases, information systems and delivery systems that support firm's on-going activities. Of particular note here is the current debate surrounding Australia's broadband policies.

The National Broadband Network (NBN) will provide a critical piece of infrastructure important to fostering ongoing innovation in Australia. Despite this, the investment while being necessary, is not sufficient on its own to secure ongoing productivity growth. The users of the NBN must be 'enabled'.

The regulatory regime must ensure access to those businesses that wish to provide downstream applications and services. Not investing the time in getting this aspect of the network right will ensure the greatest benefits of the network are lost.

Toll roads in Australia's also warrant discussion. While price signals do exert some influence on traffic flows there is scope to extend this much further. Sydney's road network for example, is not fully integrated. Rather it is a mix of toll roads interspersed with the traditional 'free' networks. Despite major improvements over time there are still major bottlenecks in the road system. Coordination of traffic signals does not occur between toll roads and the rest of the network resulting in traffic jams and delays throughout the entire system. The benefits of eliminating these inefficiencies, while not quantified, are clear.

## THE ROLE OF GOVERNMENT

It is important the government get the mix of regulatory reform and technological advancement right. History provides many examples of where policy has hindered innovation and negatively impacted on productivity growth, it is critical the past strategy of policy reforms continue to alleviate further losses from inefficiency.

Providing an environment in which efficiency improvements are fostered and encouraged is the primary role for government. As Gary Banks, Chairman of the PC remarked, "*it is market competition, rather than government assistance, that is the main driver of innovation and its diffusion throughout an economy*". The Cutler report reinforces this by noting that government should facilitate the development and use of emerging technologies.