

Discussion

1. Mark Cully*

As this paper has an international focus, I will try not to be overly parochial in my comments. But I will begin with some Australian context that helps to explain why this paper is an important piece of work.

In aggregate, Australian productivity (expressed as GDP per hour worked) is about 7 per cent below the upper half of Organisation for Economic Co-operation and Development (OECD) countries (OECD 2015). Relative to the United States, sometimes loosely seen as representing the technological frontier, Australia is around 20 per cent below. Some of this can be attributed to country-specific factors such as distance from global markets (Dolman, Parham and Zheng 2007). However, the productivity gap relative to the United States has widened since the 1990s. That should be a concern.

The Australian labour force participation rate will fall in coming years because of the ageing of the population. It is also likely that the terms of trade will decline further. Both will drag on the growth of income per capita. Productivity growth, at an abnormally high rate, will therefore be needed to sustain the income growth rates of recent decades. Or, put another way, productivity growth around its recent decade trend rate will see only little to modest growth in incomes. These facts require some adjustment in community expectations, either in supporting productivity-enhancing reforms or more modest income growth.

What scope is there for identifying policy reforms that might spur us (and other countries for that matter) on to a higher growth trajectory? It is customary to analyse productivity differences over time or across countries at the macro level, or sometimes at the sectoral level. That is partly a function of theoretical frameworks and partly a function of data availability.

This work by the OECD takes us down from the macroeconomy, and from sectors, to the level of the firm. It is an opportunity that has arisen from dedicated work by many statistical offices and economists to build longitudinal firm-level datasets in a way that parallels the earlier development of longitudinal household-level datasets. This is still an infant research field in economics, and in Australia it is embryonic. The other feature of this work by the OECD is that it is cross-country. It exploits institutional and policy heterogeneity across countries, as well as firm-level heterogeneity within countries. We know that the latter is sizeable. Indeed, Syverson (2011) shows for the United States that there are sizeable and persistent productivity differences within narrowly defined product markets.

The paper synthesises findings from a number of separate papers produced by the DynEmp team at the OECD. The papers represent the first serious attempt to undertake cross-country longitudinal analysis of firm behaviour.

* Chief Economist, Department of Industry and Science.

In my comments I will run through some niggles about the results presented in the synthesis paper, note the limitations of cross-country analysis and tease out further some of the policy considerations raised by the authors.

On the results

The paper finds that young and small businesses account for a disproportionate share of job creation. However, it is actually a relatively small proportion of these young and small businesses that account for almost all of this growth. What are the defining attributes of these fast-growing firms, other than that they are young and small? Narrowing down these attributes might help policymakers know where to focus their attention and would make the paper much more useful. Otherwise, broad initiatives to support young and small businesses might be of little value.

Another concern I have is that the paper uses patents as a proxy for innovation. But the proportion of firms that patent is very low and biased towards large businesses. So, are patents a meaningful indicator of innovation? Probably not. There is a lively debate on the economics of patenting that argues that they have no effect on innovation and productivity (see the various contributions to the symposium on patents in the Winter 2013 issue of the *Journal of Economic Perspectives*). Moreover, we know from business-level surveys that a huge amount of innovation occurs independent of patenting.

The paper examines both employment growth and productivity growth, switching between the two. While either might be a legitimate policy goal, they are not interchangeable. Indeed, at the firm level they are not necessarily even positively correlated – capital-labour substitution continues to account for most productivity growth. As such, the paper would be improved by explicitly accounting for this channel.

Turning to the cross-country nature of the data, it should be recognised that cross-country differences in employment and productivity are often determined by macroeconomic conditions rather than firm-level behaviour. For example, it is not possible to make any sensible observations about Australian employment and productivity growth over the past decade without factoring in the resources boom, the huge rise in the terms of trade and the sustained high value of the Australian dollar.

Furthermore, pooled regressions require a fair bit of torture of the data to derive comparable cross-country measures, and this paper relies heavily on subjectively derived variables (such as the stringency of product market regulation and judicial inefficiency) to yield results. It may well be the case that more can be learnt from examining a set of within-country regressions, where policy indicators can be better specified and measured, and then considering the cross-country consistency of the findings.

On the policy considerations

It is one thing to accept the evidence in the paper that policy settings influence productivity; it is another to know what effect policy changes might have. Increasing the average productivity of an industry sector can occur in three ways: by shifting the entire distribution up; by putting poor performers to the guillotine; or by the better performers moving right up to the global frontier.

To induce any of these changes would require quite different policy prescriptions (and costs). One also needs to be mindful of wider consequences.

For instance, the paper suggests that reducing bankruptcy costs might promote entrepreneurship and be more permissive of failure. What effect might that have on average productivity? On the one hand, it might allow the odd black swan to emerge and flourish, thereby increasing average productivity. On the other, it could also stave off the death of laggard firms, dragging productivity down.

Similarly, the proposal in the paper of moving from high to low research and development (R&D) tax incentives would seem to run counter to the paper's other idea of encouraging firms to move to the national or global frontier. And that is a different issue again from another proposal in the paper that R&D tax incentives should be refundable for loss-making firms (as the Australian scheme now allows) so that incentives are not biased towards incumbent firms.

As both of the above examples illustrate, policy design matters a lot, and it is likely to be path dependent and country contingent. Again, that suggests combining cross-country analysis with country-specific studies.

The discussion is missing some aspects that commonly feature in current policy dialogue. One is management capability. Bloom *et al* (2014) estimate that as much as a quarter of the variation in firm-level productivity across countries is attributable to differences in management capability. Should governments have a role in developing management capability, or can we leave that to business schools?

That question opens up broader considerations around the institutional environment in which firms operate, and whether these support innovation and productivity. One needs to be careful that in opening up analysis at the level of the firm, the role of the wider institutional environment is not lost. For example, it is generally believed that Australia is relatively poor at translating academic research ideas into commercial opportunities. The explanation for this failure likely lies at the intersection between academic researchers and business, something difficult to observe with firm-level data (or to even measure objectively at a country level).

More broadly, there has been something of a renaissance in industry policy in OECD countries. These policies have moved away from direct support of individual firms towards initiatives intended to overcome network and coordination failures at the industry level. This approach is the rationale for government programs such as Top sectors in the Netherlands, Catapult centres in the United Kingdom and Industry Growth Centres in Australia. Estimating the effectiveness of such programs is also likely to be beyond the capacity of firm-level datasets.

Conclusion

To reiterate, I believe this is an important piece of work and I believe we need more studies like this. And to that end, let me finish with two parochial observations.

First, business statistics have long been the poor cousin of social statistics in Australia. This has not been helped by an official mindset that tends to see business statistics as inputs to compiling the national accounts, rather than as data of analytical interest in their own right. Very tight access restrictions for outside researchers to firm-level data held by the Australian Bureau of Statistics (ABS) has also been a factor.

Second, it would be terrific to see the Australian data for DynEmp be made widely available. These data are currently being compiled by the ABS with funding from the Department of Industry and Science. These data could help develop our understanding of the behaviour and economics of firms in the same way that HILDA – the Household, Income and Labour Dynamics in Australia Survey – has been used so richly to understand the behaviour and economics of households.

References

Bloom N, R Lemos, R Sadun, D Scur and J Van Reenen (2014), 'JEEA-FBBVA Lecture 2013: The New Empirical Economics of Management', *Journal of the European Economic Association*, 12(4), pp 835–876.

Dolman B, D Parham and S Zheng (2007), *Can Australia Match US Productivity Performance?*, Productivity Commission Staff Working Paper, Productivity Commission, Canberra, March.

OECD (Organisation for Economic Co-operation and Development) (2015), *Economic Policy Reforms 2015: Going for Growth*, OECD Publishing, Paris.

Syverson C (2011), 'What Determines Productivity?', *Journal of Economic Literature*, 49(2), pp 326–365.

2. General Discussion

Much of the discussion focused on the policy implications of the paper. Participants highlighted the finding that young businesses, rather than small businesses, contribute disproportionately to employment growth and innovation. Participants attributed this distinction to the fact that many small businesses are not growth oriented. Instead, small businesses are often operated for lifestyle reasons and tend to target a particular income level; once they reach that level, these firms have little desire to grow further. While the paper did not include Australian data, participants agreed that the results would likely be similar in Australia. Participants took the paper's findings to imply that policies to grow employment and encourage innovation should not be targeted at small businesses in general, but rather at the subset of businesses that are young. In particular, participants suggested that policies should not be biased towards incumbent firms. One participant noted that small businesses have many advocates in Australia, but there also need to be strong advocates for newly established firms and firms that don't yet exist.

Relatedly, and in response to the discussant, Chiara Criscuolo spoke about the impact of R&D tax incentives. She reiterated her finding that R&D tax incentives often have the unintended consequence of supporting incumbents to the detriment of new entrants. This is because young businesses are often loss making, and so tax credits are of little use. In contrast, tax credits are useful for established, profit-making firms. She argued that R&D tax incentives need to take account of this, for example by allowing tax credits to be carried forward or refunded.

Bankruptcy regulation was noted as a key policy area for young businesses. Participants stressed the importance of policies that enable unsuccessful businesses to fail; when firms exit, resources become available to new entrants. Participants believed that policymakers should embrace this so-called 'creative destruction', for example by implementing policies that reduce the cost of failure. Participants were supportive of current Australian arrangements, which do not impose penalties for failure except in specific circumstances, such as when a law has been breached or a personal guarantee has been provided. There was also some discussion about the size of business

failures. One participant noted that, at face value, most small business failures are small: on average, liquidators deal with less than \$250 000 worth of assets and around half of failures have no assets at all. However, the participant argued that this understates the true size of failures because it ignores the loss of intangible assets, such as goodwill, intellectual property and productive managerial processes. Another participant highlighted the distinction between corporate and personal bankruptcy. The participant suggested that what matters when talking about small businesses is personal bankruptcy regulation. The participant questioned whether the paper's measure of bankruptcy is able to distinguish these. Dr Criscuolo cited a previous study she had been involved in that discussed both corporate and personal bankruptcy. However, she noted that cross-country data limitations for personal bankruptcy meant that it could not be disentangled from corporate bankruptcy in the study's empirical analysis (Bravo-Biosca, Criscuolo and Menon 2013).

The discussion then turned to the data and methods used in the paper. Some participants questioned how confidently the paper can identify the effect of policies, because it uses static measures of policy stances – such as the relative creditor-friendliness of bankruptcy regimes – to explain dynamic outcomes (growth in employment and productivity). Although the dataset showed strong correlations, identifying causality is problematic. Dr Criscuolo responded by noting that there was a small amount of time variation in the indices of bankruptcy regulation. In addition, other OECD work has tried to get around the identification problem by using difference-in-differences regressions with country fixed effects and sector fixed effects (Bravo-Biosca *et al* 2013). These methods allow identification of the effect of regulatory changes by exploiting the differential impact of policies across sectors within the same countries.

Participants were impressed with the paper's dataset. They noted difficulties with obtaining useful firm-level data that can answer the types of questions addressed in the paper. Participants supported recent efforts by the ABS to improve its business dataset. This led to a discussion about the threshold for when a firm should be counted in the ABS Business Register, because new firms appear to be particularly important for studies on employment and innovation. Dr Criscuolo explained that her work counted new firms once they started employing. ABS data do not count firms that have not remitted goods and services tax in the last five quarters for quarterly remitters or in the last three years for annual remitters.

One participant questioned whether the paper's methods could adequately capture the dynamics of firm growth because firms can grow internally by hiring, or externally by outsourcing; the latter would not be captured in the paper's data. The participant cited previous research that found a surge in outsourcing activity around size-contingent policy thresholds. While it may appear that a firm is 'stuck' at a particular size, the firm may be growing by other means, such as outsourcing. If the extent of outsourcing varies by jurisdiction, it will be difficult to make meaningful cross-country comparisons. Dr Criscuolo recognised this limitation of the paper, and added that offshoring is similarly a concern. The paper was unable to address these issues due to data limitations, but noted that previous research based on industry-level data produced similar trends as the present paper.

Reference

Bravo-Biosca A, C Criscuolo and C Menon (2013), 'What Drives the Dynamics of Business Growth?', OECD Science, Technology and Industry Policy Papers No 1.

