The World Bank Perspective on Productivity: A Review Article on *Productivity Revisited: Shifting Paradigms in Analysis and Policy*

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Abstract

In *Productivity Revisited*, the World Bank turns its ongoing productivity research program to the issue of the apparent failure of productivity in developing countries to converge to the higher productivity in advanced economies. The World Bank asserts, but provides little evidence, that converge is not taking place The analysis is grounded in the so-called second wave of productivity research which uses firm-level data to disaggregate productivity into gains within firms, across firms through research allocation and through market entry and exit. The disaggregations are found to differ across countries, suggesting convergence policies may need to be shaped to local circumstances rather than generalized across developing countries. A common question arising throughout is why firms, sectors and economies do not do more to emulate the behaviours of the more productive counterparts in advanced economies. Considerable emphasis is placed on managers and entrepreneurs in developing countries not having the right skill set as they have inadequate education and are risk averse. Despite claims that second-wave analysis puts into question traditional policy prescriptions, the World Bank advocates a traditional set of policy recommendations involving creating favourable business conditions, reducing distortions and improving human capital.

Productivity accounts for much of the differences in GDP per capita across countries. Identifying policies to stimulate it is thus critical to alleviating poverty. Given the World Bank interest in the productivity issue, the organization has established the World Bank Productivity Project headed by the Equitable Growth, Finance and Institutions Group.

The project has released four reports to

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date, each which explores a different aspect of the productivity issue through dialogue with academics and policy makers, and through sponsored empirical work in the World Bank's client countries. The first report (Cirera and Maloney, 2017) dealt with innovation and technological catch-up. The two most recent reports have examined high-growth firms (Goswani *et al.*, 2019) and agricultural productivity (Fuglie *et al.*, 2020). The second volume, released in 2018, is the focus of this review article.

Productivity Revisited: Shifting Paradigms in Analysis and Policy, by Ana Paula Cusolito and William F. Maloney of the World Bank, is the latest document from the World Bank Productivity Project which "seeks to bring frontier thinking on the measurement and determinants of productivity, grounded in the developing-country context".[2] The focus is on the apparent failure of productivity in developing countries to converge toward the higher productivity in advanced economies. Yet considerable attention is paid to the slowdown in productivity growth in advanced economies. The document sheds little new light on the issue so this portion of the document will not be reviewed here.

Productivity Revisited makes some good points on the state and future of productivity research. It contains some nuggets of research results and sets out some logical policy reforms to bolster productivity in developed countries. As such, it is a welcome and valuable addition to the productivity literature. Yet it has flaws. Some can be worked through with considerable effort on the part of the reader including the distraction of starting with what is essentially a literature review on productivity developments in advanced economies. Other flaws are more difficult to overcome.

For a report dedicated to the convergence in productivity between developing and advanced economies, the reader might expect a lucid exposition of the data, with trends marked. *Productivity Revisited* is a disappointment in this regard. For example, the lead statement is the observation that average GDP per capita of the richest 10 per cent of countries in 2000 was 40 times higher than that of the poorest 10 per cent of countries. Not only is the observation dated by 2 decades, but it is a static observation and reveals nothing on the issue of convergence. This is followed by brief summaries of a few studies purporting to show divergence. One of the studies covers the last two centuries. Although the World Bank report does not state over what period there might have been an expectation of convergence, it is likely most were thinking of recent decades when the world economy seemed to be becoming more linked. Then there is a reference to a World Bank study showing a widening of late in productivity between southern and northern members of the European Union. These are not even the countries under examination in *Productivity Revisited*.

The reader is asked to take the authors' word that convergence has either stalled or even shifted to divergence and then follow

2 The publication is available without charge at https://openknowledge.worldbank.org/bitstream/handle/10986/30588/9781464813344.pdf?sequence=9&isAllowed=y.

them on the path to explanations and what to do about it. Or to find the data elsewhere. Skipping over the data precludes the analysis of certain questions. For example, it may be that convergence is easiest when the gap is largest but that inadequacies in infrastructure, capital and labour markets and policies make it more difficult to close smaller gaps. This could have been examined over time and cross-sectionally using the countries in the study.

The authors' claim that productivity in developing economies is not converging with productivity in advanced economies seems inconsistent with the strong growth rates in some of the larger emerging economies over recent decades. China and India are examples. Further, labour productivity is an important driver of this growth. It seems curious that these developments have not led to convergence. But then the reader does not know how the authors are defining convergence for developing economies. For example, are economies weighted by their size? If so, China and India would dominate the results of the study.

Such basic questions over the finding on convergence hang over the balance of the World Bank report. Yet the report does contain important research so despite the weakness in setting the context, the authors' approaches and results are still worthwhile examining.

Productivity Revisited is grounded in a conventional disaggregation of aggregate total factor productivity growth into three components or sources of growth: improved performance within firm; improved allocation of factors of production between firms and; improved entry and exit of firms. This firm-level dissagregation can presumably be applied at both the fsectoral and economy-wide levels. Possible sources of within firm productivity gains include managerial skills, workforce skills, innovation capacity and technology-absorption capacity. Improved allocation is associated with the reallocation of factors of production and economic activity toward more efficient firms. Productivity can be improved if high-productivity firms enter and low-productivity firms exit.

The authors argue that previous research has often mischaracterized the contribution of the various components. For example, the authors argue that claims of distortions in resource allocation may instead reflect adjustment lags, risk or differences in technology, quality markups, or even levels of experimentation. The observations seem to offer some promise for a "purer" form of future research. But at the same time, one should worry whether such distinctions could obscure the more basic question. That is, why do lower productivity firms not emulate the behaviour of higher productivity firms? It is not so much of interest that they have different production functions, but rather why they have different production functions. Further, the authors argue the three components are "inextricably linked" and they share many of the same, underlying factors. This should make one cautious of relying too much on analyzing productivity through the disaggregation. Perhaps one should instead look at the factors in common across the three components.

Productivity Revisited purports to present the "second wave" of productivity analysis. This is grounded in firm-level data and analysis with integration of hu-

man capital. The document argues that "second-wave analysis clearly increases the uncertainty surrounding some traditional recommendations". Yet with few qualifications, the fifth and final chapter advocates what seems like an inventory of traditional recommendations. This is not to argue that the recommendations are not valid. It would appear logical that developing countries need to establish favourable business conditions, reduce distortions, and improve human capital. The point is that it is not clear how such traditional recommendations flow from the research the World Bank describes in previous chapters.

This review article consist of four main sections. The first section discusses the application of the "second-wave" approach to productivity analysis. The second section looks at the World Bank policy prescription to boost productivity growth. The third section discuss what the World Bank might have done differently. The fourth and final section briefly reviews the Canadian experience in the area of firm-level productivity research.

Application of "Second-Wave Analysis" in *Productivity Revisited*

Productivity Revisited refers in general to developing economies as their subject, but a certain "representative" cross-sample is examined including Chile, China, Columbia, Ethiopia, India, Indonesia, Malaysia, and Mexico (there is as well a reference to using data from Taiwan and Thailand and Romania). It is claimed, but not shown, that the cross-sample is not demonstrating convergence in productivity level toward that of advanced economies. It is not clear whether this is true only in the aggregate of the cross-sample or as well for each economy [3].

The focus of the report is to disaggregate productivity growth into the components of growth within firms, across firms and through entry and exit. The first general observation that comes through loud and clear is that generalizations across the universe of developing economies cannot be made. For example, almost half of productivity growth in India is driven through resource reallocation between firms whereas this drives almost none of the productivity growth in Chile. Productivity growth within firms has been very important in China, Ethiopia, India and Malaysia but has had little impact in Columbia. If such distinctions are valid, then cracking the case of the failure to converge may need to proceed more on a country-by-country basis than by aggregating developing economies. But the World Bank authors do pose the question of whether such distinctions are valid.

The World Bank authors describe their report as the application of "second-wave analysis" to productivity growth and the issue of productivity convergence. This second wave is said to pull together "the un-

3 Wu *et al.* (2017) find that value added per employed for the total economy increased over the 1981-2011 period at an average annual rate of 8.0 per cent in China and 4.5 per cent in India. These growth rates were much faster than experienced in developed countries over the period and led to a convergence the labour productivity levels between China and India and the developed world.

derlying shifts in paradigm and measurement". It incorporates advances in the estimation of production functions and the quantification of human capital relevant to productivity improvements. A central feature is its grounding in a firm-level perspective.

The authors argue that the firm-level focus of the second wave needs to be taken to a higher level of sophistication. To properly analyze productivity growth, one needs firm-level prices with appropriate reflection of the quality of product and the conditions of demand. Raising productivity is not just a matter of improving efficiency, but raising product quality and expanding product demand as well. Firms need workers of a certain skill and managers or entrepreneurs who are willing and able to implement new ideas, tolerate risk and drive to better results.

While results vary across countries, the World Bank document finds in general that productivity growth within firms is more important than growth from reallocation between firms. Net entry is, on average, quite important, with its impact varying considerably by economy. The World Bank tested for a hypothesis that reduced dynamics in economies might be slowing productivity growth and convergence but found little evidence to support this within the developing economies studied.

A key question emerging from this research is why lower-productivity firms do not do more to emulate the behaviour of higher-productivity firms, either in their country or in an advanced economy. The World Bank authors raise the possibility without much elaboration for any country of various barriers, such as difficulty accessing capital and competition regimes that facilitate concentration. But they place most emphasis on managers and entrepreneurs that lacks the right skill set. In general, they do not have adequate education and they are risk averse.

The finding of inadequacies in managers and entrepreneurs seems to beg other questions which the World Bank document does not address. Why aren't these inadequacies being addressed, either through the managers present in these developing economies or with talent from elsewhere? Before returning to this question, it is useful to frame a key issue more simply.

Expectations of productivity convergence between developing and advanced economies were likely driven to a considerable extent by the notion that with greater exposure to world markets, lower-productivity economies and the firms within them would emulate the behaviours in the advanced economies. Certain barriers such as weak business framework policies and restrictions in capital markets could well have been expected to limit the extent of progress, but surely a good part of the productivity gap could be closed even with those conditions. With this framework, let us return to the issue of inadequacies in managers and entrepreneurs in developing economies.

If large opportunities exist – and they surely do when productivity gaps are as large as they are – why are there not natural forces that operate in favour of converge? Why do managers and entrepreneurs of developing countries not seek opportunities themselves to upgrade skills? If their home country does not offer the training required, they can access it

elsewhere. Why do foreign managers and entrepreneurs and foreign firms not enter the developing economy to exploit the opportunities? Framing the questions this way would drive toward a more explicit exploration of any barriers. These barriers might then become the focal point of the study as opposed to a slavish devotion to the decompositions of productivity growth.

The authors' recommendations for future productivity research can be summarized as:

- Firm output prices and quality must be considered;
- Market concentration must be considered; benefits of productivity may not be passed onto consumers if the factors that raised productivity also increases market concentration;
- Particularly as a firm moves further into its life cycle, cultivating demand may be more important than efficiency (size matters);
- Firm production functions must be analyzed because heterogeneity in production technologies rather than a misallocation of resources may be what is holding back productivity gains;
- Quality of management and entrepreneurs must be injected into analysis as inadequacies from human capital may be the impediment to productivity gains and convergence.

The authors assert that without considering the above dimensions, productivity research will lead to unfounded and perhaps inappropriate policy recommendations.

The World Bank's Policy Prescriptions

Having asserted that second-wave analysis puts into question traditional policy prescriptions, the World Bank report closes with a chapter advocating what appears to be a traditional set of policy recommendations. It is hard to argue against them. They have been advanced many times elsewhere. They appear logical. But they also appear quite divorced from the research presented in earlier chapters.

The overriding policy prescription is that bolstering productivity in developing economies requires strategies to bolster all three components: within firm, across firms and net exit. There is a suggestion the research supports skewing the policy agenda toward achieving gains within firm. However, it could be argued it is premature and potentially inappropriate to follow such advice. First, the World Bank study acknowledges the decomposition of productivity growth into the three components is somewhat imprecise, especially given the existing data constraints. Second, just because between firm and net entry may have been less important as drivers of productivity in certain countries, that does not suggest they do not retain considerable potential that should be tapped. Indeed, one might even turn the World Bank logic on its head and say that efforts should be skewed to these areas that have not to date proven to deliver their potential. Third, to the point made above, if the underlying factors to the three components are largely in common, focus could and perhaps should be placed on them.

The World Bank's policy prescriptions

can be summarized as:

- Improve the operating environment for firms through means such as competition policy, incentives to invest in productivity-enhancing innovation, support to improve product quality, trade expansion through opening international markets and promoting firms' sales;
- Improve human capital through numeracy, personality, managerial and organization skills, technological capabilities and organizational capabilities;
- Reduce barriers to exit and entry of new firms including encouragement of foreign investment;
- Foster a willingness and ability of entrepreneurs to experiment by creating experimental societies through actions such as correcting erratic macroeconomic policy, gearing universities and public institutions toward research;
- Raise government productivity through enhancing bureaucratic effectiveness;
- Greater policy experimentation to test what works and adapt to results as they are realized.

One can readily see that despite second-wave analysis and the claim that it "has increased the uncertainty around the impacts of traditionally recommended policies," this is a decidedly traditional set of policy recommendations. Such ideas are contained in many other documents. They have been available for consideration of developing economies for quite some time. Yet convergence in productivity toward the higher level of advanced economies is not occurring. Indeed, the World Bank authors even seem to be suggesting there may be divergence. The reader is left with a big, final question – why? For all its insights and suggestions for future work, the World Bank document does not provide much of an answer.

What the World Bank Might Have Done Differently

Better exposition will not solve the productivity conundrums, but the World Bank document certainly could have benefited from editing. There is much repetition throughout. The interesting research findings from the cross-section of developing economies are buried. This leads to generalizations even though the authors argue that results differ tremendously by country. There is an almost slavish adherence to the decomposition of productivity growth into three components despite the authors' assertion they are inextricably linked and share common driving factors. The biggest knock on the exposition is a very weak presentation on whether productivity convergence is occurring, in aggregate or by economy.

If we accept the World Bank's assertion that convergence is not occurring, then we need to keep our eye on the question of why. Such a myopic but justified focus might have led to a different kind of report. It most likely would have examined individual country's experiences much more closely and relied less on generalizations. And it would have relentlessly pursued the issue of why firms are not emulating the behaviour of more productive entities at home or abroad. This in turn would have led to a

more "micro" examination of what is going on in each country. Are they implementing the recommended policy agenda? Is it falling short in critical areas? Or are the responses not as expected? In such case, as argued by the World Bank, the policy approach should react and try something different? Why aren't local managers and entrepreneurs upgrading their skills? Why aren't foreign managers, entrepreneurs and firms entering the developing countries to exploit the opportunities offered by productivity convergence. They do not need to invent a new wheel. They just need to take a wheel from elsewhere and see how it can best roll in a different environment. Do the barriers to convergence become higher the more the productivity gap is closed? Related, do flaws in the operating environment permit some productivity gains when the gap is huge but stand in the way as the productivity level in the developing country gets closer to the standard of advanced economies?

Canadian Experience in Firm-level Productivity Research

As a Canadian it is hard not to draw some analogies from the World Bank report to the situation in Canada, even though Canada is never mentioned in the report. Canada has only recently expanded and intensified research efforts using firm-level data. The experiences may be relevant to intensification of firm-level data research in developing economies. The World Bank works in second-wave analysis of productivity growth. That is, firm-level data augmented with features such as firm production functions, firm prices, quality of output, market structure and human capital. In relating this to Canada, it seems we have just recently and barely arrived at first-wave analysis. It was only a few years ago that firm-level data became available to more than a single group within Statistics Canada. Consequently, studies of productivity through the lens of firms were few and far between.[4] Most researchers took more of a "macroeconomic" perspective, focusing on the economy in total. In good part because they did not have access to the "microeconomic" data. But as well, as Canada's macroeconomic policies had been so bad from the 1970s and 1980s, creating high inflation and high interest rates, large public debt, high tax rates on capital and trade restrictions, to name just a few of the consequences, there seemed reason to think they were to blame for Canada's lacklustre productivity performance (Drummond, 2006). To use the World Bank terminology, correcting "erratic" macroeconomic policy would bolster productivity. But macroeconomic policies improved, and productivity growth did not. A point was reached where it seemed clear that more attention needed to be paid to firms and human capital (Drummond, 2011).

Firm-level data are now available to researchers outside of Statistics Canada but there remain problems: poor documentation; aggregations to protect confidentiality; a requirement until now that data work be done onsite at Statistics Canada

4 An important example of a firm-level study is Gu (2019).

in Ottawa; limited but expanding linkage to other data sets; cost recovery that comes out to around $10,000 per research project. Perhaps most seriously, a shortage of researchers interested or able to use the firm-level data to ask broader questions like those the World Bank is posing. Topics tend to be rather narrow.

In brief, it seems Canada may just recently and just barely be at first wave analysis. We would have a long way to go to tack on firm production functions, firm prices, product quality and more completely interact with human capital data.

Productivity Revisited does not discuss national Productivity Commissions tasked with developing policies to improve productivity performance through research, often with firm-level data. This is unfortunate as such commissions have been shown to focus national attention on the productivity issue, as has been the case in both Australia and New Zealand. Perhaps such an entity could play an important role to further develop the data and expand the scope of productivity research and policy recommendations in both developing countries and Canada.

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