



BIS Bulletin

No 93

Productivity in the post-pandemic world:
old trend or new path?

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3 October 2024

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The editor of the BIS Bulletin series is Hyun Song Shin.

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ISSN: 2708-0420 (online)

ISBN: 978-92-9259-793-1 (online)

Productivity in the post-pandemic world: old trend or new path?

Key takeaways

- *After rising during the pandemic, productivity growth has recently fallen back to or below pre-pandemic trends. The strong performance of the United States has been the notable exception.*
- *Structural factors combined with pandemic-related disruptions explain the cross-country differences. Persistent structural headwinds – weak investment, ageing, trade fragmentation – constitute key risks to the global productivity outlook.*
- *Sustaining productivity growth cannot be the task of countercyclical macroeconomic policies. The clearer path to long-term prosperity is through growth-enhancing structural policies.*

Productivity growth is a key variable of interest for central banks. It influences inflation and is the most important determinant of long-run growth in real income. Recently, subdued productivity growth in many countries (with the notable exception of the United States) has raised concerns about the underlying drivers across countries. What explains subdued productivity growth? Why is the United States different? Do the recent patterns reflect conjunctural factors that should fade over time or do they indicate structural forces that would prevail in the coming years?

This Bulletin documents the evolution of labour productivity growth across countries since the pandemic and relates it to conjunctural and structural forces. It concludes with a discussion of policy implications.

Evolution of productivity since the pandemic

Three stylised facts summarise recent developments in labour productivity, as measured by GDP per hour worked.

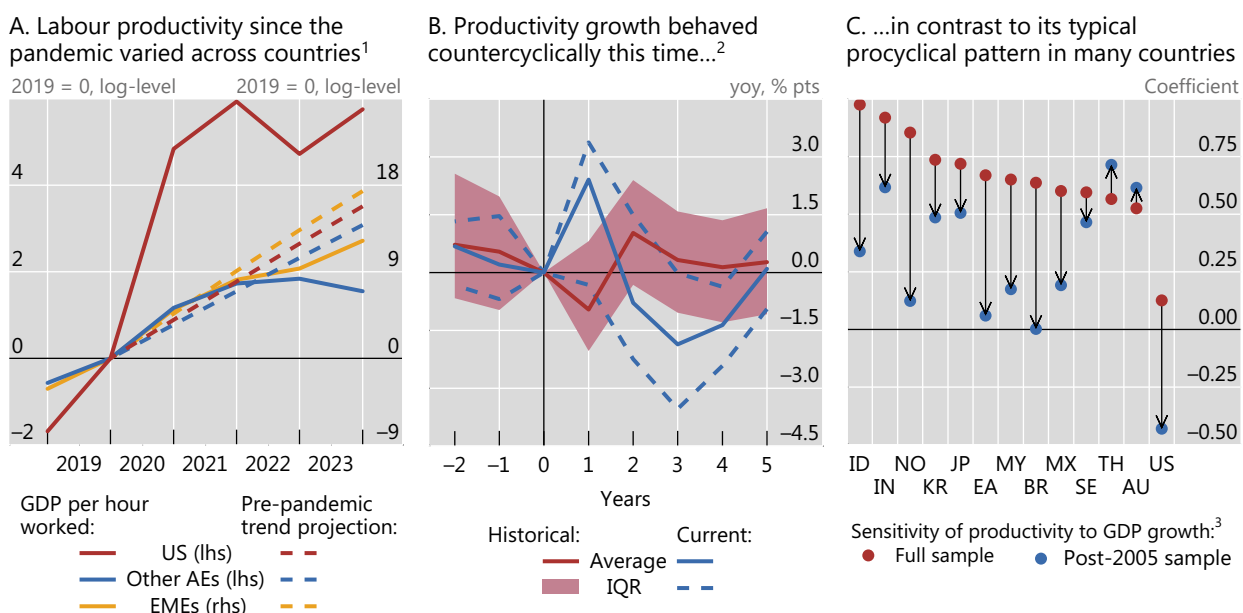
First, labour productivity increased in all countries during the Covid-19 recession (Graph 1.A). For most countries, this countercyclical pattern is unusual because productivity typically falls in recessions (Graph 1.B). While the degree of procyclicality declined in recent decades, it flipped sign in only a few cases (Graph 1.C). The United States is an exception, since countercyclicality has been the norm there (Fernald and Wang (2016)).

Second, once lockdowns were lifted and economic activity recovered, labour productivity fell back. It is now generally below the level implied by pre-pandemic trends. The exception is again the United States, where the current level is above the 2010s trend.

Third, recent slow rates of labour productivity growth reinforce already sluggish pre-pandemic patterns for many countries (Goldin et al (2024)). Labour productivity growth had been on a downward trend for decades in most advanced economies (AEs). The United States was an exception with a boost in the 1990s and relatively stable productivity growth thereafter. For emerging market economies (EMEs),

productivity growth also tracked a downward trend in emerging Europe, stayed stagnant in Latin America and lost momentum elsewhere. This slowed down convergence to the productivity frontier.

Productivity outcomes since the pandemic have departed from historical patterns Graph 1



¹ GDP (PPP) volume per hour worked. Pre-pandemic trend based on 2011–19 data. For the regions, GDP-PPP-weighted averages of 10 other AEs and 27 EMEs. ² Growth in GDP (PPP) volume per hour worked across 22 AEs and 13 EMEs, normalised to zero at $t = 0$, which marks the year before a business cycle trough, defined according to the Organisation for Economic Co-operation and Development (OECD) classification of turning points in the cyclical component of real GDP. Historical estimates obtained using business cycle troughs in each country between 1990 and 2019. IQR is the inter-quartile range. ³ Regression coefficients of growth in output per hour on real GDP growth. Sample covers 1950–2023, where data are available.

Sources: OECD; The Conference Board Total Economy Database™, May 2024; BIS.

Drivers of recent productivity outcomes

What can account for these stylised facts and what do they imply for the outlook?

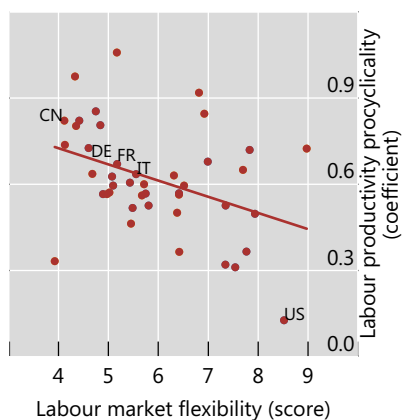
Conjunctural factors

A countercyclical pattern in labour productivity is a sign that the economy can flexibly adjust inputs and outputs around business cycle fluctuations, both within and across sectors. During recessions, less productive workers are laid off and less productive firms exit. Labour market flexibility strengthens this “cleansing effect”. As expansions resume, productivity normalises around what would be implied by long-run drivers – namely, technological progress, the capital-to-labour ratio and labour quality.

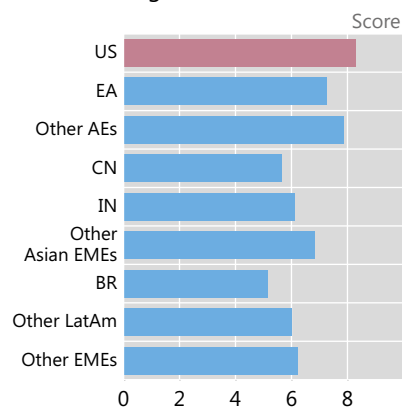
This may help explain why, in contrast to elsewhere, US productivity is countercyclical *as a norm*, given its comparatively flexible labour market (Graph 2.A) and dynamic business environment (Graph 2.B). Cleansing effects are weaker elsewhere, especially during the recent recession, as many economies adopted widespread furlough schemes. Labour hoarding has also become visible more recently, notably where hiring and firing is more costly (Graph 2.C).

If so, what can explain the *general* increase in GDP per hour across countries during the recent recession? One reason is the abnormally large and distinctive sectoral reallocation that took place globally, away from lower-productivity contact-intensive services such as hospitality, towards higher-productivity sectors. This *temporary* sectoral adjustment also goes some way towards explaining the subsequent slowdown. As the cross-sectoral reallocation reversed post-pandemic, with demand shifting back towards services, within-sector developments resumed as the primary driver of productivity (OECD (2024)).

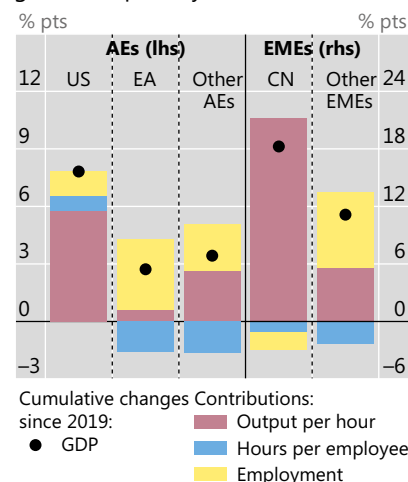
A. Productivity is less procyclical in flexible labour markets¹



B. United States scores highly on "ease of doing business"²



C. Employment has underpinned growth, especially in the euro area³



¹ Each dot represents a country. Labour market flexibility is based on the Fraser Institute "Labour market regulations" score, ranging from 0 (highly regulated) through to 10. Average score for selected years between 1985 and 2019. "Labour productivity procyclicality" is based on the regression coefficients of growth in output per hour on real GDP growth, as used in Graph 1. ² "Ease of doing business" is the average of the Fraser Institute score for "Business regulations" and "Freedom to enter markets and compete", both ranging from 0 (highly regulated) through to 10. Score for 2021. Simple averages of 12 EA members and nine other AEs as well as eight other Asian, five other Latin American and seven other EMEs. ³ Changes between 2019 and 2023. GDP-PPP-weighted averages for nine other AEs and 26 other EMEs.

Sources: OECD; The Conference Board Total Economy Database™, May 2024; Fraser Institute, Economic Freedom Rankings; BIS.

In this context, the relative strength in US productivity growth may owe in part to strong investment, in turn linked to business dynamism, along with greater labour market flexibility. There has been a sustained surge in new business registrations in the United States since 2020, setting it apart from its peers (Graph 3.A; see also de Soyres et al (2024)). Renewed business dynamism breaks the flat pattern observed since at least the Great Financial Crisis (GFC).

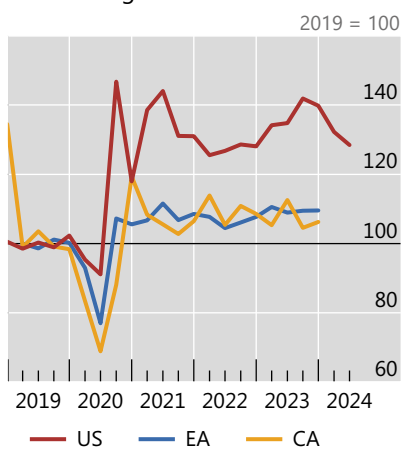
One possible reason behind the return of the US dynamism is the size and type of fiscal stimulus specific to the Covid-19 crisis. Direct support to households rather than furlough schemes may have had longer-term benefits by also fostering better within-sector matches¹ and the creation of new businesses.² And the incentives for investment in high-tech manufacturing and clean energy may have enabled risk-taking by venturing into innovative technologies and may have crowded in private investment (Van Nostrand et al (2023)).

A resumption in immigration following interruptions at the height of the pandemic may have also played a role in the robust productivity outcomes in the United States, albeit likely a comparatively small one. After all, in countries such as Canada and Australia, the rebound in immigration since the pandemic has been stronger but has coincided with relatively weak labour productivity. One possible reason for the difference between these countries and the United States is capital shallowing: the investment response in Canada and Australia has lagged growth in the labour force. In addition, a more dynamic and high-pressure economy in the United States may have enabled faster absorption of immigrant labour.

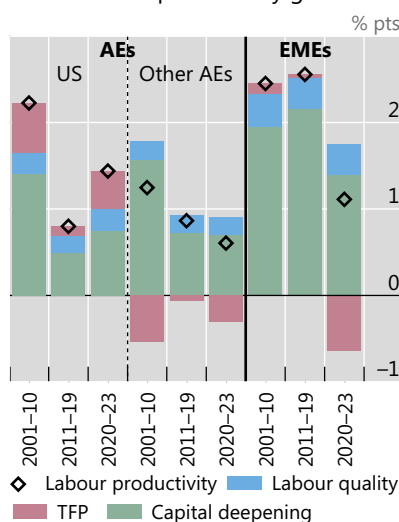
¹ If this interpretation is correct, it suggests that at least in the current episode, the longer-term benefits of furlough schemes for productivity – avoiding "scarring effects" by preserving skill matches and avoiding skill-diluting unemployment spells – have been more than offset by the reallocation costs. This may be due to the type and sheer size of the shock and, in some cases, other forces, such as the energy price surge in Europe. There is some more direct evidence of such unintended effects for the euro area (Lalinsky et al (2024)). Further, an increase in the rate of job-to-job transitions in the United States since 2020 explains a large share of productivity growth (Dao and Platzer (2024)).

² Some estimates attribute more than half of the observed rise in business formation in 2020 to the expansion of unemployment insurance benefits under the CARES Act (Choi et al (2024)).

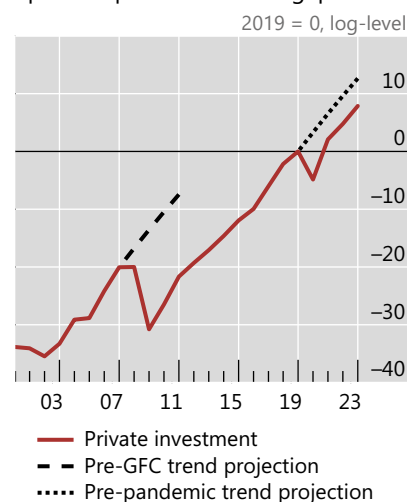
A. Business formation in the US has been strong relative to other AEs¹



B. Investment accounts for much of the decline in productivity growth²



C. The pandemic, like the GFC, has opened up an investment gap³



¹ For US, business applications with a high propensity of turning into a business with a payroll; business entries otherwise. Seasonally adjusted. For EA, GDP-PPP-weighted average of BE, DE, ES, FI, FR, GR, IT, LT, NL and SI. ² Decomposition based on a Cobb-Douglas production function. Simple averages across economies and periods. 10 other AEs and 27 EMEs. TFP is total factor productivity. ³ Private gross fixed capital formation volumes in local currency. GDP-PPP-weighted average for 11 AEs and 18 EMEs. Pre-pandemic trend based on 2015–19 data. Pre-GFC trend based on 2003–07 data.

Sources: IMF; OECD; US Census Bureau; The Conference Board Total Economy Database™, May 2024; LSEG Datastream; BIS.

Longer-term prospects

Capital shallowing due to chronic investment weakness has been one reason behind the widely documented pre-pandemic slowdown in productivity growth. Estimates vary, but roughly half of the productivity growth slowdown in AEs in the 2010s can be attributed to this factor (Graph 3.B). The damage from the GFC helps to explain this (Graph 3.C). In EMEs, which were less affected by the GFC, investment and productivity in the 2010s held up better. The pandemic’s impact, although more modest than that of the GFC, is evident. The United States, as noted, is one exception, with business investment largely back in line with the pre-pandemic trend, joined by some smaller AEs.

Legacies from the pandemic could darken longer-term prospects, primarily through the impact on the labour force. For a number of EMEs, improvements in human capital have stalled. Lost schooling during the acute phase of the pandemic may erode skills in the decade or so ahead. This compounds the challenges from ageing, with the working-age population projected to decline materially in several European and Asian economies. While the pandemic also triggered a rapid expansion of digitalisation, with the potential to raise productivity to varying degrees across countries, empirical estimates of the actual impact of the expansion have been mixed (see, for instance, Fernald et al (2024)).

Trade fragmentation and a reduced pace of knowledge diffusion through globalisation could add to these headwinds. Indeed, trade and foreign direct investment have been powerful engines for global growth, particularly through the manufacturing sector. There is a risk that the slowdown in globalisation evident prior to the pandemic could be exacerbated by growing geopolitical tensions (Graph 4.A). This would have a first-order effect on global productivity, given the tight and intricate linkages of modern trade.

More broadly, structural reform efforts that could foster stronger productivity growth had been flagging for quite some time. Labour market flexibility supported productivity during the pandemic. In the absence of well-designed measures to introduce more flexibility, many countries may find themselves ill-

positioned to navigate an uncertain environment characterised by large and more frequent supply-side shocks.

Could technological advances, such as artificial intelligence (AI), help to offset these secular headwinds? Early evidence finds that AI raises labour productivity in tasks that require cognitive skills and can boost firm performance (BIS (2024)). The overall impact could be large, particularly if AI can itself spur broad-based innovation. But there are no guarantees. And, although investment in AI has grown strongly and the initial adoption of AI tools has been rapid, previous waves of technology adoption suggest that the impact on productivity is likely to show up only over time and unevenly across sectors and countries.

Takeaways for policymakers

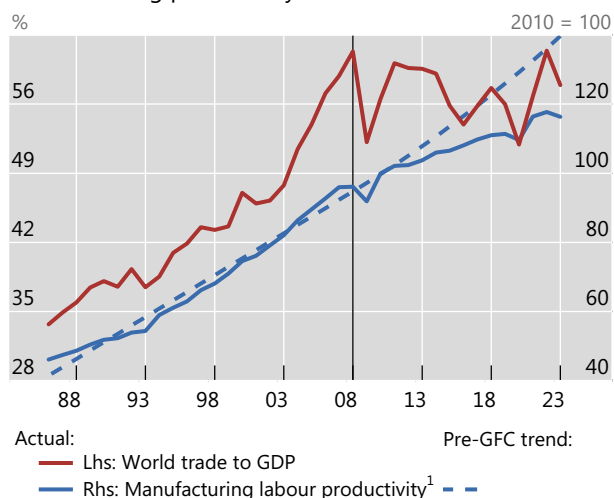
In the near term, sluggish productivity growth could delay the convergence of inflation to central bank targets. As an illustration, if productivity growth averaged at the 20th percentile of growth during the pre-pandemic period, inflation would be half a percentage point higher on average by mid-2025, assuming normal behavioural patterns in wages and markups.

In the longer term, persistent weakness in productivity means lower potential growth. Monetary policy would need to ensure that estimates of potential output capture the stepdown in growth in a timely way.³ This low-growth environment could generate political and social pressure on central banks to be more accommodating and hamper fiscal sustainability, putting the low-inflation regime at risk.

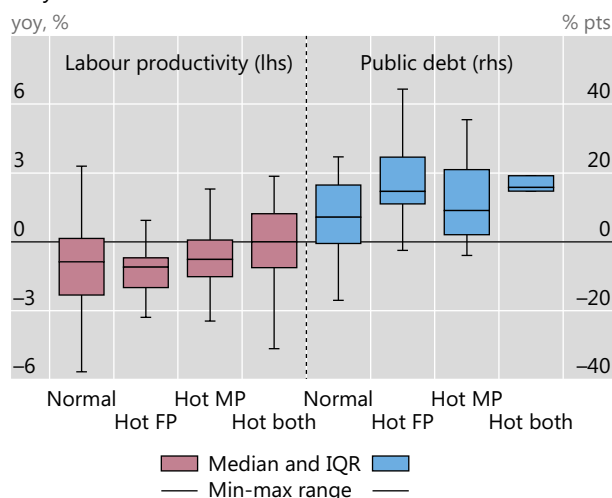
Boosting productivity requires structural solutions

Graph 4

A. Trade fragmentation could further weigh on manufacturing productivity



B. High-pressure countercyclical policy entails costs and only elusive benefits²



¹ Gross value added volume per person employed in the manufacturing sector. Median across 34 AEs and EMEs. ² Panel shows the difference in growth rates/ratios between the post-recovery period (up to two years) and the pre-recession period (up to five years). A recovery episode is defined as the first two years of output expansion following a recession. Boxes represent types of recovery episodes, classified by policy stances in place during the recovery. "Hot FP" are the recovery episodes where the fiscal deficit was above one standard deviation for at least a year, while "Hot MP" are the recovery episodes where the policy rate was below one standard deviation of the level implied by the first-difference policy rule for at least a year. In "Hot both", both fiscal and monetary policies were "Hot", as per the previous definitions, during the recovery. In "Normal", there was no extraordinary policy support. IQR is the inter-quartile range.

Sources: IMF; OECD; World Bank; The Conference Board Total Economy Database™, May 2024; Bloomberg; Global Financial Data; LSEG Datastream; Macrobond; national data; BIS.

A direct link between productivity and macroeconomic policy would have farther-reaching implications. On the one hand, a more accommodative policy could in principle promote productivity by

³ Weaker productivity growth could also have a depressing impact on the natural rate of interest. However, the empirical relevance of such a link is, in fact, debatable. See Benigno et al (2024) for an overview.

minimising the risk of hysteresis effects associated with downturns and stimulating growth-enhancing investment (Cerra et al (2023)). On the other hand, such a strategy could imply higher inflationary pressures via stronger aggregate demand. Moreover, it could lead to resource misallocation and a build-up of financial imbalances, which in turn could weaken productivity growth, especially if financial crises follow.

The cross-country evidence finds the benefits for productivity of “running the economy hot” to be unclear and likely dominated by the costs. Examining 168 recovery episodes across 20 AEs and 18 EMEs between 1960 and 2023 reveals that unusually expansionary policies during recoveries produce little lasting impact on labour productivity growth (Graph 4.B). By contrast, high-pressure policies typically result in substantially higher public debt, especially when both monetary and fiscal policies are running hot.

Few EMEs could adopt such a high-pressure strategy without substantial risks. Out of 12 recovery episodes when both fiscal and monetary policies ran hot, only two were in EMEs. These exceptions are Malaysia and Thailand in the immediate aftermath of the Asian Financial Crisis, where the economies were arguably still operating well below full capacity. There are several reasons why EMEs are less equipped than AEs to run hot policies. Strains on public finance could push up sovereign risk premia, putting pressure on the currency and threatening macro-financial stability. Loose macroeconomic policy could de-anchor inflation expectations and put price stability at risk. In AEs, these concerns may be partially allayed by stronger institutional and policy frameworks and, in the case of the United States, the unique status of the US dollar. But the unfavourable risk-reward ratio of high-pressure policies still warrants caution. Relying on nominal policies to permanently influence the trend in real variables is a difficult and highly risky strategy, with very elusive benefits.

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