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Prospects for Global Potential Growth: The Next Decade

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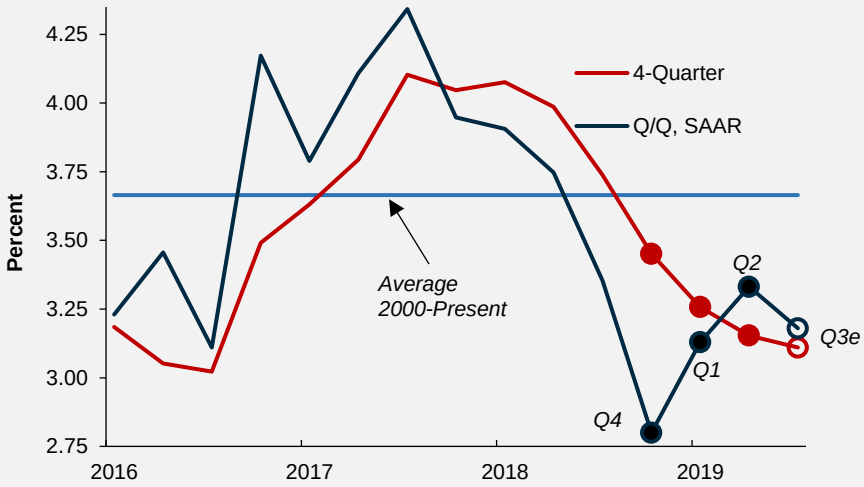
The pace of global growth has slowed significantly during the past two years. After peaking at over 4% in 2017, it has softened to just above 3% at present, well below its two-decade average of nearly 3.7%.[1] A number of factors have weighed on performance recently, including uncertainties associated with the trade war, a sustained slowdown in the Chinese economy, and softness in the global tech and auto sectors. In contrast, resilient consumer spending and ongoing labor market strength have supported economic activity in many countries.

Figure 1: Global GDP Growth



Source: PGIM Fixed Income, J.P. Morgan, and Haver Analytics

These developments raise important questions: Should this slowdown in global growth alarm investors? Are we seeing signals of a global recession, or is the softening of performance signaling the onset of a new paradigm with a deeper and more sustained slowing in underlying trend growth? To shed light on these questions, we must have some sense of where the deeper drivers of growth are headed and the breadth of the possible outcomes for the global economy. Framed in economically concrete language, the question becomes: How is global potential growth likely to perform in the years ahead, say for example, over the next decade?

We focus our analysis on two clear—and we believe predictable—trends that will shape global economic performance going forward. The first is that global demographics are poised to become less supportive. The second is that Chinese growth is likely to moderate further. We don't see this slowing in China as indicating some deep pathology but rather a maturation, as the economy converges toward the technological frontier. Drawing on these building blocks, we make some probabilistic judgments about how the rest of the global economy will evolve over the next ten years.

The conclusion of our work is that global potential growth is likely to be on a declining trajectory through 2029. We consider a range of scenarios, but in our central case, global potential growth slows to 3.3% during the next five years and then to 3.0% in the second half of the 2020s. This represents a marked slowing even relative to the restrained performance during the post-crisis expansion. The deceleration reflects roughly 15-20 basis points of drag from reduced Chinese growth and a headwind of roughly similar magnitude from less supportive demographics. These findings have supported our conviction for low-for-long developed market interest rates.

[1] *The measure of global growth that we are using is purchasing power parity (PPP) weighted and includes 18 major economies, including the United States, the euro area, Japan, the United Kingdom, Australia, Canada, Argentina, Brazil, Mexico, China, India, Indonesia, Korea, Poland, Russia, Saudi Arabia, South Africa, and Turkey. These economies account for nearly 80% of global PPP GDP.*

The Global Demographic Slowdown

Economic forecasts over long horizons are inherently characterized by uncertainties. The "known unknowns" are extensive and include the settings of policy variables as well as the private sector's reaction to those policies and to a myriad of other factors. But the "unknown unknowns" that will shape performance are even more daunting. By the very nature of such factors, it's harder—and perhaps impossible—to adequately anticipate and prepare for them.

Demographic variables, however, stand in marked contrast. Their paths are established well in advance, even out to horizons exceeding several decades. Since demographic factors shape the growth of the labor force, which subsequently plays a key role in driving real GDP growth, they provide a useful starting point for our assessment of global potential growth. This is particularly true for the decade ahead, since we're likely to see important demographic transitions in both developed market and emerging market economies.

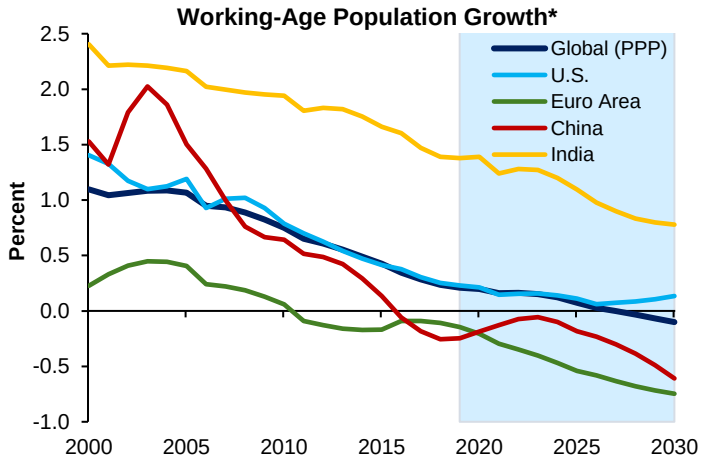
In previous work studying the relationship between demographics and economic growth, we found that several channels are likely in play.[2] First, an aging population will translate, almost by definition, into slower labor force growth. While there are possible offsets, including encouraging workers to remain in the labor force until they are older, such efforts are unlikely to fully reverse the demographic slowdown. The reduced pace of labor force growth, in turn, tends to translate into slower overall economic growth.

Second, evidence suggests that retirees typically spend less than working households, and households approaching retirement may be focused on saving. Both of these factors indicate that an aging population may be associated with weaker growth of consumption and aggregate demand.[3]

Third, with slower labor force growth, firms may choose to slow the pace of investment given that there are fewer workers to outfit with new capital. The extent to which this occurs will vary across countries and industries. The underlying conceptual question is to what extent new types of innovative capital might substitute for labor? With the rise of labor-saving technologies, including robotics and autonomous vehicles, such questions will likely become front and center in the coming decade. Our sense, however, is that while some substitution of capital for labor is possible, slower labor force growth is nevertheless likely to bring with it some reduction in the growth of investment and the capital stock. Finally, an additional uncertainty is whether an older population will engage in less risk-taking and entrepreneurship. If so, aging demographics are likely to bring lower productivity growth as well.

Given these considerations, the data in Figure 2 are sobering. *Globally, the growth of the working-age population (WAP), people 15-64 years old, is likely to slow dramatically from 1.7% percent in the decade of the 2000s to just 0.9% in the 2020s.[4] When weighting countries by purchasing power parity (PPP) GDP, the slowing is even more marked, and the largest economies will be hit especially hard.* Working-age population growth in the U.S. and the euro area is expected to drop by roughly a percentage point, and it is expected to decline by more than 1.5 percentage points in China and Korea. Furthermore, working-age populations in the euro area, Japan, China, and Korea are expected to contract. Growth in Mexico and India is also forecast to decline while likely remaining solid.

Figure 2: Global Demographics



Working-Age Population Growth (Annual Average, Percent)	2000-09	2010-19	2020-2029
Advanced Economies			
United States	1.1	0.5	0.1
Euro Area	0.3	-0.1	-0.5
Japan	-0.5	-1.0	-0.6
United Kingdom	0.9	0.4	0.1
Emerging Markets			
Mexico	2.1	1.6	1.0
India	2.1	1.7	1.1
China	1.4	0.2	-0.2
Korea	0.6	0.3	-1.0
Global	1.7	1.2	0.9
Memo: Global (PPP-Weighted)	1.0	0.5	0.1

*Source: United Nations and PGIM Fixed Income. *15-64 years old.*

[2] *"The Economics of Global Aging: Gray Skies, Rays of Policy Hope?," December 2018.*

[3] *According to the Survey of Consumer Expenditure published by the U.S. Bureau of Labor Statistics, the average expenditure of households headed by 25-64 year olds is $67,500, but just $50,900 if headed by someone over 65.*

[4] *We have found that this variable, equal to 1 minus the dependency ratio, is a powerful summary statistic for demographic change.*

The question is then: what do aging demographics imply about global growth? Our previous empirical work finds that across the global economy, a 1 percentage point slowdown in working-age population growth takes just a bit less than 1 percentage point off global real GDP growth. As we discuss in more detail in the Appendix, this estimate strikes us as reasonably capturing the effects of the demographic slowdown on growth. For the sake of simplicity, we round this relationship to one-to-one in our estimates.

However, the overall effects on the economy may be larger or smaller than this rule of thumb. To the extent that labor force participation rates rise to offset demographics, or labor-substituting technologies take hold, the effects will be somewhat less pronounced than these estimates. On the other hand, to the extent that slowing demographics bring fiscal problems, which themselves weigh on economic growth, or that an older population is less engaged in activities that drive productivity, the effects could be even more pronounced than we estimate.

China's Gradual Slowing

Another factor framing the longer-term outlook is an ongoing slowdown in Chinese growth. As shown in the top panel of Figure 3, the Chinese economy has decelerated from a 10% expansion pace in the years before the global financial crisis to a little over 6% at present.

We don't have strong views regarding how fast China is likely to grow over the next decade but, for the sake of discussion, we pencil in an average pace of 5%. Consistent with this, we assume that Chinese growth will fall below 6% in the first years of the decade and decline to about 4.5% by the end of the decade. We don't see this slowdown as signaling any particular vulnerability. Rather, it reflects the realities of China's ongoing economic maturation. As its per capita GDP rises and its economy moves toward the technological frontier, economic resources are being deployed more efficiently. As such, the scope for further improvements becomes more limited, and the pace of subsequent growth naturally moderates. Of course, if the well-documented imbalances in China's economy disrupt growth in some way, this would pose further downside risks.

However, the impact of China's slowdown is buffered by a second effect. Even as the Chinese economy slows, it continues to grow markedly faster than the rest of the global economy. Thus, through the decade of the 2020s, China's share of global GDP rises from 25% to 30%. Importantly, this means that China's overall contribution to global growth will decline less steeply than its growth rate.

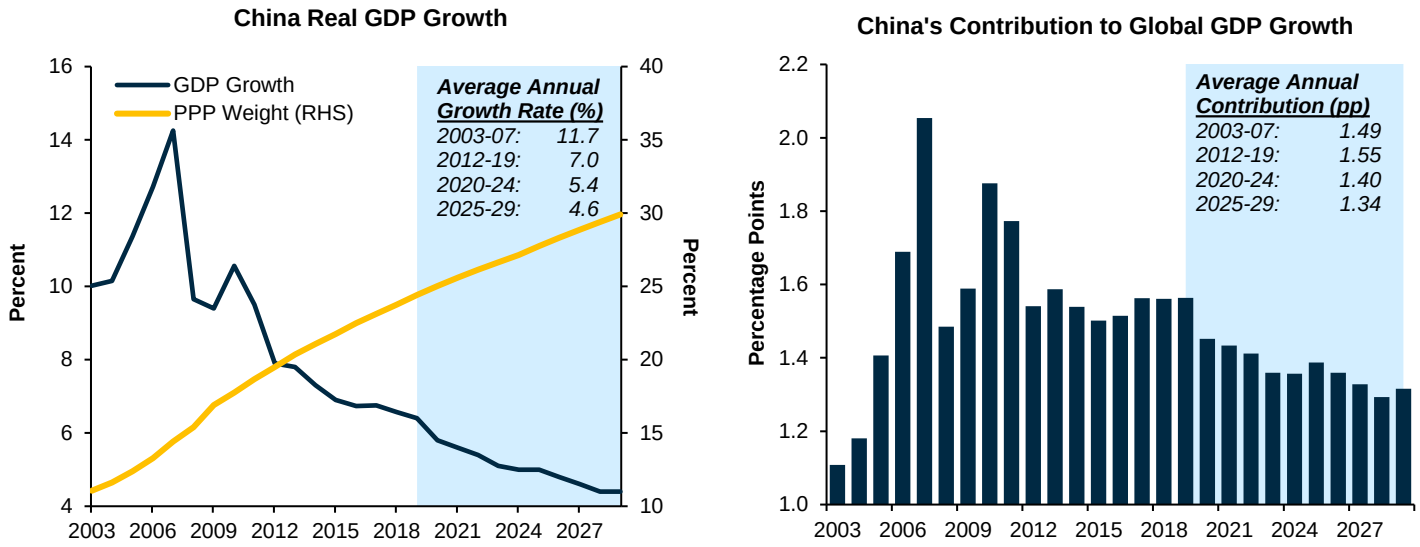
Figure 3 looks at this issue in greater detail. Notably, the left panel compares the pre-crisis period to the post-crisis period as China's real GDP growth slowed from 11.7% to 7.0%. Even so, with its GDP share rising from 12.6% to 22.1%, its contribution to overall global growth increased slightly, from 1.49 percentage points to 1.55 percentage points (right panel of Figure 3).[5]

Hence, through the 2020s, we expect that China's growth slowdown will dominate, but its decline in contribution to global real GDP growth should be much less pronounced than the decline in growth. *On balance, we see China's contribution edging down to 1.40 percentage points in the first half of the decade and then to 1.34 percentage points in the second half. All told, the total effect amounts to a subtraction of roughly 15 to 20 basis points on global growth relative to the average of the post-crisis period.*[6]

[5] *We report these contributions out to the second digit, since rounding to the first digit could obscure important shifts in China's contribution to global growth. Specifically, differences of up to 9 basis points could be rounded away.*

[6] *The reduction in contribution is roughly half as large if we use market, rather than PPP, exchange rates.*

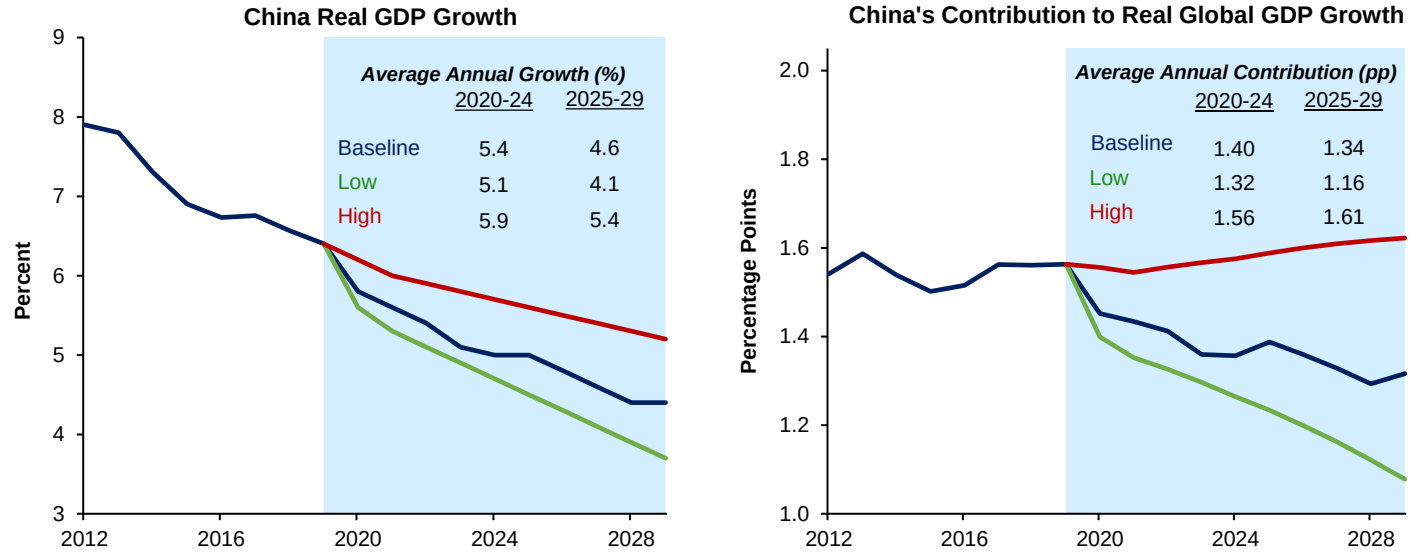
Figure 3: China's Slowdown



Source: International Monetary Fund and PGIM Fixed Income

Figure 4 sketches out the implications of some alternative paths for Chinese growth. If the economy exceeds our baseline, expanding instead at a 5.7% average pace through the decade, the contribution to global growth would rise to slightly over 1.6 percentage points by the second half of the decade. If instead, growth falls even further than in the baseline—averaging just 4.6% and moving below 4.0% by the end of the decade—China's contribution would fall to 1.16 percentage points by 2025-29, nearly 20 basis points lower than the baseline.

Figure 4: Alternate Paths for China's Growth



Source: IMF and PGIM Fixed Income.

Deriving Estimates of Global Potential Growth

We now use these two important trend factors as inputs into our projections for global potential growth. The remaining issue is how to formulate forecasts for the portion of growth that is still unexplained, i.e., global potential GDP growth excluding China and the imprint of demographics (for succinctness, we will refer to this as "PGDPxCD"). This variable can be interpreted, roughly, as the growth of global GDP per capita excluding China. It is not precisely GDP per capita because the divisor is working-age population rather than total population. [7]

On the issue of how PGDPxCD evolves, we are more agnostic than with our two building blocks, so we begin with two historical precedents. We look at the performance of this variable during the pre-crisis and the post-crisis periods. We draw on these episodes to derive estimates for this final piece of global potential growth.

Figure 5 details our approach. The top part of the table reports average real GDP growth for these 18 economies in the years before the global financial crisis and in the years of the post-crisis expansion. Using current country-weights, aggregate global growth in the earlier period came in at just over 6% and at nearly 4% in the latter period. These numbers are notably larger than the published numbers at the time because the weight of China and several other fast-growing emerging-market economies is currently higher than it was then.

Figure 5: Global GDP Growth (Average Annual Percent)

	2003-2007	2012-2018	Current Weight
United States	3.0	2.3	19.1
Euro Area	2.2	1.2	14.2
Japan	1.7	1.2	5.1
United Kingdom	2.8	2.0	2.8
Australia	3.4	2.7	1.2
Canada	2.6	1.9	1.7
Argentina	8.8	0.0	0.8
Brazil	4.0	0.1	3.1
Mexico	2.9	2.6	2.4
China	11.7	7.1	24.4
India	8.8	7.1	10.2
Indonesia	5.5	5.2	3.3
Korea	4.5	2.9	2.0
Poland	5.1	3.3	1.1
Russia	7.5	1.1	3.9
Saudi Arabia	5.9	2.7	1.7
South Africa	4.7	1.5	0.7
Turkey	7.3	5.4	2.0
(1) Aggregate Growth	6.1	3.8	100.0
Memo: At then-prevailing weights	*4.9*	*3.5*	
(2) Aggregate Growth (ex China)	4.2	2.7	75.6
(3) Working-Age Population Growth (ex China)*	1.0	0.5	
(4) PGDPxCD (Aggregate Growth ex China & WAP)	3.3	2.2	

*Country-level data weighted by PPP GDP. *Source: IMF, United Nations, and PGIM Fixed Income.*

[7] *Alternatively, this variable is also roughly equivalent to labor productivity growth of countries outside of China. The difference however is that labor productivity normalizes by employed workers (or hours) and our variable normalizes by working-age population.*

Once we strip away the effects of China's growth (line 2 of Figure 5), our measure of aggregate growth falls significantly in both periods. Finally, we subtract the effects of working-age population growth, which we continue to assume lifts (or reduces) real GDP growth roughly one-for-one.[8] We find that the remaining piece of aggregate growth (line 4) expanded by 3.3% in the first period and by 2.2% in the second period.

Which of these two estimates is likely to better frame our thinking about the coming decade? Scanning down the two columns—growth in every country was higher, often substantially higher, in the first period. It would be a very welcome result if countries returned to such booming growth but, in our view, that outcome is highly unlikely. On the other hand, the 2.2% growth recorded in the post-crisis period has been solid, but by no means spectacular. As such, the post-crisis performance strikes us a useful benchmark for our work and, in particular, one that offers upside and downside risks, i.e., PGDPxCD might perform better or worse than this standard.

Consistent with this, we also consider two additional scenarios—an upside case in which PGDPxCD is 0.3 percentage point higher and a downside scenario in which it's lower by a similar amount. The rationale for the upside scenario is that the global economy in recent years was perhaps still restrained by headwinds from the global financial crisis. These include pressures on the financial sector and on animal spirits in the corporate sector as well as on a general willingness to invest. In addition, productivity growth has been lackluster, and a sustained recovery is possible.

On the other hand, PGDPxCD could also be slower than what we have seen in recent years. The global economy has arguably seemed like it is running out of steam given deteriorating demographics, rising debt levels, and declining vibrance of investment and productivity. As such, even with the subdued pace of growth since the financial crisis, future growth could still take a further step down.

Figure 6 sketches out the implications of this exercise. We first focus on our baseline scenario for the next five years (column 2). As noted, we see PGDPxCD registering growth of 2.2% over this period. We then add in growth of the working-age population of 0.3%, which implies baseline growth of 2.5% on average for the global economy excluding China. Folding in projected Chinese growth of 5.4%, *we derive a baseline estimate for global potential growth of 3.3% for the next five years. This estimate is notably weaker than average growth over the post-crisis period, reflecting in roughly equal measure reduced contributions from demographics and China.*

Figure 6: Projections for Trend Global GDP Growth (Annual Average, Percent)

	Next 5 Years			2025-29
	Low	Baseline	High	
	(1)	(2)	(3)	(4)
(1) PGDPxCD (Aggregate Growth ex China & WAP)	1.9	2.2	2.5	2.2
(2) Working-Age Population (ex China)	0.3	0.3	0.3	0.1
(3) Aggregate Growth (ex China)*	2.2	2.5	2.8	2.3
(4) China GDP Growth	5.1	5.4	5.9	4.6
(5) Contributions to Aggregate Growth:				
Aggregate Growth (ex China)	1.6	1.8	2.1	1.6
China	1.3	1.4	1.6	1.3
Aggregate Growth**	**3.0**	**3.3**	**3.6**	**3.0**

**Sum of lines (1) and (2). **Rows may not sum due to rounding. Source: IMF and PGIM Fixed Income*

The first and third columns of Figure 6 draw on our work to provide alternative perspectives on the next five years. In the "Low" case we assume that there is less vibrance in PGDPxCD and that China's growth is markedly slower. The upshot is an estimate of potential of just 3.0%. Column 3, in contrast, considers an optimistic scenario. Persisting headwinds from the financial crisis abate, and China's growth remains near 6%. In this upside scenario, global trend growth would be near 3.6%, broadly unchanged from the performance of recent decades (again, see Figure 1). We see these alternative scenarios as nicely bookending the plausible range of uncertainty. Global trend growth is likely to be weaker than recent history—the main question is how large the drop might be.

The final column looks at the second half of the 2020s. We continue to assume that PGDPxCD runs at 2.2%, although we judge that the risks to this projection are probably skewed to the downside. Even so, with a further decline in the contribution from demographics and

[8] *Here we are aggregating country-level working-age population growth rates using PPP GDP weights.*

the projected ongoing slowdown in Chinese growth, *our estimate of global trend growth falls to just 3.0%. In other words, given our assumptions about demographics and China, trend growth in the second half of the decade is likely to just match our low scenario for the next five years.*

Concluding Thoughts

Our bottom line is that investors need to prepare for the likelihood that overall global growth will be on a decelerating trajectory through the decade ahead, in line with slower growth in China and a declining pace of working-age population growth. Our expectation is that this will be accompanied by sustained low inflation, stimulative central banks, and low longer-term interest rates. The upshot is likely to be a consequent decline in spreads and asset returns, as return-hungry investors gobble-up higher-yielding instruments. These findings have supported our long-duration positioning across our portfolios.

The pure economics of this environment would lead us to expect a prolonged period of low volatility in asset markets. However, the political implications give us pause. We fear the rise of intergenerational squabbling as younger workers resist the higher taxes that will likely be necessary to fund the benefits of the aging generation. Alternatively, younger workers might demand that their spending priorities also receive funding. The result could be some combination of rising public debt and political instability. For markets, this would likely reinforce risk-off behavior and increase demand for safe-haven assets.

All that said, some countries will absorb the growth slowdown better than others. Many of the emerging-markets economies will continue to see appreciably positive working-age population growth and favorable economic growth more generally. India is one important example. Such countries are likely to appear increasingly dynamic in comparison to the rest of the world and, hence, draw intensified investor interest. The consequent question becomes whether their financial systems are prepared to intermediate a potential increase in investment flows.

Further, some countries—through the flexibility of their labor markets and their broader economies—will better facilitate the substitution toward higher labor-force participation rates and labor-saving innovations that should buffer the effects of demographic change. Exactly which countries will show the necessary flexibility remain to be seen. But, at the risk of over generalization, the U.S. economy has historically excelled in its ability to smoothly adjust to shocks, while Europe has tended to struggle. However, given its rising fiscal challenges and political tensions, it's unclear whether the United States will show such dynamism yet again.

On the other hand, some of the economic and social pressures that have arisen in some countries as a result of China's rapid integration into the global economy may also begin to abate as its rate of growth moderates. The pace of resulting adjustment in employment and wages, as well as the pressures facing firms in competing countries, may cool some as well. Furthermore, to the extent that China's growth rebalances toward consumption, the implication should be increased Chinese imports. Over the long horizon, China should be a source of reliable demand for the global economy, not only a source of increased competition and supply.

Appendix

In this appendix, we lay out in more detail our thinking as to how demographics might influence economic growth. We begin with a textbook production function, which assumes that output (Y) is a geometric weighted average of productive capital (K) and labor input (L).[9] This production function also accounts for so-called total factor productivity (A), which represents the ability of firms to efficiently combine capital and labor. Arithmetically, such a production function could be depicted as:

$$Y = A * K^{1/3} * L^{2/3}$$

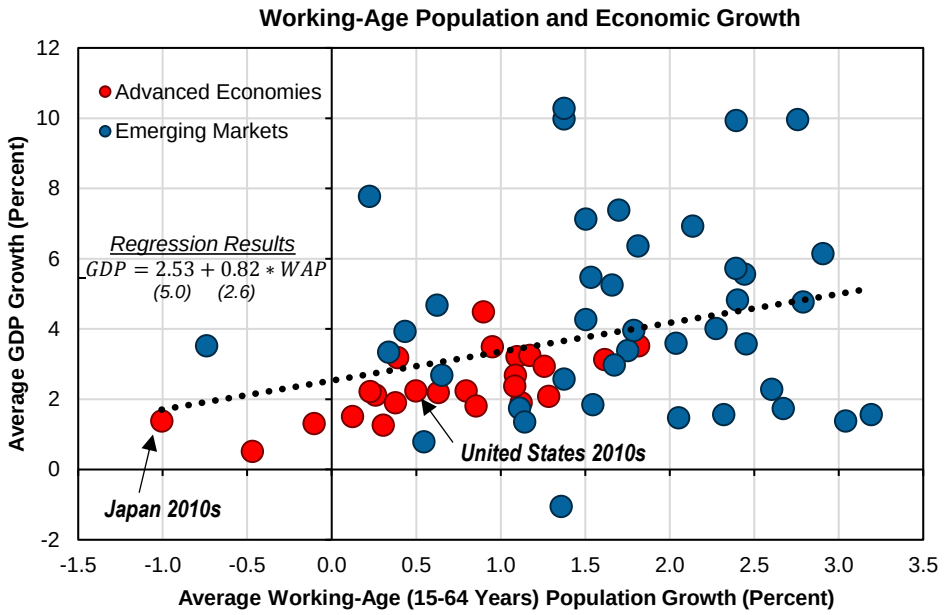
This in turn implies that:

$$Growth(Y) = Growth(A) + 1/3*Growth(K) + 2/3*Growth(L)$$

This framework has some concrete applications. For example, it implies that a 1 percentage point decline in the growth rate of labor inputs would translate into a 2/3 percentage point drop in overall output growth, holding all else constant. But, as we have argued, in the face of a slowdown in demographics, all else is unlikely to remain constant. Weaker demographics are likely to influence the pace of capital investment as well. In benchmark economic models, firms seek to maintain a stable K/L ratio, that is, they outfit each new worker with a fixed quantum of capital. Thus, a given slowing in labor input would be matched by a proportionate slowing in the growth of the capital stock. In this case, the 1 percentage point drop in labor input would translate into an equivalent 1 percentage point slowing in the growth of capital and real output. As noted in the body of the paper, we see this as a useful benchmark, and we use it as our rule of thumb in estimating the effects of demographic change on real GDP growth.

As one check on this feature of our work, we conduct a panel regression looking at decadal averages of country-level data of real GDP growth and the working-age population growth. As shown in Figure A, our panel includes six advanced economies and ten emerging markets, and it begins in the 1980s. AEs are represented by red dots and EMs by blue dots.

Figure A: GDP Growth and Working-Age Population Growth



Note: Decadal averages (1980s, 1990s, 2000s, and 2010s) for six advanced economies and ten emerging markets. Source: United National, Haver Analytics, and PGIM Fixed Income.

We find a significant relationship between demographics and real GDP growth. Specifically, a 1 percentage point decline in the growth rate of the working-age population is associated, across this panel of countries, with a drop in real GDP growth of 0.82 percentage points. This coefficient is a bit smaller than the one-to-one relationship used in the body of the paper, but the difference is not statistically significant, and using this slightly lower coefficient would not appreciably alter our results.

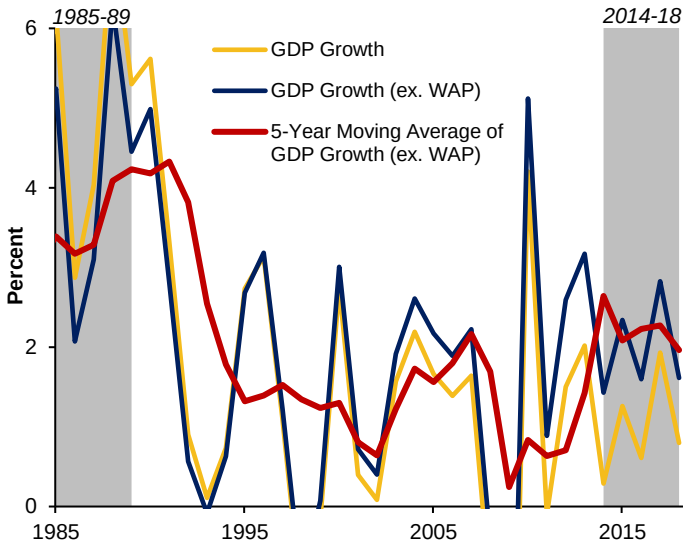
[9] *The weights on K and L reflect the shares of value-added paid to each of the two factors. Following convention, we set these values at 1/3 and 2/3, respectively.*

Further, as we have noted, the actual effects of the looming broad-based demographic deterioration might be meaningfully larger or smaller than what we have assumed. The coefficient might be smaller if declining demographics, for example, trigger an increase in labor force participation of older workers or if firms are able to substitute for the reduced availability of labor through emerging technologies, such as robotics or autonomous vehicles. Conversely, the effects might be larger if auxiliary sources of restraint emerge from the likely fiscal deterioration, if the demographic transition brings a reduction in total factor productivity (i.e., the aging population engages in less risk taking and entrepreneurial behavior), or if inter-generational conflicts about taxes or spending priorities lead to political instability.

As an alternative perspective on these issues, Figure B looks at the Japanese experience. We graph real GDP growth since 1985 (the yellow line) and real GDP growth subtracting out the effects of working-age population growth (the dark blue line), which we also show as a five-year moving average (the red line). Remarkably, once we control for working-age population, we find that real GDP growth stepped down sharply during the first half of the 1990s, but since then has been quite stable, cycling around a mean of roughly 1-1/2 percent. Further, growth appears to have notched up since the financial crisis, reflecting exceptional support from Abenomics.

The lower panel takes a stab at estimating how much of the downturn in Japanese growth since the late 1980s might be attributable to aging demographics. All told, we find that real GDP growth declined by 4.2 percentage points. Over the same period, working-age population growth slowed by 1.9 percentage points. Using the same rules of thumb as elsewhere in the paper, this exercise suggests that demographics have accounted for 45% of the slowdown over the past three decades. We conclude that the effects of shifting demographics have contributed powerfully to Japan's experience but that other factors have also been at work.

Figure B: Japan's GDP Growth and Working-Age Population Growth



	Average GDP Growth (%)	Average WAP Growth (%)
1985-1989	5.1	0.9
2014-2018	1.0	-1.0
Difference	4.2	1.9

Source: IMF and PGIM Fixed Income

Notice: Important Information

Source(s) of data (unless otherwise noted): PGIM Fixed Income as of November 2019.

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