

## The Great Demographic Reversal: Ageing Societies, Waning Inequality, and an Inflation Revival



By C.A.E. Goodhart<sup>1</sup> and Manoj Pradhan<sup>2</sup>

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*The rise of China to the status of economic superpower has been the dominant feature of the last three decades. China's rise, the main characteristic of globalisation, in conjunction with a beneficial sweet spot in demography, drove output up and inflation down in the advanced economies. But these trends are now reversing, and China's greatest contribution to global growth is now past. Its working age population is now shrinking, while the ranks of the old expands, there and worldwide. This great demographic reversal will lead to a return of inflation, higher nominal interest rates, lessening inequality and higher productivity, but worsening fiscal problems, as medical, care and pension expenditures all increase in our ageing societies. Meanwhile debt has been massively accumulated, especially as a consequence of the Covid pandemic. This will make control of inflation much harder in future decades. Be warned, the future will not be at all like the past, and in many ways even more difficult to manage.*

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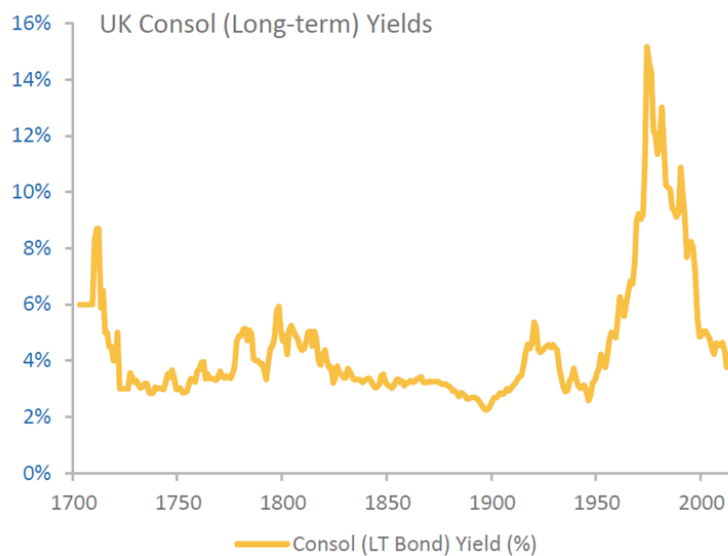
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## Dramatic nominal trends

During the seven decades, 70 years, since about 1950, trends in nominal variables, e.g. inflation, inflation expectations and interest rates, have been remarkably different from those of previous centuries. This is illustrated in Figure 1, showing the path of consol, (long-term bond), yields in the UK from 1694, the date of the foundation of the Bank of England, until 2020. Longer-term inflation, inflation expectations and nominal (and real) interest rates remained relatively constant over the earlier centuries, but then these nominal variables all rose dramatically from 1950 to a peak at the end of the 1970s. After that they fell equivalently precipitously until the present extraordinarily low levels.

**Figure 1:** Interest rates have been falling for decades



Source: FRED, Bank of England

These divergent trends have owed a lot to the changing monetary regimes, with the abandonment of the Gold Standard in, and following, WWII, and the attempt to maintain employment at a higher level than consistent with price stability. In our book<sup>3</sup>, however, we are focussing on the continuing decline in nominal variables since the 1980s, and what the future in this respect may hold for us. Much of the disinflation of the last three or four decades has, indeed, been due to an improved monetary regime, i.e. the combination of Central Bank Independence, together with the adoption of inflation targets, largely successfully achieved. But, in practice, it has not been too difficult, once the original break in inflation was achieved in the early 1980s, to maintain inflation at its target level, and, indeed, over the years since the Great Financial Crisis, central banks have struggled to keep inflation from falling significantly *below* their (common) inflation target, usually at 2% p.a. So, something else, besides an improved monetary regime, has been responsible for the disinflationary trends in recent years.

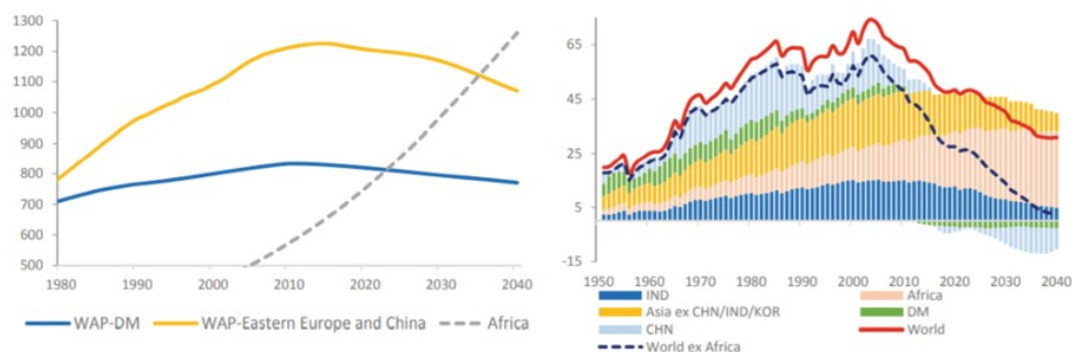
## Globalisation and demography

What we argue is that the main driving force behind such disinflationary trends in recent decades has been a mixture of demography and globalisation. In particular China is huge, and its working population has become increasingly incorporated into the world's trading system during these decades. Together with the incorporation of Eastern Europe into the available world working force, and improved demography, the effective world's

<sup>3</sup> Goodhart, C. and M. Pradhan, [The Great Demographic Reversal. Ageing Societies, Waning Inequality, and an Inflation Revival](#) (London: Palgrave Macmillan, 2020).

working age population more than doubled over the 30 years from 1980 to 2010, as shown in Figure 2. The effective working age population on which a footloose manufacturer in the West could call, was just over 700 million in 1980, but had reached over 2000 million by 2010, the largest positive labour supply shock that the world has ever seen. The working age population grew by leaps and bounds from year to year, until about 2010, see Figure 2. This upwards trend is now in the process of massive reversal, with one major exception. This is that the working age population in Africa is currently exploding upwards, a point that we shall come to later.

**Figure 2:** Working age populations falling globally – Africa is the key exception, and India to a lesser extent



Source: UN Population Statistics

### Positive labour supply shock

The increase in the available working supply in China was not only due to its inclusion in the world trading system, but also to a couple of major additional factors, the first being massive, internal migration from the western, inland, agricultural provinces to the industrial, urban centres in the coastal regions of China, and the second being a huge change in dependency ratios, with sharply falling birth rates, partly due to the ‘one-child policy’, bringing about a relative fall in young dependents, outdistancing during these decades a rise in the aged.

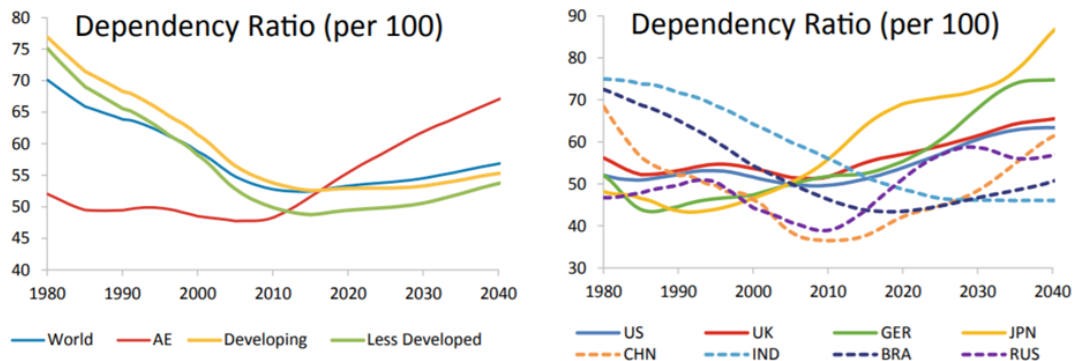
Exactly the same demographic changes have occurred in almost every other developed economy with the proportion of young in the population declining sharply over the years 1970-2010, outdistancing the rise in retirees over the same period, in virtually every country, except Japan, which has led the way in this common demographic adjustment. This is shown in Table 1 and Figure 3.

**Table 1:** Dependency ratios rising because of the elderly, not the young

	USA	UK	Germany	Japan	China
<i>Young</i>					
1970	28	24	23	24	40
2010	20	17	14	13	19
Change 1970–2010:	–8	–7	–9	–11	–21
2010	20	17	14	13	19
2019	19	18	14	13	18
Change 2010–2019:	–1	1	0	0	–1
<i>Retiree</i>					
1970	10	13	24	7	4
2010	13	17	21	22	8
Change 1970–2010:	3	4	3	15	4
2010	13	17	21	22	8
2019	16	19	22	28	11
Change 2010–2019:	3	2	1	6	3

Source UN Population Statistics

**Figure 3:** The ‘dependency ratio’ is rising in the AEs and EME giants – except India



Source: UN Population Statistics

The falling ratio of dependents to workers is of, and by, itself disinflationary. In extremely simple terms, workers must produce goods and services of more value than their wages; otherwise it would not be economical to hire them. By the same token, the young and old, who are not working, consume, but do not produce. Therefore, they increase demand relative to supply. The dependency ratios have been improving considerably until around 2010, and are now reversing sharply in most countries, see Figure 3.

**Table 2:** Inequality has narrowed across countries, particularly the EMEs  
Ratio of the wages of the workers

	USA/China	France/Poland
2000	34.6	3.9
2001	30.6	3.3
2002	27.4	3.5
2003	25.0	4.0
2004	22.9	4.2
2005	20.4	3.8
2006	18.1	3.7
2007	15.2	3.5
2008	12.2	3.0
2009	10.8	3.7
2010	9.7	3.3
2011	8.4	3.3
2012	7.5	3.4
2013	6.7	3.4
2014	6.3	3.3
2015	6.0	3.4
2016	5.9	3.4
2017	5.6	3.2
2018	5.1	2.9

Source National Sources

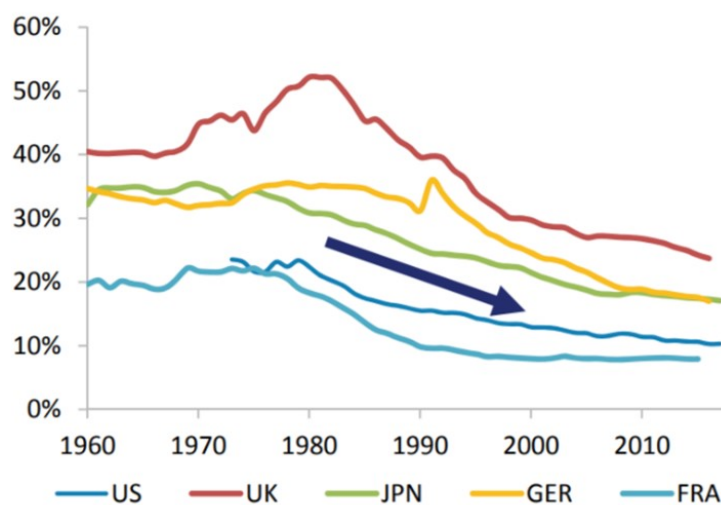
So, the combination of globalisation and demography has led to a huge increase in the world’s effective supply of labour, with that increase largely concentrated in Asia and Eastern Europe, where the wages of workers were initially at a far lower level than in the West. Moreover, these workers were relatively well educated, and the governments and administration in these countries were, in general, competent, efficient and focussed on growth. What would you expect the outcome to be? In a sense it is a triumph for macroeconomics that what happened is what you might have expected; this resulted in a shift of production of tradeable goods and services from the high-labour cost areas in the West to the low labour-cost areas in the East. The result was a sharp rise in the wages in the East and relative stagnation in the wages in the West. This is shown in Table 2. Largely because

China, and the rising nations of Asia, have such a large population, the absolute and relative rise in Asian (and Eastern European) incomes led to a significant fall in world inequality, at the same time as inequality within countries began to rise.

### Falling labour bargaining power

The greater world-wide availability of labour, the shift of manufacturer jobs to the East, especially to China, and the shift of production in the West from manufacturing to services, sometimes described as the 'gig economy', led to a major weakening in the bargaining power of labour. A steep decline in trade union density was both a symptom and a further cause of this decline in labour-bargaining power, see Figure 4.

**Figure 4:** The bargaining power of labour in the AEs has fallen due to the global shock to labour supply



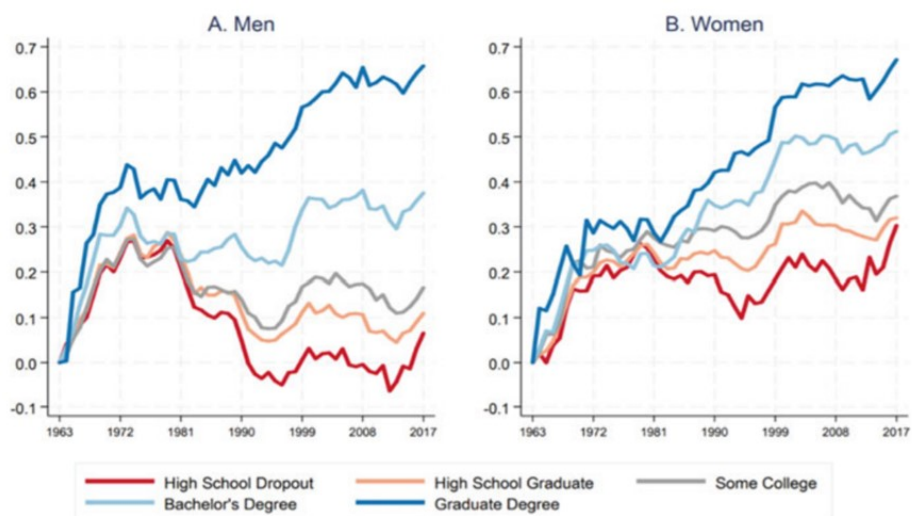
Source: OECD

### Within country inequality

In this process, the East provided masses of relatively low-skilled, but amenable labour, while the West provided skills, management and capital. As a consequence, the relative returns to the unskilled in the West stagnated, while the relative returns to skilled labour and management continued to increase very sharply, see Figures 5 and 6. The result was that the majority of working forces in Western economies, with relatively low human skills and no capital, saw their real incomes stagnating, and were forced into less technical sectors, the gig economy. The outcome was a rise of within country inequality over the last thirty years, particularly in the USA and the Nordic countries, but more generally, with only a few exceptions such as Turkey, see Figure 7.

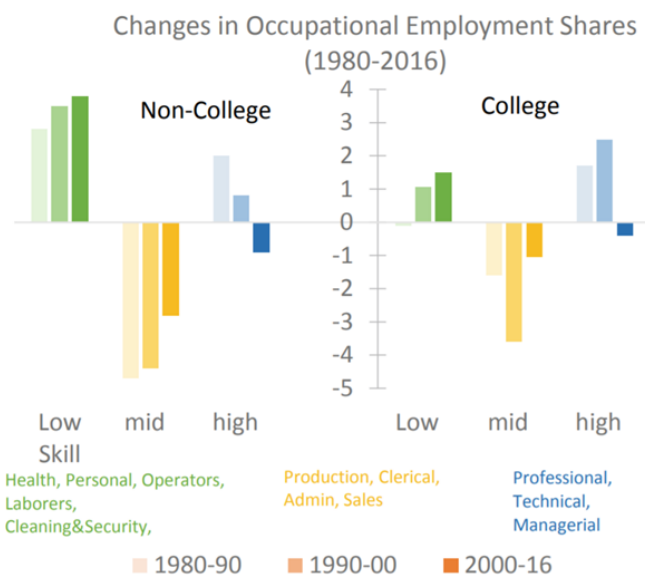
**Figure 5:** Those with lower educational attainment have been most exposed to the global shock to labour

Cumulative change in real weekly earnings at working age adults aged 18-64, 1963-2017



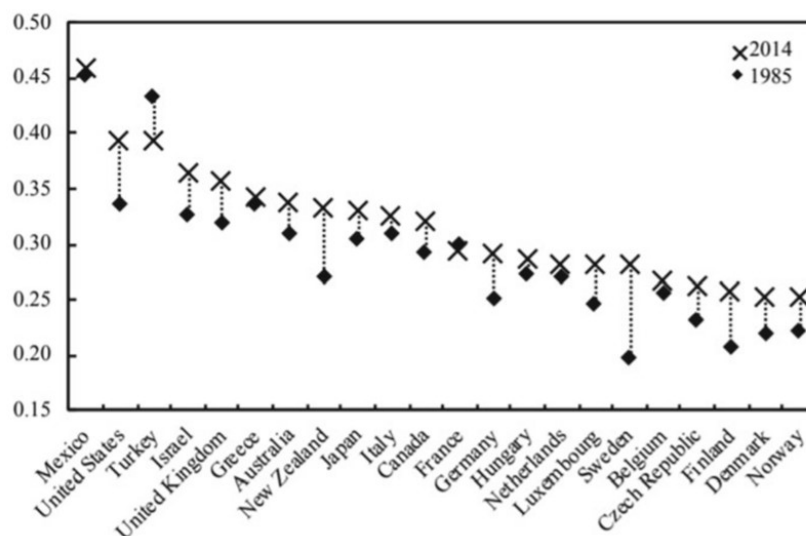
Source: American Economic Association

**Figure 6:** Those with lower educational attainment have been squeezed out of more technical occupations, and into less technical sectors



Source: OECD

**Figure 7:** Within-country inequality has risen over the last 30 years  
The Gini coefficient has risen across the OECD countries



Source: Rachel and Summers (2019)

### Ageing and worsening medical dependency

An unhappy aspect of the rise in life expectancy has been the increasing proportion of those with the infirmities of ageing, notably dementia, especially Alzheimer’s, but also other forms of morbidity, such as Parkinson’s and arthritis. Such ailments do not kill quickly, as cancer and heart disease have often done, but leave their sufferers incapacitated, in medical terms dependent on others for some, or most, of the activities of daily living (ADL). Note that in medical terminology, dependency depends on one’s needs for help with ADL, while in economics terminology, dependency relates to age brackets. In Table 3, we show how the percentage of those who are medically dependent rises sharply as the age bracket increases from young/old (65-75) to old/old (85 plus). By the time someone reaches the age of 95 they are almost certain to be medically dependent and reliant on the support and care of others. Since life expectancy has been rising so sharply, at any rate until recently, the percentage increase in the total population of the really old, 75 plus, will be growing far faster than that of the rest of the population, and their expected dependency will be an increasing burden on pensions, the need for carers and medical support, see Table 4.

**Table 3:** The oldest-old form the dominant cohort among ‘medical dependents’  
UK, 2017

		Total population	Dependents	Percentage
Young-Old	65-75	5276	1621	30
Old	75-85	3130	1539	49
Old-Old	85+	1318	1023	78

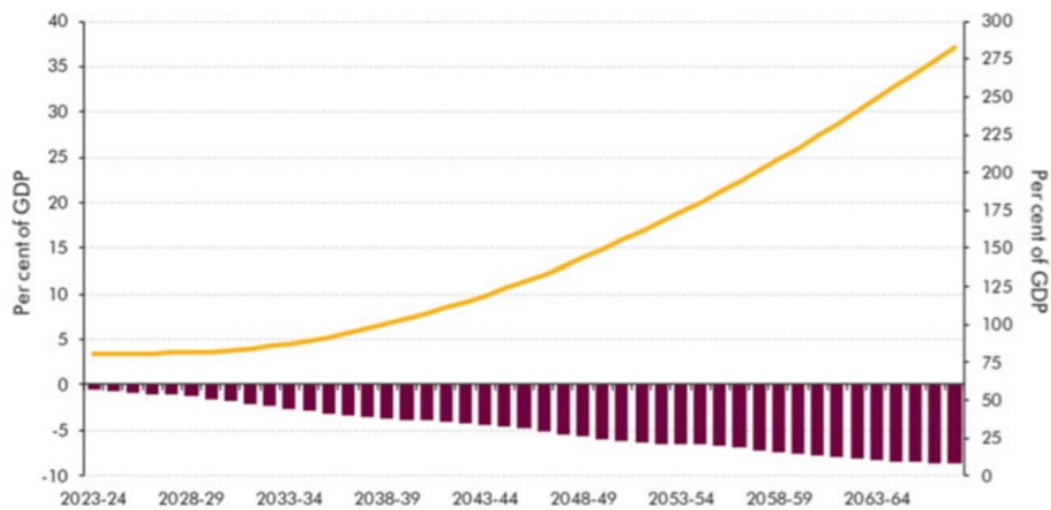
**Table 4:** The Cohort of the oldest-old will grow the most across all types of ‘medical dependents’  
Change 2015-35

	(000s)							
	Total population		Dependency					
		%Δ	Low	%Δ	Medium	%Δ	High	%Δ
65–75	6908	+31	967	–15	98	–49	241	–15
75–84	2778	+51	1400	+29	171	+5.7	378	+42
85+	2815	+114	1537	+148	293	+73	446	+92

### Ageing leads to greater fiscal problems

Largely because of such reasons, ageing will lead to a massive rise, given the expected future profile of public sector expenditures and tax receipts, in public sector deficits and borrowing. This was so even before the Coronavirus pandemic struck, which will have served to give a huge upwards boost to public sector deficits and borrowing. Figures 8, 9 and 10 all show this projected outcome, and such forecasts were constructed in 2018 before the pandemic struck. They will be significantly worse now.

**Figure 8:** Ageing will lead to a massive rise in deficits and borrowing  
Baseline projections of the primary balance and PSND



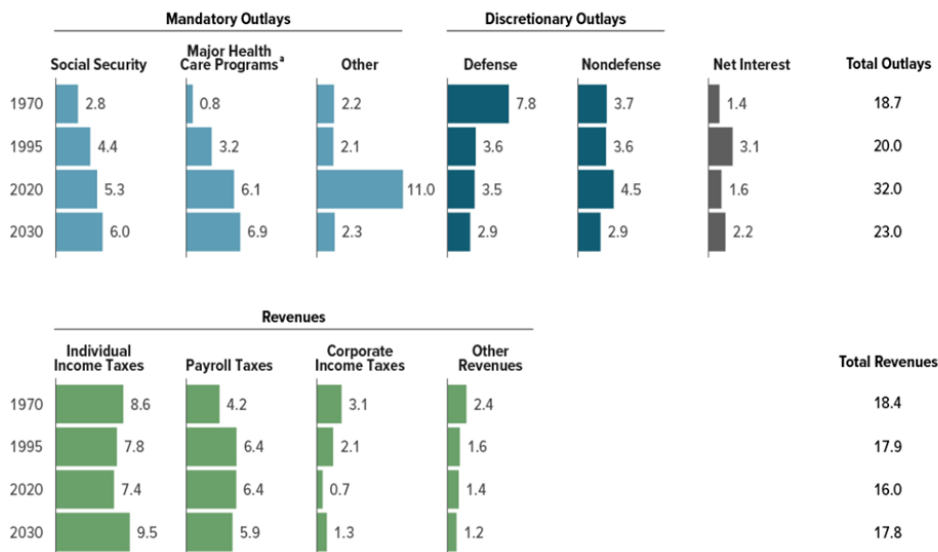
Source: OBR



**Figure 9:** US government outlay and revenue projections have multiplied over the last 50 years

**CBO's Baseline Projections of Outlays and Revenues, Compared With Actual Values 25 and 50 Years Ago**

Percentage of Gross Domestic Product

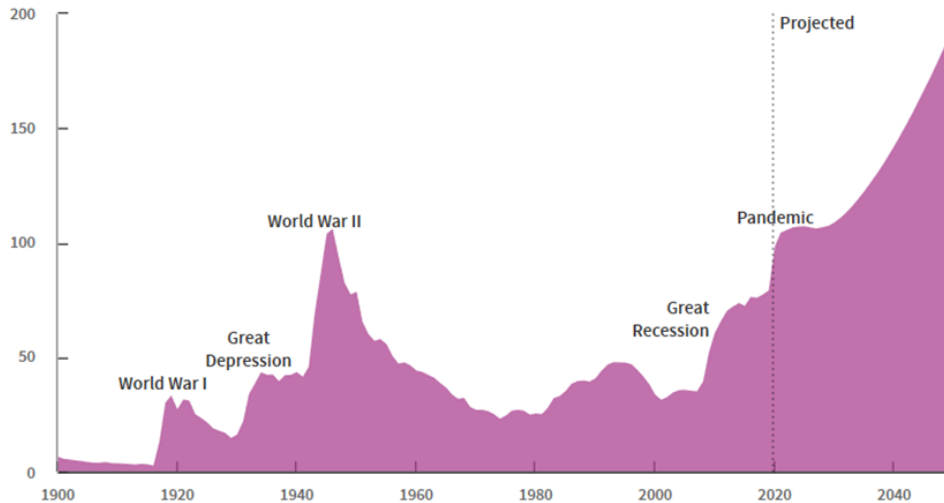


Source: CBO

**Figure 10:** US federal debt outstanding is projected to skyrocket, primarily due to ageing

**Federal Debt Held by the Public, 1900 to 2050**

Percentage of Gross Domestic Product



Source: CBO

So, what of the future? Most of the countries where growth has been strongest, such as Germany and China, are now facing a shift from an improving dependency ratio and a sharply growing working age population, to the reverse, a declining WAP and worsening dependency. Overall growth is the result of a combination of an increasing WAP, and an increase in productivity per worker. If the WAP is now beginning to decline in much of the West and Asia, then, unless productivity per worker enjoys a miraculous recovery, growth may subside to even lower levels than in the past. This means that we will not be able to grow out of our problems of deficit and debt, unless technology, e.g. AI, robotics, etc., generates a massive increase in productivity per worker; past disappointing figures for productivity increases in recent years makes this seem very unlikely. The alternatives, then, involve greater taxation, less welfare, notably reduction in state pensions, more inflation, or default. So, for example, a probable outcome will be higher taxes, especially on the rich, corporations, land and noxious carbon and other pollutants. None of these are politically palatable. If we think of politicians maximising their political chance for re-election, then our view is that greater inflation will be part of the optimal political mix. In recent decades, central bankers have been the best friends and supporters of Ministers of Finance. As public sector debt ratios have increased, the largest persistent increase of such ratios ever in peace times, the continuing decline in nominal interest rates has allowed debt-service ratios to remain stable, even to decline slightly. This symbiotic friendship is heading for a sharp divorce. The future for inflationary targetry will be much more difficult and problematic than in the past.

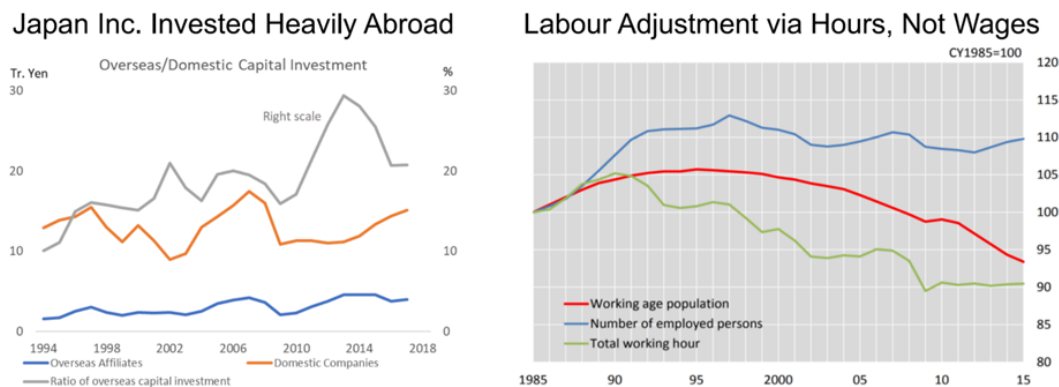
That said, there will be some more beneficial side-effects. As the labour markets tighten everywhere, we expect investment in Western countries to rise, in order to maintain competitiveness, which in previous decades could be achieved by out-shoring. So, we expect there to be some recovery in productivity per worker. Similarly, the recovery in labour bargaining power and the coming increase in taxation, especially on the rich, will lead to a waning of inequality. In a sense, the reversal of the previous trends in globalisation and demography will, we expect, lead to some reversal in the nominal trends that have been so prominent in recent decades.

But what seems so clearly obvious to us is simply not expected, or accepted, by the current macroeconomic mainstream, who envisage, 'lower for longer' and a weak and disinflationary economy for as far as the eye can see.

### The example of Japan

Perhaps the main reason why the mainstream doubts that demographic trends will have the effects that we propose, is that Japan has been at the spearhead of demographic change, with a rising ratio of old retirees, and a falling working age population, without this having any effect in increasing inflation, inflation expectations or nominal interest rates, even while unemployment there remains very low. But there are a number of factors that need to be considered relating to Japan. First, productivity per worker in Japan has been doing much better than in almost any other country. With their WAP falling at 1% per annum, with the increase in GDP per head rising at 1% per annum, this implies an increase in productivity per worker of 2% per annum, significantly better than in most other countries. We will all be lucky if we can in future do as well as Japan in this respect. Second, the earlier ageing of Japan's workforce occurred at a time when the global availability of labour, elsewhere in Asia, was overflowing. Japanese corporations took full advantage of this latter by offshoring their production of goods and some services abroad, enabling them to maintain their competitiveness and to reduce their workforce in Japan quite sharply, so the workforce in Japan moved strongly into the service sector, where they had little bargaining power. Third, the ethos in Japan when faced with a reduction in demand is not to cut employment, but to reduce hours worked. With a rising share of the workforce in part-time sectoral activities, and a decline in hours worked, the unemployment figures significantly overstated the pressure of demand in Japan.

**Figure 11:** “Why didn’t it happen in Japan?”



Source: METI, Haver Analytics

### Mitigants to rising inflation

Other mitigants to our forecast of greater inflationary pressures involve shifting production to those parts of the world where the working age populations are still rising sharply; that is Africa and India. Quite how the world will handle Africa over coming decades is a really major question. In both cases, we emphasise the problem of the competence and capacity of governance and administration as the major determinant of whether these areas can take up (part of) the mantle of China. Besides a switch of production to these areas of still growing working age populations, other mitigants involve being more parsimonious on benefits to the old, raising retirement ages and more participation of the elderly in the workforce, and the benefits of improved technology. All of these will, we trust, happen in part, but there are limits to their capacity of offset the current adverse demographic and globalisation trends, and we do not think that they can do more than reduce inflationary pressures.

### Debt accumulation

Since we doubt whether such mitigants can restrain inflation in future, once the Coronavirus epidemic is firmly behind us, we expect inflation to recur. If central banks are to meet their inflation target, this latter would, under normal circumstances, lead them to raise their interest rates. But there is a problem. This is that debt ratios, both in the public and private sectors, in most countries are so high that any significant rise in nominal interest rates would likely tip those economies back into recession, which would make everything worse. Figures on the debt trap in which we have now found ourselves, are shown in Tables 5 and 6. Concerns about the effects of rising interest rates under such conditions will lead to political pressures on central banks to allow inflation significantly in excess of present target levels.

**Table 5:** The debt trap

Debt in the AEs rose even further between the GFC and the pandemic

Dec-07						Dec-18					
	HH	NFC	PSC	Gov't	Total		HH	NFC	PSC	Gov't	Total
US	99	70	169	65	233	US	76	74	151	106	256
EA	60	92	151	65	216	EA	58	105	163	85	248
GER	61	57	118	64	181	GER	53	57	110	60	169
FRA	47	111	157	65	221	FRA	60	141	201	99	300
SPA	81	124	206	36	241	SPA	59	93	152	97	249
ITA	38	75	113	100	213	ITA	40	70	110	132	242
UK	92	94	187	42	228	UK	87	84	171	87	258
SWE	65	126	191	39	230	SWE	89	156	244	39	283
JPN	59	103	161	175	337	JPN	58	103	161	237	398
AUS	108	80	188	10	198	AUS	120	75	195	41	236
CAN	79	83	162	67	229	CAN	101	117	218	91	308

Change since Dec-07					
	HH	NFC	PSC	Gov't	Total
US	-22	4	-18	41	23
EA	-2	13	11	20	31
GER	-8	0	-8	-4	-12
FRA	14	30	44	34	78
SPA	-23	-31	-54	62	8
ITA	2	-5	-3	32	30
UK	-5	-11	-16	45	29
SWE	23	30	53	0	53
JPN	-1	0	-1	62	61
AUS	12	-5	7	31	38
CAN	22	34	56	24	80

Source BIS, IMF

Colour coded to help reader easier visualisation of debt levels and changes across the sectors and countries. Darker red colour stands for higher leverage or change in it within a sector of the economy and across our sample of countries, e.g. Australia displays the highest level in HH debt as % of GDP within our 10 country sample of advanced economies, and the lowest ratio on the public sector side.

HH—Households

NFC—Non-financial corporations

PSC—Private sector (HH + NFC)

**Table 6:** Debt has grown in the EMEs too – North Asia, Brazil and SAF need attention

Dec-07						Dec-18					
	HH	NFC	PSC	Gov't	Total		HH	NFC	PSC	Gov't	Total
CHN	19	98	117	29	146	CHN	53	152	204	50	255
KOR	72	89	161	29	189	KOR	98	102	199	41	240
IND	11	42	53	74	127	IND	11	45	56	70	126
IDN	12	15	26	32	59	IDN	17	23	40	29	70
MAL	52	58	111	40	150	MAL	66	68	134	56	190
THL	45	46	91	36	127	THL	69	48	117	42	159
HKG	51	126	177	1	178	HKG	72	219	292	0	292
BRA	18	30	48	64	111	BRA	28	42	71	88	158
MEX	14	15	28	37	65	MEX	16	26	42	54	95
CHL	29	66	95	4	99	CHL	45	99	144	26	170
COL	17	27	44	33	76	COL	27	35	62	50	113
ARG	5	17	22	62	84	ARG	7	16	22	86	109
RUS	11	39	50	8	58	RUS	17	46	64	14	77
POL	23	34	57	44	101	POL	35	46	81	48	129
CZE	23	46	69	27	97	CZE	32	57	89	33	122
HUN	30	78	108	65	174	HUN	18	67	85	69	154
TUR	11	30	41	38	79	TUR	15	70	85	29	114
SAF	44	35	79	27	106	SAF	34	39	72	57	129

Change since Dec-07					
	HH	NFC	PSC	Gov't	Total
CHN	34	54	88	21	109
KOR	25	13	39	12	51
IND	1	3	3	-4	-1
IDN	5	9	14	-3	11
MAL	14	10	24	16	40
THL	24	2	26	6	32
HKG	21	94	115	-1	114
BRA	11	12	23	24	47
MEX	3	11	14	16	30
CHL	17	33	50	22	71
COL	11	8	19	18	37
ARG	2	-1	1	24	25
RUS	7	7	14	6	20
POL	13	11	24	4	28
CZE	9	11	20	5	26
HUN	-12	-11	-24	4	-19
TUR	4	40	44	-9	34
SAF	-10	4	-7	30	23

### Problems for monetary policy

The decades from 1990 until 2020 have been the glory years for central bankers. The future will be far more difficult. Best of luck! ■

## About the authors

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