The Economics of the Coronavirus: Lives versus Livelihoods

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Outline

- Background to the COVID19 infection
- Was the lockdown response worthwhile?
- Longer term economic implications

The infection

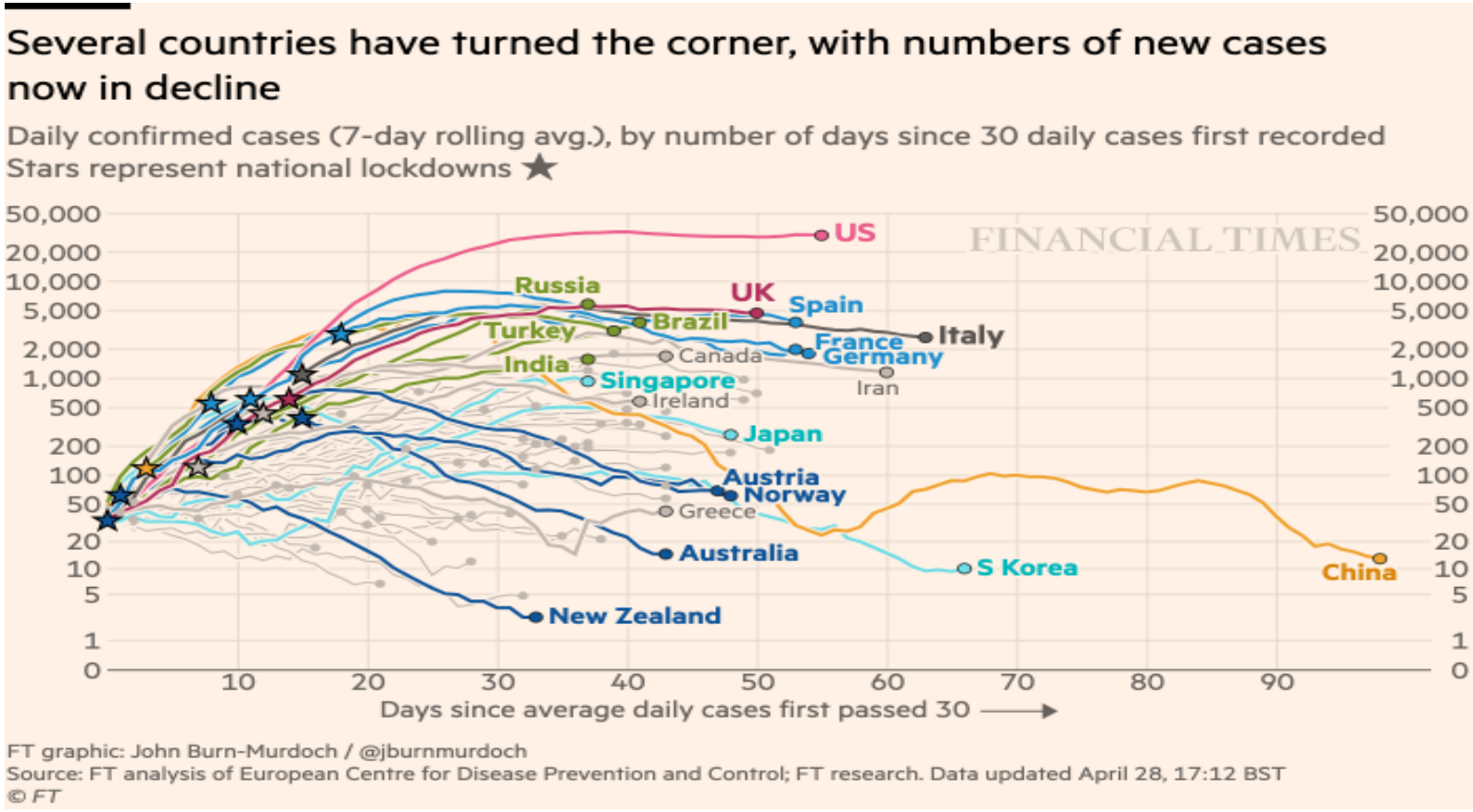
- Coronaviruses family of animal viruses
- Some “jump” to humans
- Covid-19 is one such virus with a broad disease spectrum
- So far 20% of Covid-19 classed as “severe” cases, with death rate

  0.7 – 3.4%
- Chinese scientists believe Covid-19 has muted into 2 strains making vaccine more difficult to develop
- Over 3 million known cases globally (215,000 deaths) (29th April)

Dynamics of infections

- $\Delta Infected\ population = \beta . Susceptible\ population\ . Infected\ population\ -\ \gamma . Infected\ Population$
  - where β (contact rate) and γ (recovery rate)
  - These define the reproduction number: $R_0 = {}^{\beta}/_{\gamma}$
- The impact of a lockdown rate can be introduced as θ^2
  - So we now have
- $\Delta Infected\ population = \beta . \theta^2 . Susceptible\ population\ . Infected\ population\ -\ \gamma . Infected\ Population$
- A number of things to note here:
  - R_0 can be calculated in different ways depending on how ”time” is modelled; average duration of exposure; average duration of latent infectious state; delay between infection and diagnosis, etc (all dependent on the modelling of β and γ which are rates)
  - β is a social & economic parameter reflecting how the population interacts (population density; social integration; age at infection; migration rates; seasonality, etc)
  - So is θ^2 reflects different “types” of lockdown (harsh versus soft); a power function to represent the “exponential” character of infection
  - Vaccination affects the susceptible population

The Global Pandemic



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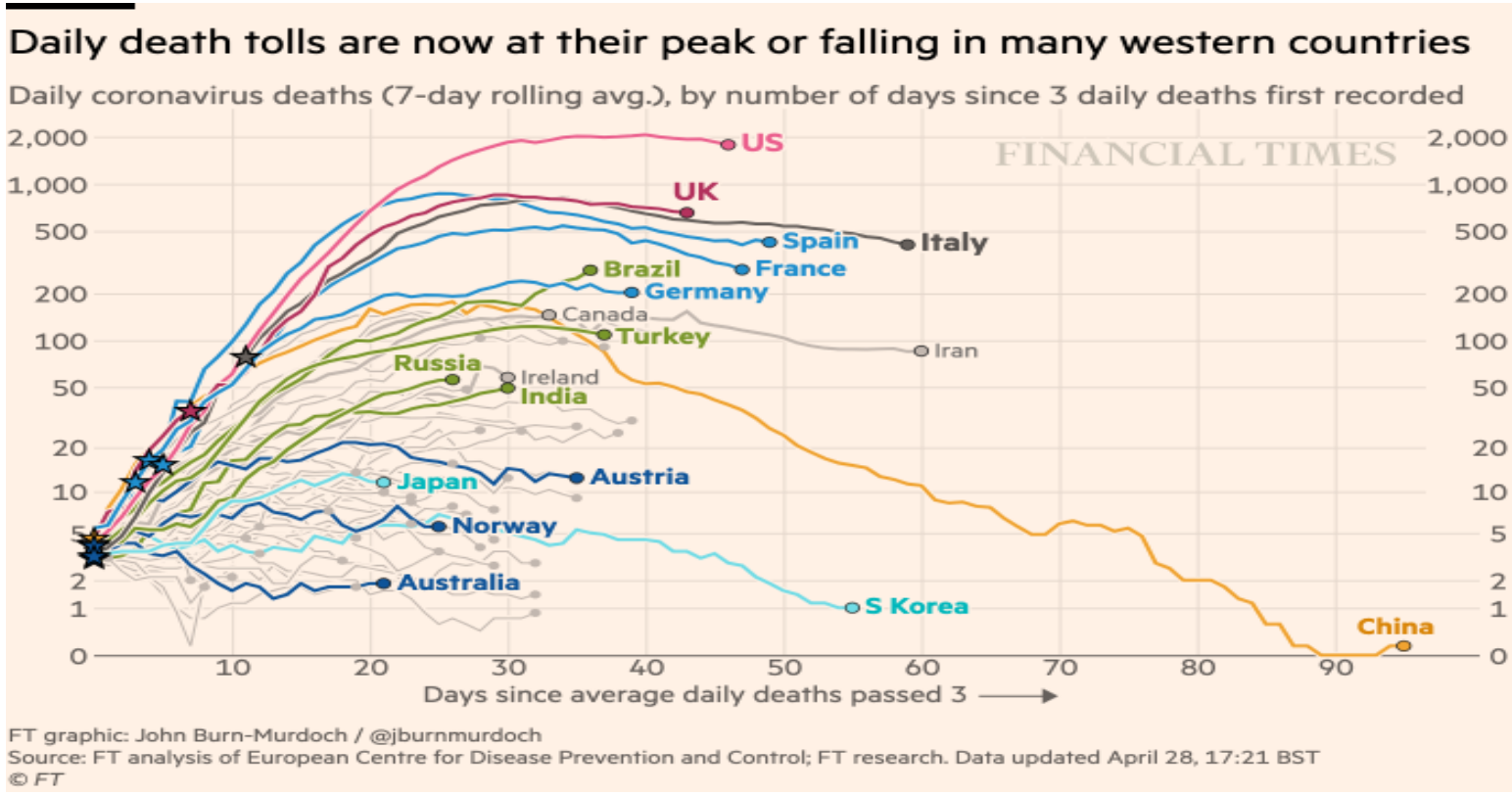

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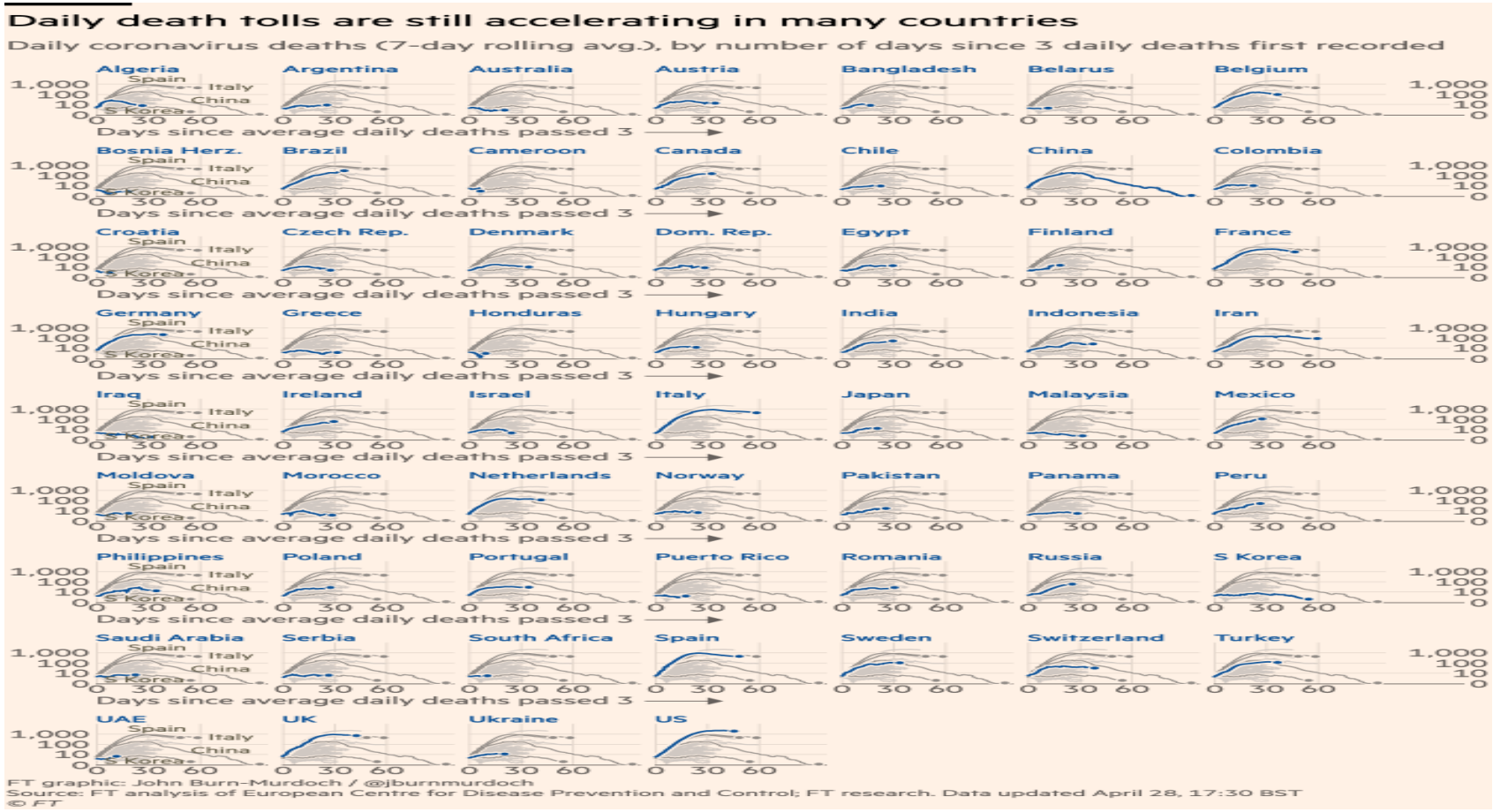

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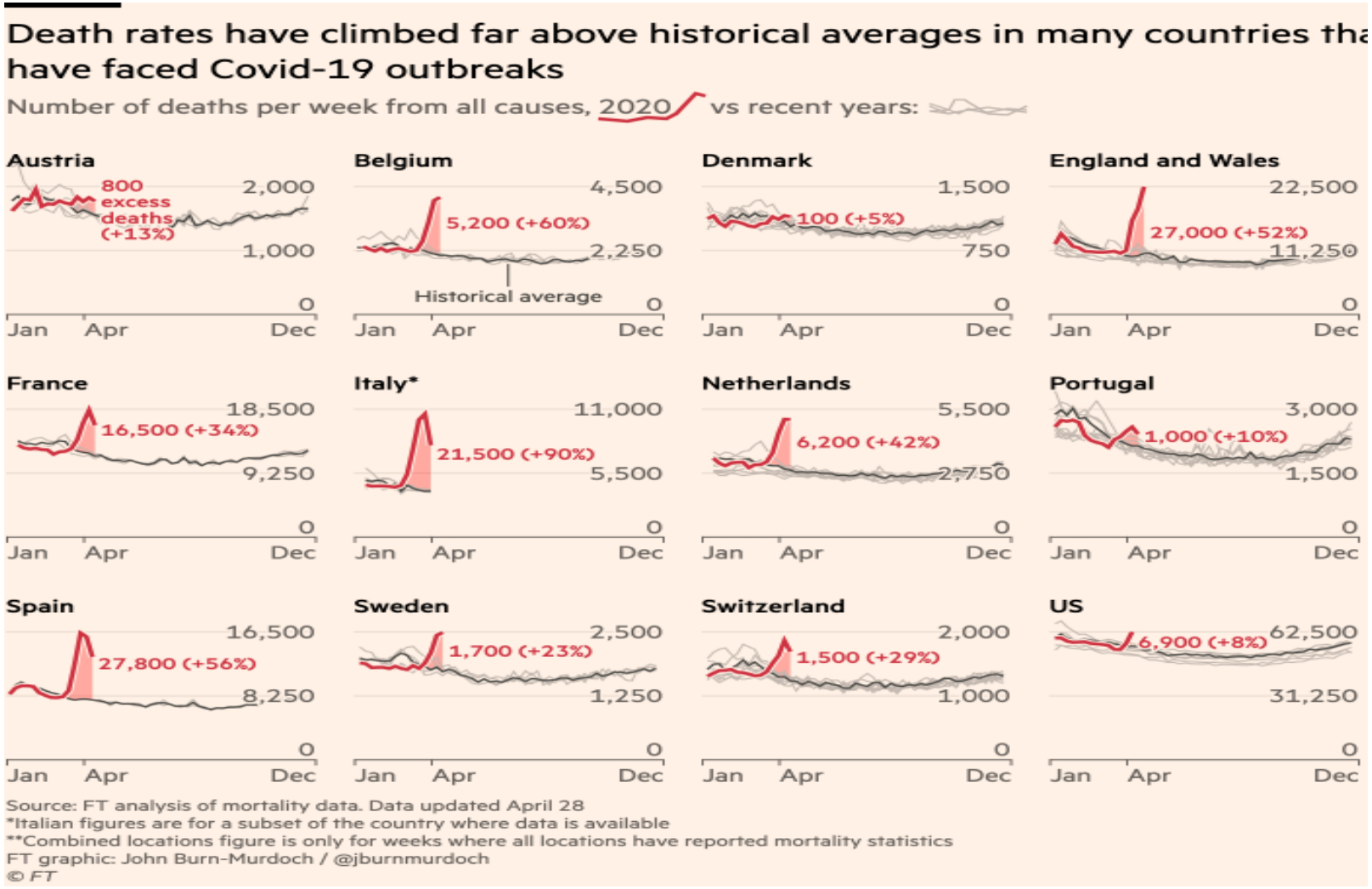

The Global Pandemic

- Some things we do *not* know
  - The precise death rate
    - Testing has not been universal
    - Excess death rate is retrospective
  - The counterfactual of a lockdown
- The full economic impact of the Pandemic
  - But I now want to turn to this…

Was lockdown worth it?

- Touches on notion of the value of a (statistical) life
- Based on Willingness to Pay for changing the probability of death
- So what is the probability of death from COVID19?
- Difficult to know as we don’t know the infection rate within a given population & therefore don’t know the true infection fatality rate

Was lockdown worth it?

- Or do we know?

- Cruise ship Diana Princess was infected
  - 3,711 passengers & crew
  - 705 individuals affected with COVID19
- Approximately a 20% (severe) infection rate
- Case fatality rate approximately 1%
    - Of countries that had carried out 10,000 tests by April 22 (the fatality rate for those who tested positive lies between 0.1% Singapore to 14.6% Belgium; Average 4%)

Was lockdown worth it? Applying these figures to USA & UK

USA

- USA population 328.2 million; 20% infected (65.6m); 1% die (0.656m)
- Monetary value of life used by US Environmental Agency in 2016 = $10m & by US Dept of Transport in 2016 = $9.6m
- So without lockdown monetary value of lives saved is $6.56 trillion OR $6.30 trillion (depending on VoL used)
- Of course with lockdown we still have COVID deaths (50,000) so net saving in lives is 0.655m
- So net monetary value of lives save is $6.55 trillion ($6.29 trillion using lower figure)

*Note NO offsets from deaths incurred as health care reallocated to COVID19. Assumes these deaths occur in any case. Also no adjustment for net treatment costs saved due to lockdown.

UK

- UK population 66.65 million; 20% infected (13.33m); 1% die (0.133m)
- Monetary value of life used by UK Dept of Transport in 2016 = £1.8m & by revealed preference = £8.59m (Thomas, 2018)
- So without lockdown monetary value of lives saved is £0.24 trillion or £1.15 trillion (depending on VoL used)
- Of course with lockdown we still have COVID deaths (19,000) so net saving in lives is 0.133m
- So net monetary value of lives save is £0.24 trillion (£1.14 trillion using higher figure)

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Was lockdown worth it? Applying these figures to USA & UK

USA

- GDP $21.5 trillion
- Immediate cost of lockdown 25% of GDP (OECD, 2020)
- So $5.38 trillion*
- Value of lives saved $6.55 trillion (or $6.29 trillion)
- *SO* if economic recovery after lockdown YES, WORTHWHILE
  - More so if GDP fall lower

***The OECD estimated GDP fall is the immediate impact (probably lasting for 3-4 months). I have deliberately overestimated given ALL the uncertainties

UK

- GDP $2.21 trillion
- Immediate cost of lockdown 25% of GDP (OECD, 2020)
- So £0.55 trillion*
- Value of lives save is £0.24 trillion (£1.14 trillion using higher figure)
- *SO* if economic recovery after lockdown Vol half lost GDP using a VERY LOW figure for VoL & but YES, worthwhile if using higher figure

***Obviously if GDP fall is lower, (currently annual fall in UK GDP estimated to be 15%), it is worthwhile. Higher figure taken given high uncertainties

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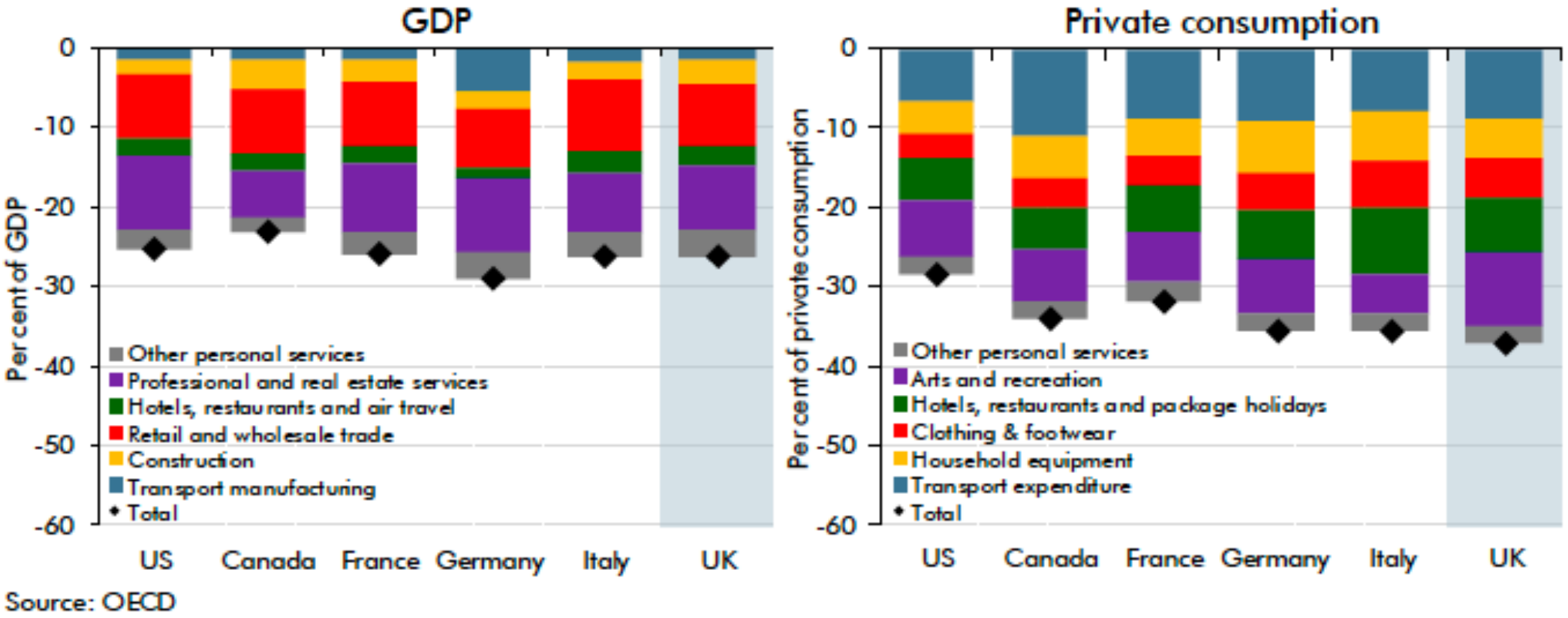
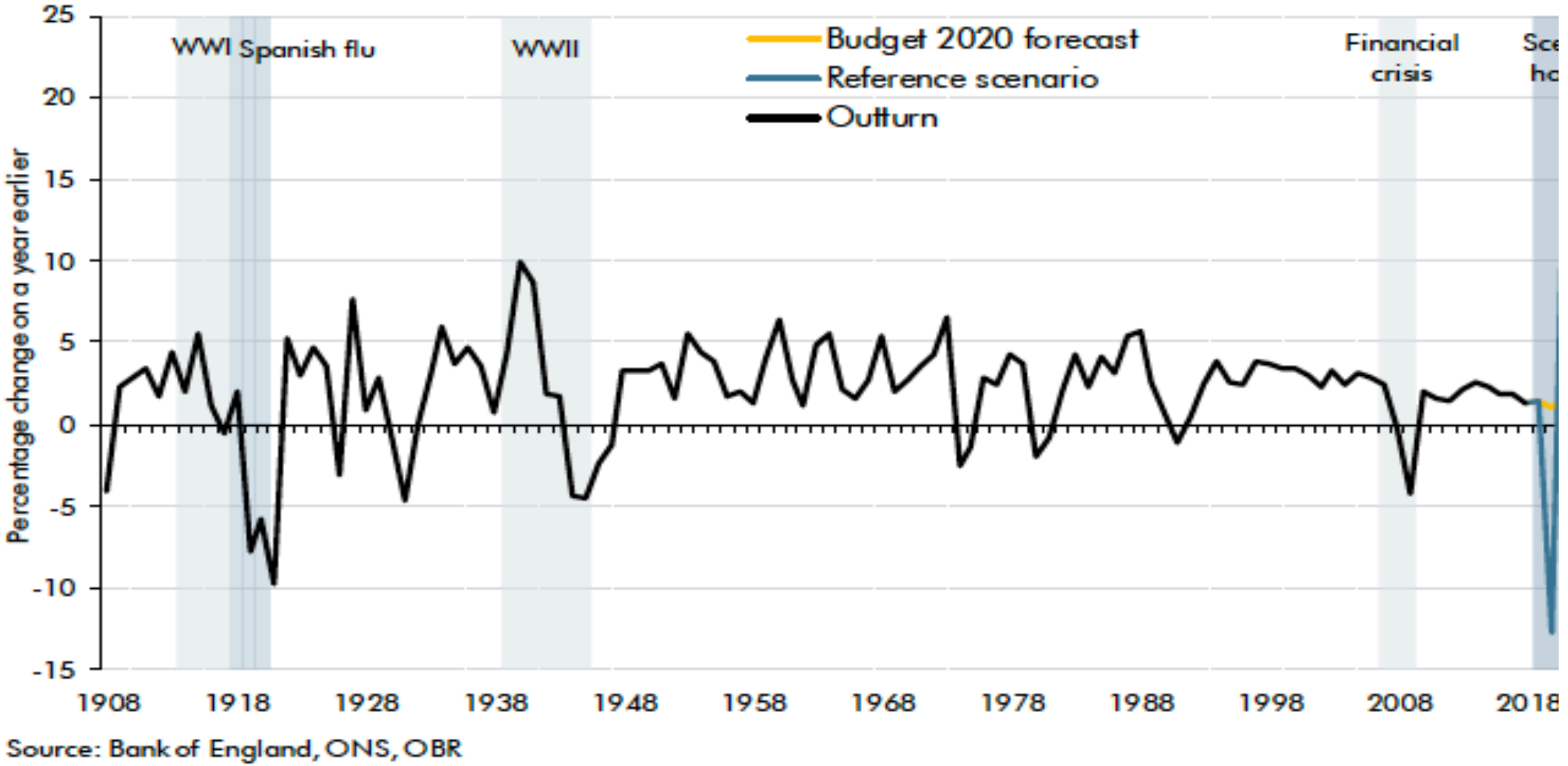
Saving lives but destroying livelihoods?



Source: OECD

Direct, immediate effects of lockdown (probably lasting 3 – 4 months)
Annual impacts liable to be falls of around 15% in GDP
Interestingly 40% of fall in US consumption in health care sector as providers substitute lucrative elective procedures to COVID19 treatments

UK fall in GDP: largest in a century



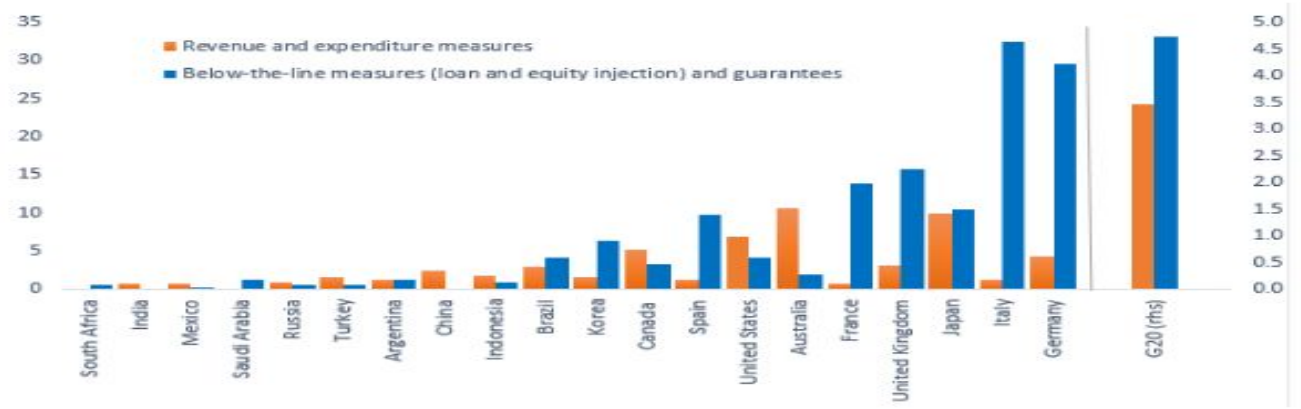
Source: Bank of England, ONS, OBR

Public sector financial response to COVID19

Emergency lifelines

So far, countries around the world have used about $8 trillion to fight the pandemic, with G20 countries taking the lead.

(Announced fiscal measures in G20 economies, % of GDP)



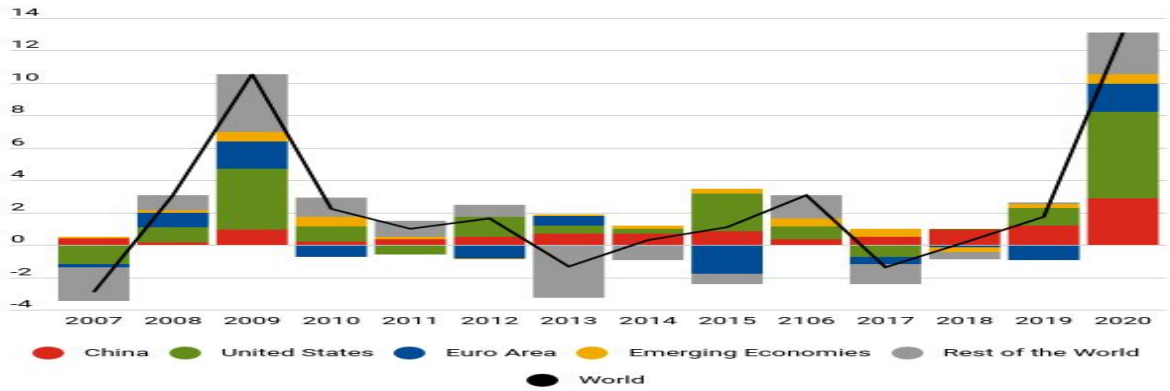
Sources: National authorities; and IMF staff estimates as of April 8, 2020.
Note: G20 = Group of twenty. G20 aggregates are calculated using PPP-adjusted GDP weights

INTERNATIONAL MONETARY FUND

Impact on Global Debt and Fiscal Balances

Fast increasing debt and deficits
COVID-19 and its economic impact will increase fiscal deficits and public debt ratios across countries given higher spending and plunging revenues.

(Contribution to the change in global government debt change, 2007-20, % of GDP)



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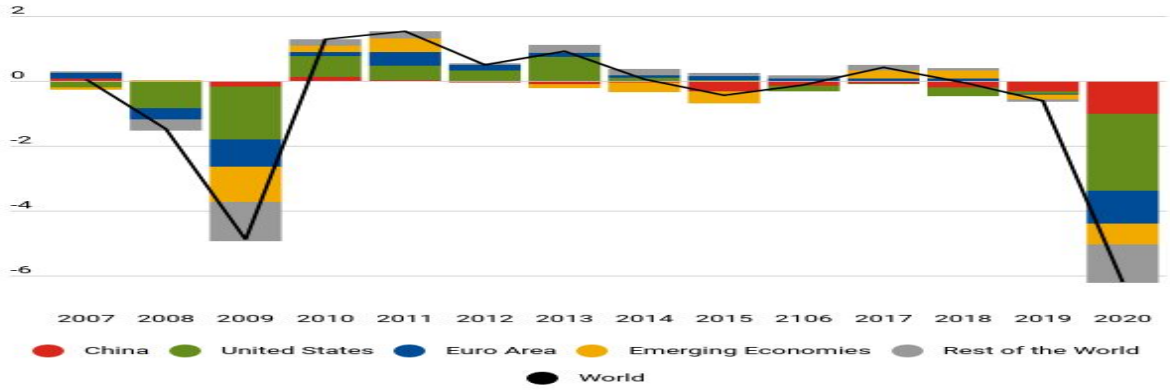

Source: IMF, World Economic Outlook database.

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IMF best case scenarios: Biggest global recession for 90 years; COVID19 adds debt

Latest World Economic Outlook Growth Projections

The COVID-19 pandemic will severely impact growth across all regions.

(real GDP, annual percent change)	2019	PROJECTIONS 2020	2021
World Output	**2.9**	**-3.0**	**5.8**
Advanced Economies	**1.7**	**-6.1**	**4.5**
United States	2.3	-5.9	4.7
Euro Area	1.2	-7.5	4.7
Germany	0.6	-7.0	5.2
France	1.3	-7.2	4.5
Italy	0.3	-9.1	4.8
Spain	2.0	-8.0	4.3
Japan	0.7	-5.2	3.0
United Kingdom	1.4	-6.5	4.0
Canada	1.6	-6.2	4.2
Other Advanced Economies	1.7	-4.6	4.5
Emerging Markets and Developing Economies	**3.7**	**-1.0**	**6.6**
Emerging and Developing Asia	5.5	1.0	8.5
China	6.1	1.2	9.2
India	4.2	1.9	7.4
ASEAN-5	4.8	-0.6	7.8
Emerging and Developing Europe	2.1	-5.2	4.2
Russia	1.3	-5.5	3.5
Latin America and the Caribbean	0.1	-5.2	3.4
Brazil	1.1	-5.3	2.9
Mexico	-0.1	-6.6	3.0
Middle East and Central Asia	1.2	-2.8	4.0
Saudi Arabia	0.3	-2.3	2.9
Sub-Saharan Africa	3.1	-1.6	4.1
Nigeria	2.2	-3.4	2.4
South Africa	0.2	-5.8	4.0
Low-Income Developing Countries	5.1	0.4	5.6

Source: IMF, *World Economic Outlook*, April 2020

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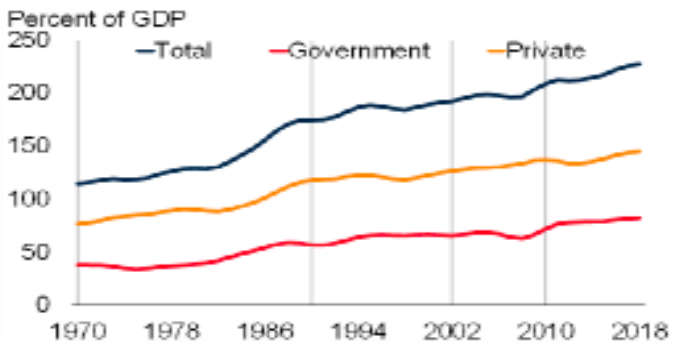
- This is the IMF best case scenario
- Essentially GDP takes an initial "hit" but pent-up demand means it rebounds the following year
- The ✓ scenario
- OECD & UK OBR "best cases" think likewise
- Are there reasons to think this *may not* occur?

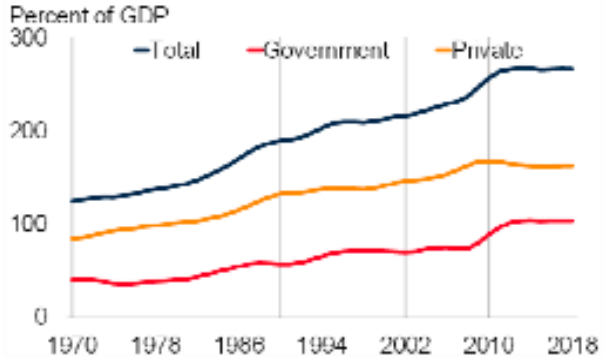
Global debt has been rising for over 40 years

- The COVID19 debt increase is against a background of general growing global debt
- Trending up since the 1970s & now around 230% of world GDP
- Both private (mainly corporate) & public debt
- Public debt particularly important since 2008/9 as growth has slowed

- Global debt



- High Income countries (% gross govt. debt to GDP 2020)
  - Japan 250%
  - Italy 155%
  - USA 131%
  - France 115%
  - Canada 109%
  - UK 95%
  - Germany 68%



Source: World Bank; IMF

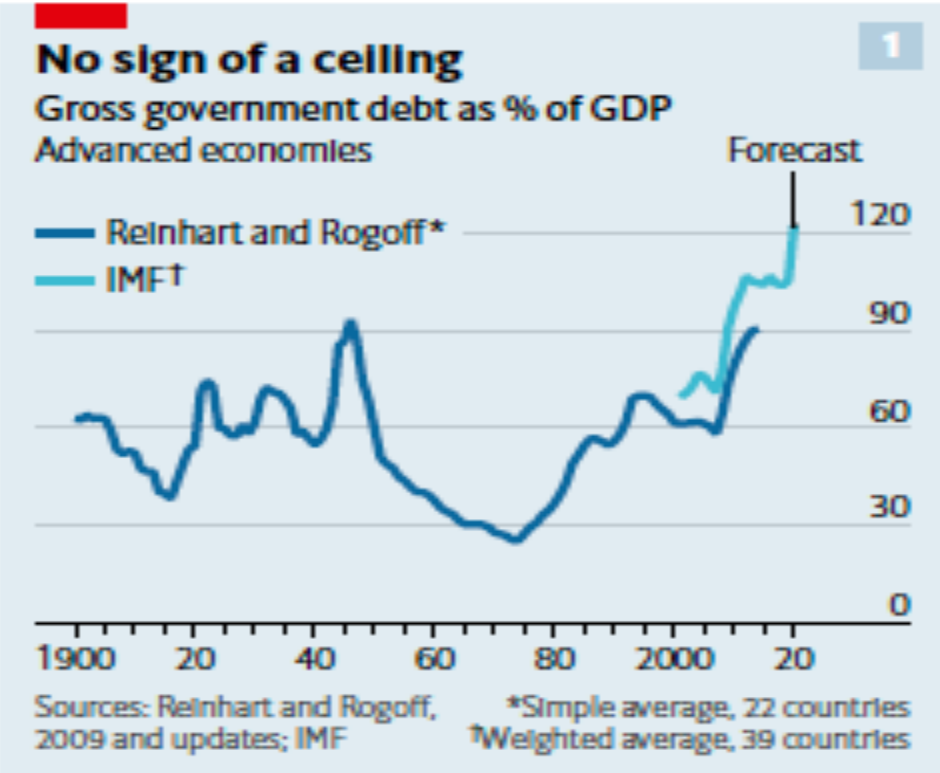
Two scenarios

- Optimistic rebound
  - Pent up-demand is released
  - Aggregate demand recovers
    - Against a background of continued quantitative easing with low interest rates
    - Tax rates rise with aggregate demand easing debt burden
    - World trade opens again with winners & losers (USA willing to fund debt through increasing deficits; China undertakes spending package (in 2008 China released 17% of its GDP through a stimulus package; Europe sees increasing fiscal expansion as Northern Europe takes on deficits of Southern Europe)
    - Inflation may start (redistributive effects but brings down debt levels)
  - May take time but the global economy gets back to business as usual

- Pessimistic debt growth
  - COVID 19 gives rise to massive cash flow problem for private sector
    - Public sector debt rises to offset this across the board
    - Increases private sector indebtedness
    - Cross the board support funds “marginal” firms who hold increase indebtedness
    - Some go bankrupt; survivors hold more debt
    - Higher public debt as central bank share private debt holdings with the private banks
    - Protectionism affects global economy (USA no longer willing to fund increased consumption through fiscal deficits; China with a growing debt burden and low growth does not intervene with large package; Europe heavily indebted but trying to pursue Northern European low inflationary growth, grows debt)
    - Further quantitative easing does not increase aggregate demand as confidence is shaken
  - As private sector tries to run down debt & public sector debt grows, banks hold more debt
    - Debt grows with continued low interest rates & low growth

Pessimism

- Debt balances continue to grow, private sector insolvencies grow/low investment with increased protectionism…
- Richer countries may
  - May just print money (quantitative easing)
    - Tripling of US monetary base between 2008 & 2011 had no effect on prices
  - Try Fiscal expansion (global liquidity trap renders monetary policy ineffective)
  - Try to increase tax base (wealth tax, green tax, indirect taxes on conspicuous consumption…)
  - But all this may not generate enough growth to offset growth in debt



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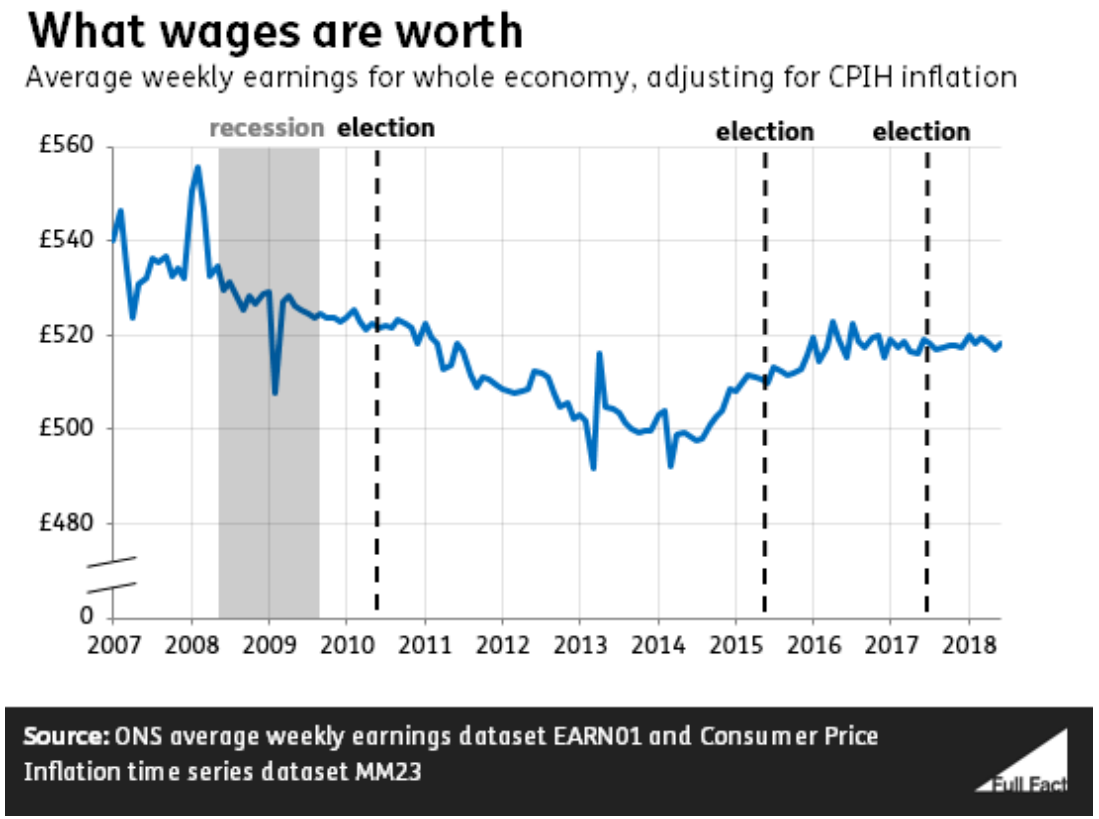
Pessimism: debt balances growing



- At a time when real wages have been falling
- Productivity has been sluggish
- Low levels of GDP growth generally
- High level of income inequalities
- Increased taxes will not be enough to offset debt…
- Positive inflation targeting might help
- But generally COVID19 has added to a liquidity trap and debt deflationary pressure

Longer term Optimism: Changes in the social contract

- Greater fiscal stimulus worldwide especially in infrastructure investment projects
  - Increasing fiscal deficit (e.g. Japan debt to GDP ratio now >200%)
  - Raising of Maastricht 3% budget deficit restriction?
  - Greater role for European Central Bank?
  - Design of bigger rewards for long-term (social) investments?
  - Introduce wealth taxes, green taxes, indirect taxes on conspicuous consumption
  - Globally coordinated monopoly taxes on IT/data processing companies?

- Greater role for international cooperation
  - Reversal of migrant policies to complement global capital flows?
  - Greater role for IMF?

- More labour market assurances (less “gigging”)
  - Company Board participation for workers?
  - 4-day weeks and longer vacations (more enjoyment of relaxing rather than acquiring; accompanied by high green taxes on foreign travel; “staycations” added benefit of reducing reliance on exports)?
  - Rising pensionable age? With buy-back for low income pensioners?

Longer term Optimism: Changes in the social contract

- Greater investment in health & *social care* sectors
  - More independent, non-political bodies to monitor public sector performance (OBR, but also for health sector, social care sector, etc.) to mitigate short-term political cycles?
  - Change in public sector discount rates?

- Create new public insurance fund (through specific Catastrophe Bond issue) to cover global catastrophes (Pandemics, Global Warming Damage, Earthquakes, etc.)?
  - World Bank initiated a Pandemic Emergency Financing Facility in 2017 as financial help for developing countries

- Also raises issues of how to incentivize pandemic vaccine research?
  - Timing and scale of pandemics uncertain; market failure of demand realization
  - Pre-commit public funding?

Conclusions

- Change in social contract will have to wait to see if “populist” wave suffers a wipeout
  - Populism & protectionism will exacerbate falls in aggregate demand

- Short- to medium-term responses are falling aggregate demand with higher debt economies
  - Shift to longer term perspectives?
  - Intergenerational effects?

Thank You

KEEP SAFE & WELL