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Julian Hodge Institute of Applied Macroeconomics

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The Julian Hodge Institute of Applied Macroeconomics

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The Julian Hodge Institute of Applied Macroeconomics was launched in autumn 1999 in a new collaboration between the Cardiff Business School of Cardiff University and Julian Hodge Bank. The aim of the Institute is to carry out research into the behaviour of the UK economy, and to study in particular its relationship with the other economies of Europe. This research has been given added urgency by the ongoing discussions about the UK's adoption of the Euro in place of the Pound. The new Institute has aimed to develop research relevant to this important debate.

The Institute embraces the original Liverpool Research Group in Macroeconomics, which is now based at Cardiff Business School and is pursuing a research programme involving the estimation and use of macroeconomic models for forecasting and policy analysis. It is grateful for financial support to the Jane Hodge Foundation, the Economic and Social Research Council, Esmee Fairbairn Charitable Trust, the Wincott Foundation and Cardiff Business School.

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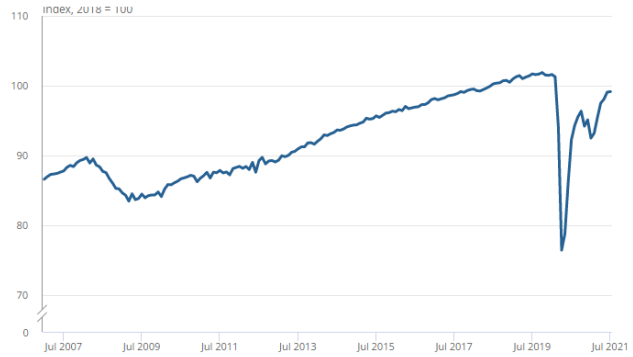
THE ECONOMIC RECOVERY

Patrick Minford

The economy is recovering rapidly from Covid, now that the lockdown restrictions have been largely removed.

Figure 1: UK GDP is estimated to have grown by 0.1% in July 2021, and remains 2.1% below its pre-pandemic level (February 2020)

Monthly index, January 2007 to July 2021, 2018 = 100



Source: Office for National Statistics, GDP monthly estimate

The labour market is in some turmoil as the million or so still on furlough are re-absorbed into the surging vacancies now of the same order. Particular occupations like HGV drivers are in acute shortage, while others which we hear less about are likely to be in excess supply as furloughed workers come back, with the furlough scheme now being ended. Wages are rising at 4-5% on an underlying basis while unemployment is staying low. Productivity per hour has grown 2.6% in the past eighteen months, as firms cope with these pressures.

The latest state of the labour market

In the labour market vacancies are up strongly and shortages are appearing:

Figure 1: Vacancies increased to 953,000 in May to July 2021 reaching their highest level on record

Number of vacancies in the UK, seasonally adjusted, May to July 2002 to May to July 2021

Source: Office for National Statistics – Vacancy Survey

Table 1: Summary of Forecast

	2018	2019	2020	2021	2022	2023	2024
GDP Growth[1]	1.3	1.4	-9.9	8.1	8.1	2.5	2.1
Inflation CPI	2.4	1.7	1.0	2.3	5.0	4.0	3.0
Wage Growth	3.0	3.5	1.6	6.5	4.2	4.2	4.2
Survey Unemployment	4.1	3.8	4.5	4.6	4.9	3.6	2.8
Exchange Rate[2]	78.6	78.3	78.2	81.3	78.7	77.8	77.5
3 Month Interest Rate	0.4	0.8	0.2	0.1	1.5	4.5	5.0
5 Year Interest Rate	1.0	0.6	0.1	0.4	1.5	4.7	5.0
Current Balance (£bn)	-82.9	-89.1	-58.2	-48.3	-35.9	-24.0	-16.7
PSBR (£bn)	39.3	49.1	306.6	179.5	57.8	42.0	23.0

[1]Expenditure estimate at factor cost
[2]Sterling effective exchange rate, Bank of England Index (2005 = 100)

Hence weekly earnings are up around 8% on a year ago. The ONS suggests that if you allow for composition effects (i.e. that the share of lower-paid workers has fallen) and base effects (i.e. that a year ago pay was depressed by Covid), then this falls to between 3.5% and 4.9%.

Figure 2: Annual growth in total pay was 8.8% and regular pay was 7.4% in April to June 2021; this growth is affected by compositional and base effects, so interpretation should be taken with caution

Great Britain, average weekly earnings annual growth rates, April to June 2021

Source: Source: Office for National Statistics – Monthly Wages and Salaries Survey

The picture is one of an economy returning rapidly to normal, with employment up sharply. Furthermore, productivity is growing, as firms respond to labour shortages by making better use of available workers. Total weekly hours were 4.8% below the pre-pandemic level in April-June, whereas GDP was 2.2% below in June, implying a rise in productivity per hour of 2.6% compared with pre-pandemic. If one uses the very latest figures for June-August, working hours are 3% below pre-pandemic, while the latest output in August (see above) was 0.8% below pre-pandemic, implying productivity growth of 2.2% since pre-pandemic. This faster growth in productivity during the pandemic appears to be happening elsewhere too: for example in the first half of 2021 US productivity has grown

at an average annual rate of 3.8%, while eurozone output per person employed is up 12% YOY in 2021 Q2. Clearly we will have to see how these figures settle down as recovery completes its progress.

According to HM Treasury about 1.1 million workers are still on furlough. This is down from a peak of 9 million in May 2020 at the height of the pandemic. With the labour market now tight, vacancies exceed the number on furlough, and wages are rising rapidly. We should see those on furlough be quickly absorbed back into employment. Many of them may well move to new jobs where shortages are greatest.

Figure 6: Total actual weekly hours worked increased on the quarter, reflecting the relaxation of coronavirus restrictions

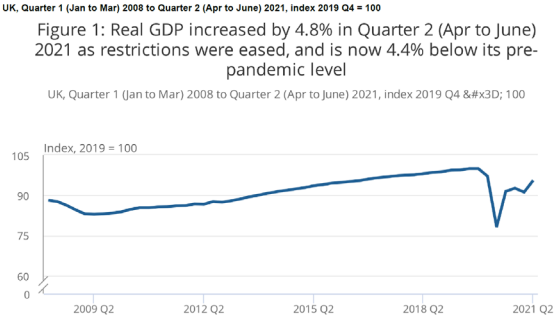
UK total actual weekly hours worked (people aged 16 years and over), seasonally adjusted, between April to June 2006 and April to June 2021

Source: Office for National Statistics - Labour Force Survey

A final question concerns the regional pattern of the labour market overall recovery.

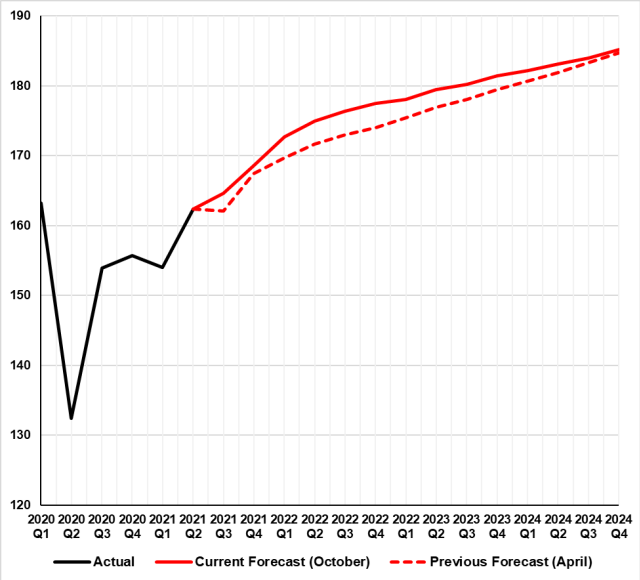
Figure 1: Real GDP increased by 4.8% in Quarter 2 (Apr to June) 2021 as restrictions were eased, and is now 4.4% below its pre-pandemic level

UK, Quarter 1 (Jan to Mar) 2008 to Quarter 2 (Apr to June) 2021, index 2019 Q4 = 100



Source: Office for National Statistics – GDP first quarterly estimate

The current forecast compared with forecast in April 2021



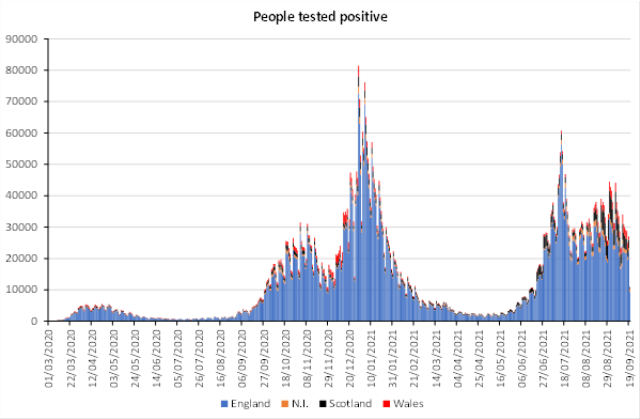
The effect of recovery on the public finances: how taxes and benefits respond to rising GDP

Taxes and benefits (tax credits) vary greatly with income, since the UK has a highly progressive and redistributive tax system. Usually, ie except when it is explicitly suspended, the tax bands are indexed to inflation, so that real tax receipts vary only with real income. But as now in fact this indexation has been suspended by the recent budget-, currently inflation too raises taxes.

The average (net of benefit) tax yield is 0.20. This average rate consists about half of income taxes and half of expenditure taxes (mainly VAT). For income taxes, the top 50% of income earners have 75% of income and pay 88.4% of income tax. Their average tax rate is about 14%. For those in the bottom 50%, with 25% of income, they pay negative tax of about 9% of their income. (Source: Table 2.7 of HMRC Income Tax Statistics).

So the average net tax rate on income is (0.75(the share of income of top 50%) x 14%)–(0.25x9%) =8%. The average tax rate on other indirect taxes would then be about 12%, so that the total net tax rate is about 20% = 8 % +12%. This is in line with the calculated average net tax rate. This average net rate, ART, of 20% is to be compared with the marginal tax rate. For income tax this is around 0.4 (for some it will be higher and for benefit recipients it is close to 0.7; but for very many it is the top band rate of 0.4, while for minorities it is less or much more) and for indirect taxes around 0.2 (the marginal VAT rate). Hence on £100 of income extra total tax will be £60, a marginal tax rate, MRT, of 60%. The elasticity of tax revenue to income is MRT/ART, which is therefore about 3. This implies that the ART rises by 2% for every 1% rise in GDP — an elasticity of the ART of 2 — while tax receipts net of benefits rise by 3% for every 1% rise in GDP — a tax total elasticity of 3.

These are theoretical calculations of the elasticity to real GDP; but because they are based on the actual UK tax structure, they can be considered strongly based. In the data these changes are mixed up with many policy changes which are hard to identify. For one recent period, 1993-2000, we can get a rough idea of the trend due to GDP. The ART rose 55%, while GDP rose 23%, implying an ART elasticity to GDP elasticity of about 2, in line with our theory. From 2008 to 2019, GDP rose 27% and the ART 20%, a rather smaller ART elasticity of 0.7. Empirically, an ART elasticity must be in the range of 1-2, and most probably around the top of it.



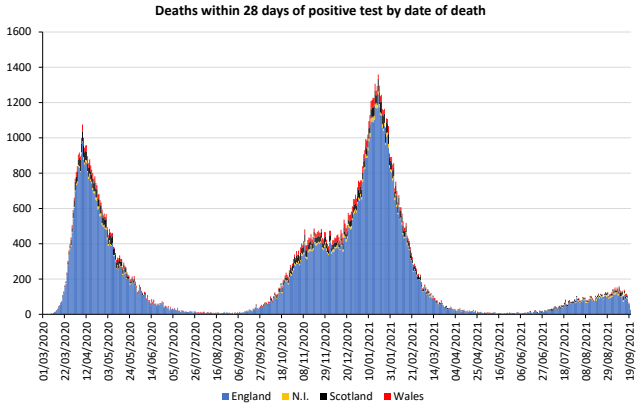
The regional situation

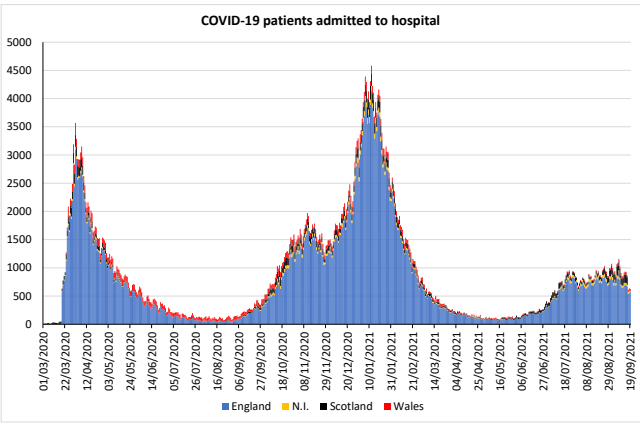
Table 2: Summary of latest headline estimates and annual changes, for regions of the UK, seasonally adjusted, April to June 2021

	Employment rate[1] (%) aged 16 to 64 years	Change on April to June 2020	Unemployment rate[2] (%) aged 16 years and over	Change on April to June 2020	Inactivity rate[3] (%) aged 16 to 64 years	Change on April to June 2020
UK	75.1	-0.7	4.7	0.6	21.1	0.2
Great Britain	75.2	-0.7	4.7	0.6	21.0	0.3
England	75.3	-0.8	4.8	0.6	20.8	0.4
North East	71.6	-1.5	5.8	0.4	24.1	1.4
North West	73.2	-2.0	4.7	0.9	23.1	1.4
Yorkshire and The Humber	72.9	-0.4	5.0	0.9	23.2	-0.3
East Midlands	75.3	-0.9	4.3	-0.3	21.2	1.1
West Midlands	74.5	0.5	5.0	0.2	21.4	-0.7
East	78.1	0.8	3.9	-0.1	18.7	-0.7
London	74.7	-1.2	6.4	1.5	20.2	0.1
South East	77.9	-1.4	4.4	1.0	18.4	0.6
South West	77.0	-0.6	3.6	-0.2	20.0	0.9
Wales	74.2	-0.2	4.1	1.3	22.5	-0.9
Scotland	74.2	0.4	4.3	-0.3	22.4	-0.1
Northern Ireland	71.1	0.0	3.8	1.2	25.9	-0.9

Source: Office for National Statistics – Labour Force Survey

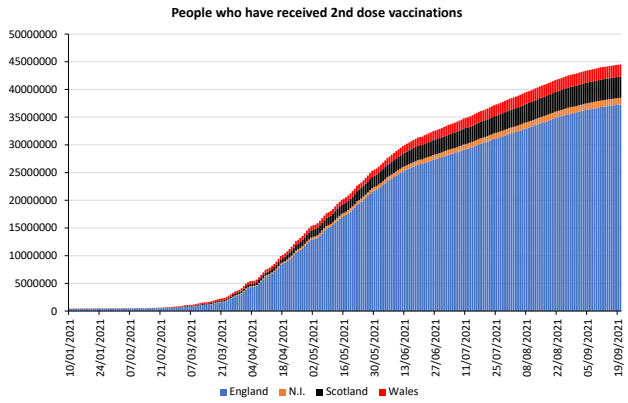
What we see in the latest regional table from the ONS, is that compared to the beginning of 2020-pre-pandemic- London and the South have been the worst affected regions, with their employment rates falling by 0.8-1.2%; while the best affected regions have been the West Midlands, where the employment rate rose by 0.5%, and East England, where it rose 0.8%. We see here the effects of the predominance in the South of the service economy, while manufacturing dominates the West Midlands and R&D activity the East. The regional winners and losers have changed since Covid.

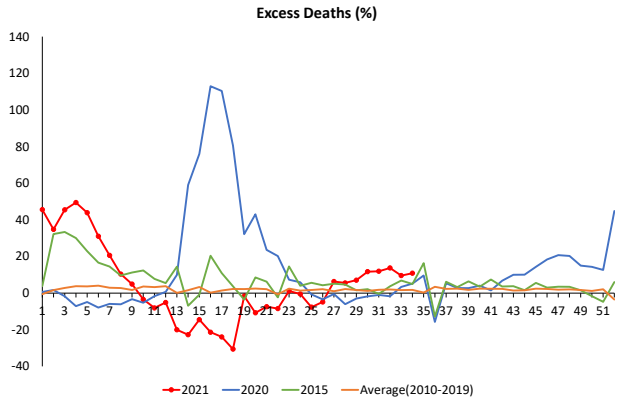


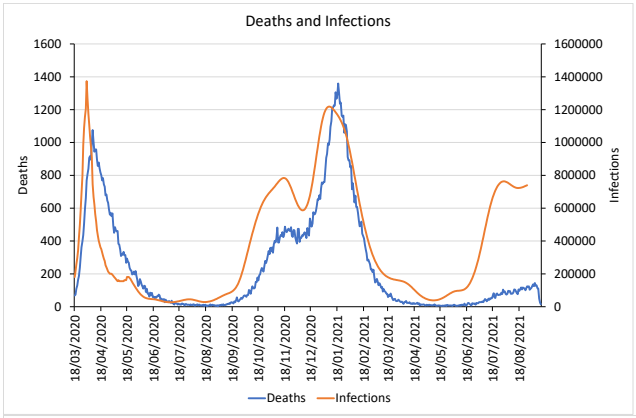


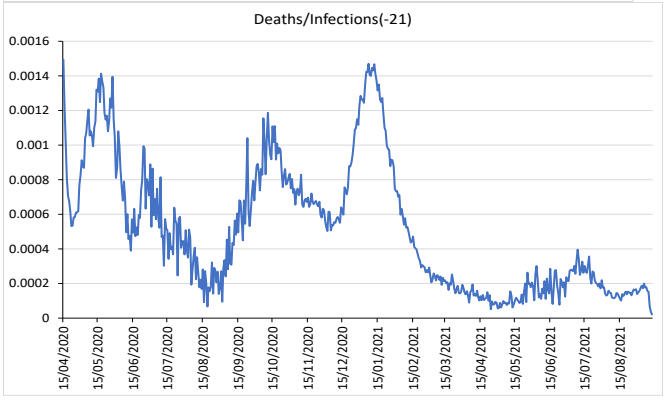
The latest Covid situation

In the following charts we show the latest situation over virus infections, hospitalisations and deaths in the UK and elsewhere. In the UK the key point is that deaths have fallen to virtually zero. While infections have risen with the spread of the new D-variant, which is more highly transmissible even than the Kent variant, the connection to a rise in deaths has been firmly cut by vaccination (which for a double jab of either the Oxford or the Pfizer vaccine is around 90% effective), and even hospitalisations have risen little.









Latest 28 days daily cases and deaths-US, Europe and UK

Last 28 days average	US	United Kingdom	Germany	France	Italy	Spain
Daily Cases	150701.93	33619.39	9433.93	10060.57	5251.18	4682.50
Daily Deaths	1669.46	128.61	37.93	61.96	55.93	84.79
Deaths/Cases	0.0111	0.0038	0.0040	0.0062	0.0107	0.0181

The Brexit programme needs to stay on track

We have seen a lot of disruption recently as the UK moves towards its new relationships with the rest of the world post-Brexit and also as the Covid restrictions unwind. It is vital that these new relationships are relentlessly pursued. For example the labour market is already reacting well to the Brexit environment where easy access to unskilled EU workers is denied by the new immigration rules emphasising skill needs. Productivity as we have seen has risen 2.6% in the past eighteen months, as firms have had to cope with a tightening labour market by better use of labour and new methods of working. Market forces are also now working in favour of unskilled workers as the tap of cheap unskilled EU workers has been turned off. Economising on these workers is now as important a managerial task as doing so on skilled workers has always been.

Then we need to push on with free trade agreements around the world following the successful conclusion of the Australian one, ignoring all the special pleading for protection that invariably pours out as barriers are brought down. These FTAs will bring down the cost of imports, improve living standards and drive up productivity in competing UK industries, besides opening up foreign markets to our exporters. This will also force down the prices of the EU products we buy, improving our balance of payments.

We concluded the Brexit agreement with the EU, including the awkward N Ireland protocol, on the assumption that pragmatic border arrangements would be agreed with the EU, in which the agricultural trade within Ireland would not be disturbed while UK trade with N Ireland, which does not go near the EU would be seamlessly treated at the border. Unfortunately, it seems that France has decided to push the EU to be difficult over this, perhaps in retaliation for the Aukus agreement and the damage it perceives this does to its defence industry and its Pacific interests. Apparently it is arguing that the EU should abandon the Brexit agreement if the UK invokes Article 16 over the protocol, which Lord Frost has said we will do unless pragmatic relations are put in place. However, it would be a big mistake for the EU to

do so. The last thing the EU needs is a breakdown of the Brexit agreement, with for example tariffs being levied in a reprise of 'No Deal'. Tariffs with Brexit Britain would damage EU producers who would have to cut their prices in the UK market to absorb them; but they would give HM Treasury a tidy sum. French and Irish farmers would be hit particularly badly. Meanwhile our producers, newly integrated into the world market by our FTAs, will simply pass on the EU tariffs to EU consumers.

We signed the Brexit agreement rather than go for No Deal, with its net tariff advantage, out of a desire to be good neighbours. However, if the EU decides to be an uncooperative neighbour, willing to upset the Good Friday Agreement by infuriating the N Ireland unionists, then the good neighbour policy lapses as one-sided; and we are back to the No Deal standoff.

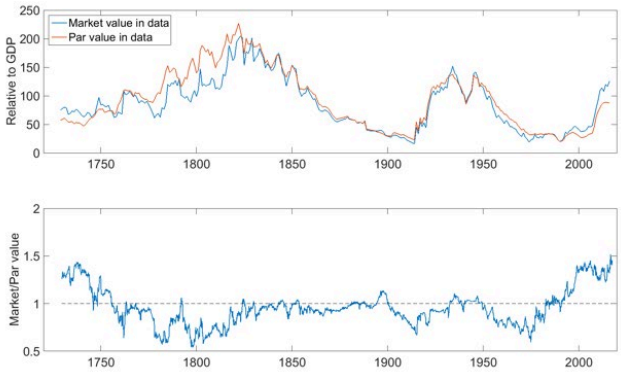
Brexit is already showing the beginnings of its long term dividends. Besides the gains in the labour market and in FTAs, the rapid development of vaccines showed how nimble regulation and strategically targeted state aid can bring huge returns. The recent report on regulatory reform by Sir Ian Duncan-Smith's taskforce has pointed the way to further big gains through overhauling the mass of over-intrusive EU regulation still in force. There can be no compromises over the ongoing enactment of Brexit; that is where our long term future lies.

The need for a bold long term fiscal policy post-Covid

The economy is now recovering from the pandemic and growth this year should be around 8%, a strong recovery from last year's collapse and the resulting run-up in public debt to pay for the emergency. Post-Brexit and post-Covid there are major challenges for government policy; the recovery needs to be sustained, and policies must be put in place for solid long-term growth and levelling-up. This policy formulation requires the government to take a long-term view and not to panic in the face of short-term pressures.

One of those pressures is the sharp rise in public debt due to Covid, to around 100% of GDP. Over recent years the government has been concerned to bring the debt ratio down, especially after the financial crisis hit. So the natural instinct of a Conservative government is to revert to the same austerity policies. We have recently had a report from the Public Accounts Committee (Covid19 Cost Tracker update- https://committees.parliament.uk/publications/6953/documents/72750/default/), warning us of the dire state of the government finances post-Covid. The PAC joins the lugubrious OBR in its reports. Mind you, we should not be surprised at or critical of these bodies. They were set up with the role of standing guard over the public finances, and their job is, Cassandra-like, to warn about the downside risks.

However, unlike Cassandra, these bodies are wrong in their forecasts; and good policy needs to balance risks against returns; and most important of all, it must take a long-term view at this crucial junction in our history, with the overwhelming need to boost growth and bring down regional inequality. Currently, there is a huge return from bold policies designed to boost post-Covid growth. It is growth and to a lesser extent inflation that will bring down the ratio of public debt to GDP over the long term, as it has done before in our history, as shown in the following charts. You can see the gradual fall of the debt ratio from peaks of over 200% after the Napoleonic wars and WW2. During these long adjustments there was never any panic over UK solvency, as can be seen in the second chart of market/par value. This fluctuates around unity; the fluctuation reflects fluctuating market interest rates compared with issue rates. Feared insolvency would show up as a collapse in the ratio, which we do not see. The UK has never defaulted; and it is not about to do so now.



Source: Ellison and Scott (2017) '323 years of UK national debt', https://voxeu.org/article/323-years-uk-national-debt

In the current post-Covid situation, there will be a big bounceback in GDP, and with it in tax revenues net of welfare payments, with a fall off too in emergency spending. So the PSBR will fall back to a modest level quite quickly. A cautious approach to the finances implies keeping the PSBR low enough to ensure that growth in nominal GDP gradually brings down the debt ratio. Below is our updated forecast for the public finances to the 2030s, assuming no change in policies. It also projects 2% growth with no change in policies; this is about the same as growth over the past thirty years on average (1989-2019).

Table 1: Basic Forecast- Public Finances

	Nom PSBR	Nom GDP	Nom Pub Spend	Spend/ GDP	PSBR/ GDP	Nom Debt	Debt Interest	Debt/ GDP	Net Taxes	Net Tax Rate
2019/20	49.1	2196.3	472.2	21.5	2.2	1621.0	48.1	73.8	471.2	21.5
2020/21	306.6	1990.1	468.9	23.6	15.9	1932.2	39.8	97.1	202.1	10.2
2021/22	179.5	2307.1	526.7	22.8	7.8	2111.7	42.6	91.5	389.8	16.9
2022/23	57.8	2562.1	561.2	21.9	2.3	2169.5	41.1	84.7	544.5	21.3
2023/24	42.0	2721.0	600.5	22.1	1.5	2211.5	42.9	81.3	601.4	22.1
2024/25	23.3	2859.9	639.5	22.4	0.8	2234.8	41.1	78.1	657.4	23.0
2025/26	3.7	2974.3	669.5	22.5	0.1	2238.5	44.7	75.3	710.4	23.9
2026/27	0.2	3093.3	720.9	23.3	0.0	2238.7	48.0	72.4	768.8	24.9
2027/28	0.2	3217.0	780.5	24.3	0.0	2238.9	51.2	69.6	831.5	25.8
2028/29	0.0	3345.7	845.1	25.3	0.0	2238.9	54.3	66.9	899.4	26.9
2029/30	0.0	3479.5	915.6	26.3	0.0	2238.9	57.1	64.3	972.7	28.0
2030/31	0.0	3618.7	992.2	27.4	0.0	2238.9	59.9	61.9	1052.1	29.1
2031/32	0.0	3763.4	1075.5	28.6	0.0	2238.9	62.5	59.5	1138.0	30.2
2032/33	0.0	3914.0	1165.9	29.8	0.0	2238.9	65.0	57.2	1230.8	31.4
2033/34	0.0	4070.5	1264.0	31.1	0.0	2238.9	67.3	55.0	1331.3	32.7
2034/35	0.0	4233.4	1370.4	32.4	0.0	2238.9	69.5	52.9	1439.9	34.0

But we must not forget the other side of this policy coin: that policy must sustain and encourage growth. In truth projected growth of 2% is low and we can do better. Higher growth in turn will bring down the debt ratio, so in effect paying for those policies.

These growth-supporting policies involve supply-side tax-cuts and spending rises whose short-term effect is of course to increase the deficit. But in the long run they bring the debt ratio down, so in effect paying for themselves- as we illustrate below.

These very policies also generate 'levelling-up' where growth in the North exceeds that in the South- we define the South as consisting of London, the South East and the South West and the 'North' as all other regions (with apologies to Wales, the Midlands and the east). My research group in Cardiff has been working for the past year on a new regional model of the UK to frame the best way for policy to address this agenda. Our work (written up in http://carbsecon.com/wp/E2020_14.pdf) produces the policy results shown in Table 1. The model is based on well-known and well-tried ideas of supply-side channels through which targeted tax cuts and regulative reform raise entrepreneurial incentives to innovate as well as creating labour market flexibility and lowering labour costs. Previous work has shown that these sorts of policy have worked well in the UK to boost the economy in the 1980s and 1990s. Later in this piece we show fuller details of these effects, in the form of a full proposed policy package combining them all. Much policy commentary has criticised the government for aiming at 'levelling-up' without any strategy for achieving it. We show here that there is a potential strategy that is feasible without affecting public sector solvency; also that it 'levels up' the North without cutting down the South- all boats rise in this strategy. To embark on this strategy the main need is to close our ears to the voices of gloom that urge the need to raise taxes and cut spending to reduce the Covid debt- that way lies only a downward spiral of falling growth and a rising debt ratio- a 'doom loop' of stagnation, austerity and worsening finances.

Table 2: Long run effects of different tax/regulative measures on North and South according to Regional Model- each measure costing £10 billion p.a.

Percentage change in	GDP_N	GDP_S
Cut standard rate of income tax or VAT or other general income/consumption tax	1.1	0.5
Cut Corporation tax rate	0.8	0.4
Cut marginal tax rate and regulative burden on Entrepreneurs/SMEs	20	17
Increase infrastructure spending in North	1.6	-

We now discuss the prospects for growth, taxes and debt in the context of the post-Covid economic prospects- above we discussed in detail our supporting analysis of how tax behaves in response to the economy, since this is often neglected in these discussions of fiscal policy. This revealed that a 1% rise in GDP raises net taxes, i.e. taxes minus benefits (tax credits) by about 3%, an 'elasticity' of 3. By implication the average tax rate rises by 2%, an elasticity of 2. Hence growth has a tonic effect on taxes and the public finances. Our research in turn shows that the policy package we propose will raise growth by 2.3% per annum, that is to 4.3% against the 2% baseline assumed above. For the sake

of caution we will assume only a 1% uplift to 3% per annum in our projections.

Table 3: A fiscal stimulus package costing £100 billion p.a.

Tax Cuts	**Amount**
Cut corporation tax by 10%	£32 bn
Abolish the very top additional 5% rate	£1bn
Cut the top rate of income tax to 30%	£15bn
Cut the standard rate of income tax by 5%	£28bn
Total Tax Cuts[1]	£76bn
Public Spending[2]	£24bn
Total Package	£100 bn

[1] Representing a weighted average tax cut across all income of about 15%

[2] On public services and infrastructure

Table 4: effects on growth in Regional Model (% of GDP over next decade) from full policy package of £100 billion p.a.

Percentage change in	GDP_N	GDP_S	GDP
Cut standard rate of income tax or VAT or other general income/consumption tax	3.3	1.5	2.4
Cut Corporation tax rate	2.4	1.2	1.8
Cut marginal tax rate and regulative burden on Entrepreneurs/SMEs	20	17	18.5
Increase infrastructure spending in North	3.8	-	1.9
Total	29.5	19.2	24.6

In Table 4 we show the rising spending (corresponding roughly to Departmental spending limits, DEL, in the latest OBR report), against rising tax receipts net of tax credits (these are shown as 'welfare spending' by the OBR and included in Total Managed Expenditure, TME, their spending aggregate). In the Base Run forecast shown above, where current policies continue, the debt/GDP ratio falls to 52% by 2034/35, illustrating the point that there is no need to rush and pay off a large debt ratio after a crisis such as a war or Covid- it will fall steadily to a safe sustainable level with growth. Then when we implement the Fiscal-Fund-plus-Reform package of tax cuts and infrastructure spending, we get the forecast set out in the table below. As noted above, according to our Regional Model the package raises growth by 2.3% p.a. over the decade to 2034/35; but in the Table below we have conservatively projected a higher growth rate of 1% p.a. to remain on the cautious side. With this higher growth comes a rising average net tax rate after the initial drop in revenues from the programme. Again the debt ratio falls with now faster growth to a safe and sustainable 45% by 2034/35. In effect the package pays for itself.

Table 5: Variant Forecast — Public Finances incl. Fiscal Stimulus Package, with assumed effect on growth of +1% p.a.

	Nom PSBR	Nom GDP	Nom Pub Spend	Spend/ GDP	PSBR/ GDP	Nom Debt	Debt Interest	Debt/ GDP	Net Taxes	Net Tax Rate
2019/20	49.1	2196.3	472.2	21.5	2.2	1621.0	48.1	73.8	471.2	21.5
2020/21	306.6	1990.1	468.9	23.6	15.9	1927.6	39.8	96.9	202.1	10.2
2021/22	179.5	2307.1	526.7	22.8	7.9	2111.7	42.6	91.5	389.8	16.9
2022/23	57.8	2562.1	561.2	21.9	2.3	2169.5	41.1	84.7	544.5	21.3
2023/24	42.0	2721.0	600.5	22.1	1.5	2211.5	42.9	81.3	601.4	22.1
2024/25	127.9	2859.9	662.8	23.2	4.5	2339.4	41.2	81.8	576.1	20.1
2025/26	97.6	3002.9	693.6	23.1	3.2	2437.0	45.2	81.2	641.2	21.4
2026/27	80.7	3153.0	745.1	23.6	2.6	2517.7	49.2	79.9	713.6	22.6
2027/28	63.8	3310.7	804.9	24.3	1.9	2581.5	53.2	78.0	794.3	24.0
2028/29	42.7	3476.2	869.7	25.0	1.2	2624.2	57.1	75.5	884.0	25.4
2029/30	17.4	3650.0	940.4	25.8	0.5	2641.6	60.9	72.4	983.9	27.0
2030/31	-13.4	3832.5	1017.4	26.5	-0.3	2628.2	64.4	68.6	1095.1	28.6
2031/32	-50.4	4024.2	1100.9	27.4	-1.3	2577.9	67.6	64.1	1218.9	30.3
2032/33	-94.5	4225.4	1191.6	28.2	-2.2	2483.3	70.4	58.8	1356.6	32.1
2033/34	-147.0	4436.6	1290.1	29.1	-3.3	2336.4	72.8	52.7	1509.9	34.0
2034/35	-209.1	4658.5	1397.0	30.0	-4.5	2127.3	74.4	45.7	1680.5	36.1

These tables show that the fiscal package pays for itself via higher growth. What does it do for the regional picture according to our new Regional Model? On our cautious assumptions in Table 4 the gap is reduced by 4%, even while both North and South grow more strongly, with average GDP up 10% over the decade. During this period the growth of the North is roughly double that of the South. The policy effect is therefore levelling up without pushing down. According to the Regional Model, the extra growth is more than double what is assumed in Table 4, implying even stronger finances, with growth in the North nearly 3% p.a. higher than base and in the South, about 2% higher, and the North-South gap reduced by 8% over the decade.

Not surprisingly some voices have been raised recently to urge tax rises and expenditure cuts by the government to push down the high post-Covid public debt/GDP ratio rapidly. However for the long-term good of the country fiscal policy should now focus on boosting growth, particularly in the 'Northern' regions outside the relatively prosperous South. As we have seen, our research implies that a bold package of tax cuts and targeted spending on infrastructure will boost growth across the country, but particularly in the North, reducing the North-South gap, and will also pay for itself through its long-term effect on the public finances.

The October Budget- a conflicted Chancellor

The Chancellor, Rishi Sunak, claimed in his budget that there was a 'morality' behind low taxes and controlling the size of the state. Nevertheless, he pushed up the prospective UK tax take to over 36% of GDP, while projecting real growth of public spending of 3% per annum. His reasons for the spending rises are simply plain politics: Boris Johnson needs them to satisfy public opinion on the requirements of the NHS and other key public services, plus the levelling-up agenda. His reason for raising taxes was to satisfy short run budget rules on borrowing. The latest form the 'rules' have taken is that the current budget must be balanced over the forecast horizon.

These rules make no sense. The government on behalf of the people it serves must simply obey the arithmetic of the government budget constraint and so be solvent, which means that it must commit to raising in future taxation sufficient in present value to pay the interest on its debts. It can do this in numerous ways; there is nothing that compels it to balance the current budget at any pre-set point in time.

One implication of solvency is that the debt ratio will converge over time to some desirable level; i.e. from then on net borrowing/GDP reaches zero. Sensibly, the Chancellor emphasised this point and downplayed the current budget aspect. However, by the logic of solvency there is no case for raising taxes. Indeed they will lower growth, which in turn would have helped the debt ratio downwards. In fact as the rest of this chapter shows, there is a baseline downtrend in the debt ratio; also lowering taxes boldly would increase growth and push that trend down further. So there is no case for raising taxes now that is based on solvency considerations.

Turning to the latest OBR forecasts for the economy and public borrowing, they remain excessively gloomy. As we have noted before this comes from the OBR's professional bias as the appointed 'keeper of the budget rules'. The OBR figures are below. As can be seen from our forecasts set out above, they are for much larger borrowing than ours. For example, borrowing in 2024-25 is £46 bn in the OBR forecast, against £22.7bn. in ours. The discrepancy comes about partly from the OBR's pessimistic GDP outlook; GDP grows by 15.9% from 2020 to 2024, against our 20.9%. This 5% discrepancy has a massive effect on net revenue/GDP, the average net tax rate, as we explain above, implying a difference of 2.3% of GDP, or about £50 billion p.a. by 2024. On departmental spending we project slightly higher figures than the OBR, largely given them by the Treasury; we put it at 22.5% of GDP by 2024 against the OBR's 19.3%. Subtracting benefit spending projected by OBR at another 22.4% of GDP (so that total spending is 41.6% of GDP) from their gross revenue projection for 2024 of 39.8% of GDP implies an average net tax rate of only 17.4% against our 23%. So the OBR is greatly downplaying the way recovery will raise gross revenues and lower benefit payments. The reason for this seems to be that it uses a 'bottom-up' approach to estimating tax and benefits, using recent outturns and direct estimates from the Treasury. But this approach is likely to bias the net revenue estimates downwards because it is dominated by current numbers at the disaggregated level; this unprecedented recovery will change all these numbers from the top down.

Table 1.2: Changes to public sector net borrowing

	£ billion						
	Outturn	Forecast					
	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
March 2020 forecast	54.8	66.6	61.5	60.2	57.9		
March 2021 forecast	354.6	233.9	106.9	85.3	74.4	73.7	
October 2021 forecast	319.9	183.0	83.0	61.6	46.3	46.4	44.0

Source: OBR, Economic and Fiscal Outlook, October 2021

Of course the present situation post-Covid is unprecedented so that there is huge unavoidable uncertainty. All the more reason not to raise taxes damagingly to growth until the true situation is revealed. This logic applied to Covid policy: taxes were not raised during the pandemic. So raising them in the aftermath makes no sense either, when the needs of recovery are paramount. If in the long run a persistent gap appears between interest payments and net revenues, then a long run reaction raising net revenue is warranted by solvency, which allows complete flexibility in the timing of net revenue raising. It should be done when we really know what is needed; we should delay damaging the economy with higher taxes until if and when we are sure this damage is unavoidable.

To summarise, the Treasury, aided by the OBR, is too pessimistic about the outlook for the economy and the public finances. Even though there is massive uncertainty about these forecasts, it has pushed the government into raising taxes prematurely. The Chancellor says he aims to cut them later. But by then the damage to growth will have been done. Better to have held off from higher taxes now and supported growth. That would have maximised the chances of not needing to raise taxes in the long run, while keeping open the possibility of doing so if the economy's outturn forced it.

THE UK ECONOMY

Vo Phuong Mai Le

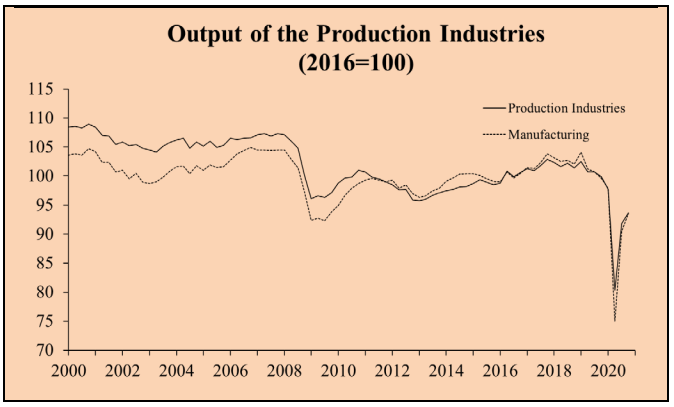
The economy rebounded in the second quarter after the lifting of Covid-19 restrictions. Real GDP rose 5.5%, after a contraction of 1.6% in Q1. The recovery was registered in all sectors. Production output rose 1.0% in Q2 (after -0.4% in Q1), mainly driven by 1.8% growth in manufacturing (compared to -1.0% in Q1). Construction output grew 3.8% following 2.2% in Q1. Services output rebounded at 6.5%, following a contraction of 1.8% in Q1. On the expenditure side, the economic upswing reflected improvements in both domestic and foreign demand. Private consumption grew 7.2% after -4.4% in Q1. Gross fixed capital formation rose 0.8%, after -3.0% in Q1. Net trade added 2.54 percentage points to quarterly growth (after -0.87 percentage points in Q1), as a sharp rebound in exports (6.2% compared to -8.0% in Q1) dominated imports growth (2.4% compared to -11.5% in Q1).

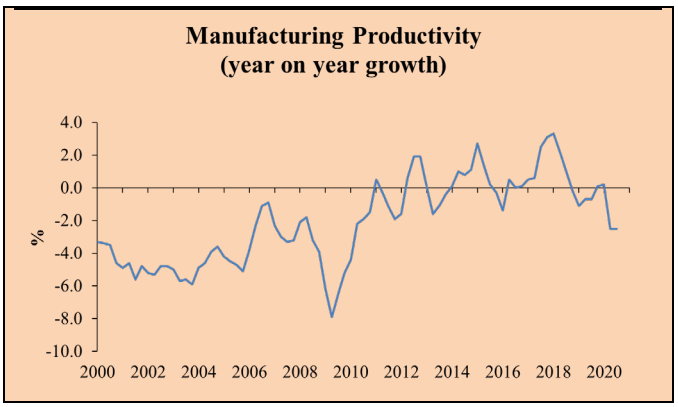
According to latest data and surveys, the economic recovery should continue in Q3 but at a slower pace due to supply disruptions. The September Markit/CIPR UK flash composite of 54.1 (down from 54.8 in August) showed the slowest growth in the private sector since February 2021. The deceleration happened across all sectors, but most profoundly in manufacturing. The Markit/CIPS Manufacturing Purchasing Managers' Index (PMI) was 56.3 in September, down from 60.3 in August and it was the 7-month lowest level. The Services PMI Business Index was 54.6 in September, down from 55.0 in August.

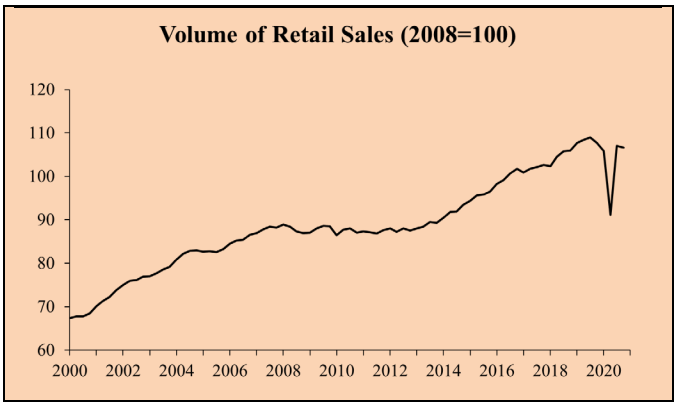
Labour market, costs and prices

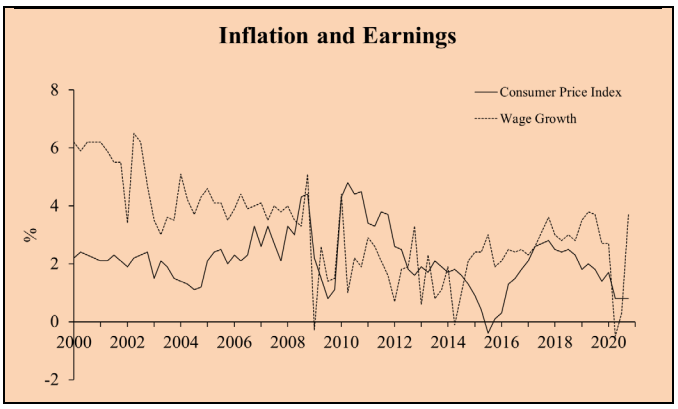
The labour market has continued to recover. According to the Office of National Statistics, in Q3 the unemployment rate was 4.5%, down from 4.9% in Q2. The employment rate increased to 75.3%, up from 74.8% in Q2. Job vacancies were at a record high at over 1.1 million in the three months to September, which is 318,000 higher than the pre-pandemic level in January to March 2020. Partly due to the tighter labour market conditions, the average weekly pay including bonus rose 5.6% yoy in August, following 7.2% in July.

Annual CPI inflation was 3.1% in September, down from 3.2% in August. The main upward pressure on inflation came from transport and restaurants and hotels. Core inflation moderated to 2.9%, down from 3.1% in August. The annual inflation rate is above the target rate of 2% and is expected to rise further in the coming months under the pressures of supply disruptions and increasing energy prices. Up until very recently the Bank of England viewed these inflation upward pressure factors to be temporary, but now it considers that higher energy prices could push inflation higher for longer than previously thought and the Bank is

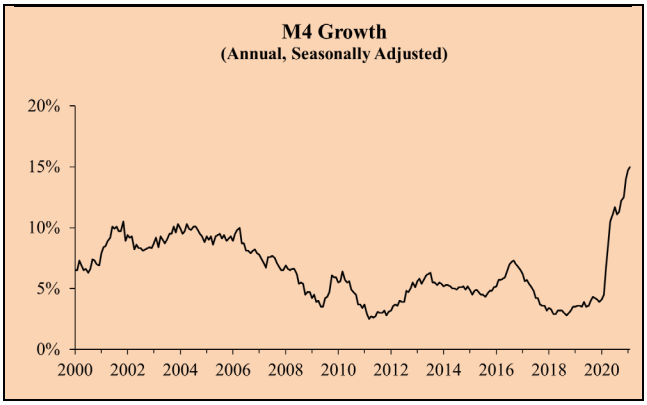


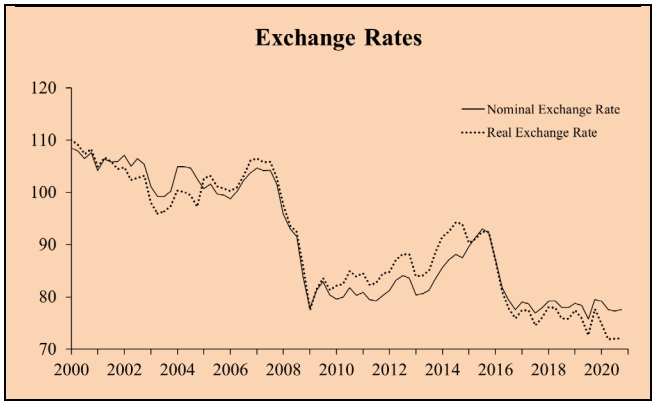


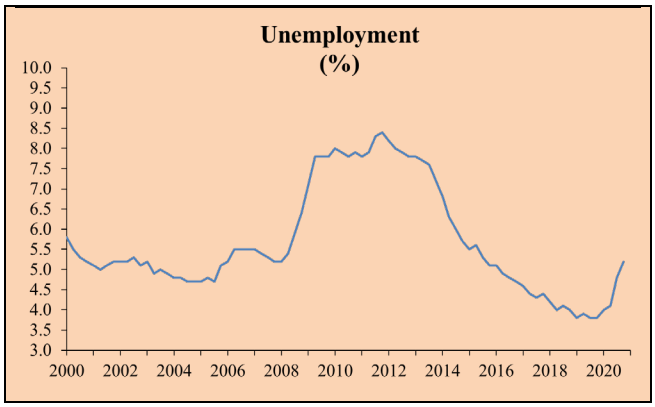


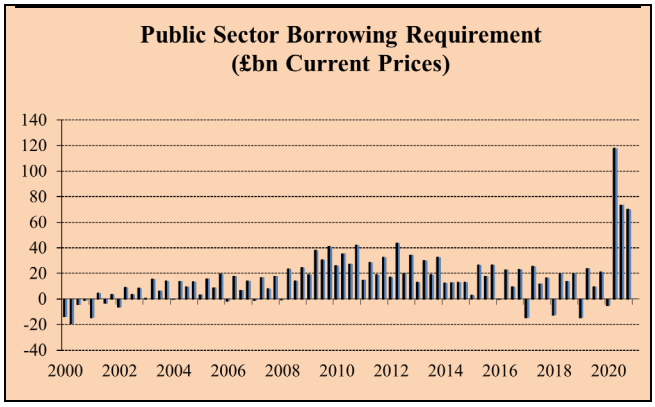


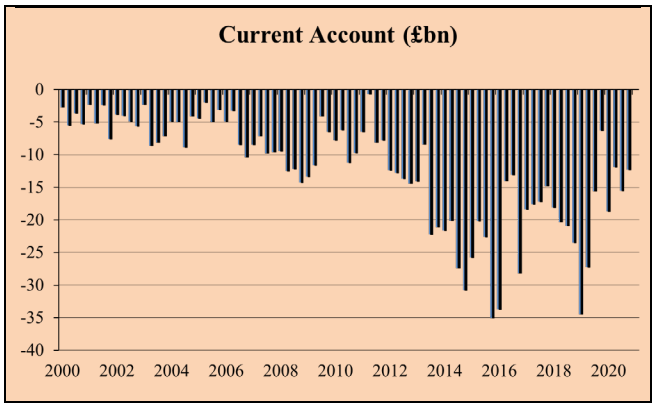
now suggesting it will raise interest rates, though only modestly, to stabilise inflation.











UK FORECAST DETAIL

Prices, Wages, Interest Rates and Exchange Rate Forecast (Seasonally Adjusted)

	Inflation %[1] (CPI)	Short Dated (5 Year) Interest Rates	3 Month Int. Rates	Nominal Exchange Rate (2005=100) [2]	Real Exchange Rate[3]	Real 3 Month Int. Rates %[4]	Inflation (RPIX)	Real Short Dated Rate of Interest[5]
2019	1.7	0.6	0.8	78.3	73.8	-0.7	2.6	-0.5
2020	1.0	0.1	0.2	78.2	72.9	-1.3	1.7	-1.4
2021	2.3	0.4	0.1	81.3	77.2	-4.1	3.5	-3.8
2022	5.0	1.5	1.5	78.7	77.6	-2.8	6.1	-2.9
2023	4.0	4.7	4.5	77.8	78.9	1.1	5.5	1.4
2024	3.0	5.0	5.0	77.5	80.0	2.6	4.6	2.6
2019:1	1.8	0.9	0.9	79.0	75.4	-0.8	2.4	-0.8
2019:2	2.0	0.7	0.8	78.6	74.0	-0.7	3.0	-0.6
2019:3	1.8	0.4	0.8	76.0	70.7	-0.8	2.7	-0.4
2019:4	1.4	0.5	0.8	79.6	75.0	-0.5	2.2	-0.2
2020:1	1.7	0.4	0.6	79.5	74.9	-0.2	2.7	-0.4
2020:2	0.8	0.0	0.1	77.6	71.9	-1.1	1.3	-1.2
2020:3	0.8	-0.1	0.1	77.6	72.2	-1.5	1.3	-1.7
2020:4	0.8	0.0	0.1	78.0	72.6	-2.2	1.4	-2.3
2021:1	0.9	0.2	0.1	80.7	76.2	-3.2	1.4	-3.1
2021:2	2.1	0.4	0.1	81.7	77.6	-3.9	3.4	-3.6
2021:3	2.7	0.6	0.1	81.8	78.7	-4.5	4.5	-4.0
2021:4	3.5	0.6	0.2	79.8	77.0	-4.8	4.6	-4.4
2022:1	4.9	1.0	1.0	79.0	77.3	-3.8	5.4	-3.8
2022:2	5.0	1.5	1.5	78.7	77.3	-3.0	6.5	-3.0
2022:3	5.0	1.6	1.7	77.9	77.3	-2.6	6.3	-2.7
2022:4	5.1	2.0	2.0	78.1	78.4	-2.0	6.3	-2.0
2023:1	4.0	4.0	4.0	78.1	78.7	0.3	5.5	0.3
2023:2	4.0	5.0	4.5	77.9	78.7	1.0	5.5	1.5
2023:3	4.0	5.0	4.5	77.2	78.7	1.3	5.4	1.8
2023:4	4.0	5.0	5.0	77.3	79.7	2.0	5.4	2.0
2024:1	3.0	5.0	5.0	78.1	80.0	2.2	4.6	2.2
2024:2	3.0	5.0	5.0	77.6	79.7	2.5	4.6	2.5
2024:3	3.0	5.0	5.0	77.0	79.7	2.7	4.6	2.7
2024:4	3.1	5.0	5.0	76.9	80.7	3.0	4.7	3.0

[1] Consumer's Expenditure Deflator
[2] Sterling Effective Exchange Rate Bank of England
[3] Ratio of UK to other OECD consumer prices adjusted for nominal exchange rate
[4] Treasury Bill Rate less one year forecast of inflation
[5] Short Dated 5 Year Interest Rate less average of predicted 5 year ahead inflation rate

Labour Market and Supply Factors (Seasonally Adjusted)

	Average Earnings (1990=100)[1]	Wage Growth[2]	Survey Unemployment Percent	Millions	Real Wage Rate[3] (1990=100)
2019	275.7	3.5	3.8	1.0	148.8
2020	279.4	1.6	4.5	1.3	149.9
2021	297.2	6.5	4.6	1.3	155.9
2022	310.8	4.2	4.9	1.5	155.2
2023	323.9	4.2	3.6	1.0	155.5
2024	337.5	4.2	2.8	0.7	157.3
2019:1	273.4	3.4	3.8	1.0	148.1
2019:2	273.5	4.0	3.9	1.0	147.9
2019:3	275.5	3.7	3.8	1.0	149.7
2019:4	277.6	2.7	3.8	1.0	149.6
2020:1	279.7	2.7	4.0	1.1	150.0
2020:2	270.1	-0.2	4.1	1.2	145.9
2020:3	279.3	0.2	4.8	1.4	149.4
2020:4	288.5	3.7	5.2	1.6	154.2
2021:1	292.1	4.5	4.7	1.4	155.3
2021:2	289.7	7.3	4.5	1.3	153.4
2021:3	299.5	7.5	4.5	1.3	156.1
2021:4	307.6	6.7	4.6	1.4	158.9
2022:1	305.7	4.6	5.0	1.5	155.0
2022:2	303.4	4.7	5.0	1.5	152.9
2022:3	312.4	4.3	5.0	1.5	155.0
2022:4	321.6	4.6	4.7	1.4	158.0
2023:1	318.9	4.3	4.2	1.2	155.5
2023:2	315.6	4.0	3.6	1.0	152.9
2023:3	325.8	4.3	3.4	0.9	155.4
2023:4	335.1	4.2	3.2	0.9	158.3
2024:1	332.4	4.2	2.9	0.8	157.4
2024:2	329.0	4.2	2.8	0.7	154.8
2024:3	339.5	4.3	2.8	0.7	157.3
2024:4	348.9	4.1	2.8	0.7	159.9

[1] Whole Economy
[2] Average Earnings
[3] Wage rate deflated by CPI

Estimates and Projections of the Gross Domestic Product[1] (£ Million 1990 Prices)

	Expenditure Index	£ Million '90 prices	Non-Durable Consumption[2]	Private Sector Gross Investment Expenditure[3]	Public Authority Expenditure[4]	Net Exports[5]	AFC
2019	167.8	803514.3	475369.3	308458.5	209136.4	-70959.7	118490.2
2020	151.3	724452.0	427617.5	255473	199184.4	-33404.9	124418.0
2021	162.4	777627.4	444381.6	283633.6	211525.7	-29492.9	132420.6
2022	175.4	840038.6	466406.2	313435.8	224219.9	-23606.4	140416.9
2023	179.8	861078.8	480435.9	311835.6	230959.2	-18606.2	143545.8
2024	183.6	879388.7	493915.3	309929.6	237826	-15888.6	146393.7
2019/18	1.4		0.3	3.1	3.0		-0.1
2020/19	-9.9		-10.1	-17.3	-4.8		5.0
2021/20	8.1		4.8	14.7	6.6		6.4
2022/21	8.1		5.0	10.3	6.0		6.0
2023/22	2.5		3.0	-0.7	3.0		2.2
2024/23	2.1		2.8	-0.6	3.0		2.0
2019:1	167.5	200481.1	119045.5	83717.3	53429.6	-27900.7	27810.6
2019:2	167.1	200009.6	118526.3	74816.9	51617.9	-19203.6	25747.9
2019:3	168.3	201443.7	118808.6	71008.4	51891.0	-12473.8	27790.5
2019:4	168.4	201579.9	118988.8	78916.0	52197.9	-11381.7	37141.1
2020:1	163.4	195632.5	118032.8	72147.1	51656.8	-11632.2	34572.0
2020:2	131.6	157502.4	91565.8	47009.3	43743.5	429.6	25245.8
2020:3	154.0	184370.2	109964.7	64379.7	50846.1	-9700.7	31119.6
2020:4	156.1	186946.9	108054.2	71936.9	52938.0	-12501.5	33480.7
2021:1	154.0	184353.8	105676.5	72020.2	51082.9	-12804.4	31621.4
2021:2	162.4	194420.4	107095.1	72112.9	51382.2	-3077.5	33092.3
2021:3	164.6	197032.5	112840.6	71592.3	52882.5	-6641.1	33641.8
2021:4	168.6	201820.6	118769.3	67908.2	56178.1	-6969.9	34065.1
2022:1	172.7	206742.0	111591.7	86810.8	54146.0	-11003.8	34802.7
2022:2	175.0	209536.1	113522.4	79377.2	54465.4	-2829.7	34999.2
2022:3	176.4	211205.9	115432.9	80227.8	56071.4	-5098.5	35427.7
2022:4	177.5	212554.5	125859.2	67020.0	59537.0	-4674.4	35187.3
2023:1	178.1	213197.6	114937.4	89248.4	55769.8	-11225.4	35532.6
2023:2	179.5	214921.0	116928.3	80420.1	56099.4	-2726.0	35800.8
2023:3	180.2	215792.9	118896.1	77386.1	57753.7	-2249.0	35994.0
2023:4	181.4	217167.2	129674.1	64780.9	61336.3	-2405.7	36218.4
2024:1	182.2	218188.2	118385.5	88428.1	57442.9	-9648.0	36420.3
2024:2	183.1	219217.7	120436.1	80024.5	57782.4	-2453.6	36571.7
2024:3	184.0	220306.2	122463.0	76925.1	59486.3	-1824.1	36744.1
2024:4	185.2	221676.7	132630.8	64551.9	63114.4	-1962.8	36657.6

[1] GDP at factor cost. Expenditure measure; seasonally adjusted
[2] Consumers expenditure less expenditure on durables and housing
[3] Private gross domestic capital formation plus household expenditure on durables and clothing plus private sector stock building
[4] General government current and capital expenditure including stock building
[5] Exports of goods and services less imports of goods and services

Financial Forecast

	PSBR/GDP %1	GDP1 (£bn)	PSBR (£bn) Financial Year	Current Account (£ bn)
2019	2.2	2166.6	49.1	-89.1
2020	15.9	1990.1	306.6	-58.2
2021	7.9	2307.1	179.5	-48.3
2022	2.3	2562.1	57.8	-35.9
2023	1.5	2721.0	42.0	-24.0
2024	0.8	2859.9	23.3	-16.7
2020:1	-0.9	549.4	-5.0	-18.7
2020:2	27.0	437.6	118.0	-11.9
2020:3	14.5	514.8	74.8	-15.3
2020:4	13.8	519.8	71.9	-12.3
2021:1	8.7	517.9	44.8	-21.3
2021:2	11.6	549.3	63.5	-18.8
2021:3	8.2	563.3	46.0	-8.0
2021:4	6.2	585.7	36.3	-0.1
2022:1	5.5	608.8	33.7	-17.6
2022:2	2.1	622.7	13.4	-18.9
2022:3	2.4	636.2	15.3	-4.9
2022:4	2.4	648.6	15.6	5.5

1GDP at market prices (Financial Year)

Public Finance Forecast

	Nom PSBR (£bn)	**Nom GDP (£bn)**	**Nom Pub Spend (£bn)**	**PSBR/GDP %[1]**	**Spend/GDP %**	**Nom Debt (£bn)**	**Debt Interest (£bn)**	**Debt/GDP %**	**Net Taxes (£bn)**	**Net Tax Rate%**
2019/20	49.1	2196.3	472.2	2.2	21.5	1621.0	48.1	73.8	471.2	21.5
2020/21	306.6	1990.1	468.9	15.9	23.6	1932.2	39.8	97.1	202.1	10.2
2021/22	179.5	2307.1	526.7	7.8	22.8	2111.7	42.6	91.5	389.8	16.9
2022/23	57.8	2562.1	561.2	2.3	21.9	2169.5	41.1	84.7	544.5	21.3
2023/24	42.0	2721.0	600.5	1.5	22.1	2211.5	42.9	81.3	601.4	22.1
2024/25	23.3	2859.9	639.5	0.8	22.4	2234.8	41.1	78.1	657.4	23.0
2025/26	3.7	2974.3	669.5	0.1	22.5	2238.5	44.7	75.3	710.4	23.9
2026/27	0.2	3093.3	720.9	0.0	23.3	2238.7	48.0	72.4	768.8	24.9
2027/28	0.2	3217.0	780.5	0.0	24.3	2238.9	51.2	69.6	831.5	25.8
2028/29	0.0	3345.7	845.1	0.0	25.3	2238.9	54.3	66.9	899.4	26.9
2029/30	0.0	3479.5	915.6	0.0	26.3	2238.9	57.1	64.3	972.7	28.0
2030/31	0.0	3618.7	992.2	0.0	27.4	2238.9	59.9	61.9	1052.1	29.1
2031/32	0.0	3763.4	1075.5	0.0	28.6	2238.9	62.5	59.5	1138.0	30.2
2032/33	0.0	3914.0	1165.9	0.0	29.8	2238.9	65.0	57.2	1230.8	31.4
2033/34	0.0	4070.5	1264.0	0.0	31.1	2238.9	67.3	55.0	1331.3	32.7
2034/35	0.0	4233.4	1370.4	0.0	32.4	2238.9	69.5	52.9	1439.9	34.0

[1]GDP at market prices (Financial Year)

THE WORLD ECONOMY

US

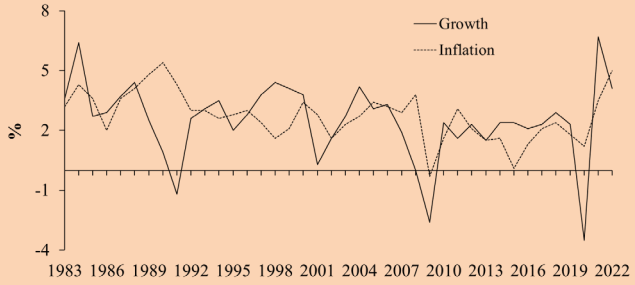
Economic activity continued to recover in Q2. Real GDP rose 1.68% in Q2, following 1.57% in Q1. The growth was driven mostly by a continuously strong increase in private consumption (2.95% following 2.85% in Q1), while fixed investment decelerated (rising 0.75% in Q2 compared to 3.25% in Q1). A negative contribution came from net trade. It subtracted 0.11 percentage points from Q2 growth (after -0.39 percentage points in Q1), as imports grew (1.95% in Q1, after 2.3% in Q2) faster than exports (1.5% after -0.73% in Q2).

The labour market continued to strengthen in line with economic improvements. Total non-farm payrolls rose by 194,000 in September, following an increase of 366,000 in August. The unemployment rate was 4.8%, down from 5.2% in August. Tighter conditions pushed up the annual average hourly earnings growth. It accelerated from 4.0% in August to 4.6% in September.

The recent surveys and data are signalling that economic growth continues and the private sector has continued its expansion, driven by the service sector. The Markit Composite PMI Output index was 57.3 in October, rising from 55.0 in September. The Markit Services Business Activity Index rose to 58.2 from 54.9 in September. However, although manufacturing activity has continued to expand, it has been at a slower pace due to rising supply side constraints. The Manufacturing Output PMI Index fell to 52.3 from 55.7 in September, showing the slowest expansion in 15 months.

Consumer price inflation continued to increase beyond the official target of 2%. The annual rate of CPI inflation rose to 5.4% in September, following August's 5.3%. This increase was mainly driven by a further rise in energy prices (24.8% in September, following 25% in August). Core inflation, less food and energy, rose 4.0%, unchanged from August. The Federal Reserve viewed factors driving inflation higher as transitory and it expected inflation to remain around 5% in the coming months. In the September meeting, the Federal Reserve reaffirmed to keep its accommodative policies until its goals of maximum employment and inflation at 2% are achieved over the longer run. Given its new average inflation target objective, this means it would aim to achieve inflation moderately above 2% over time, since inflation had been running persistently below 2%.

U.S.: Annual Growth Rates of Real GNP and Consumer Prices

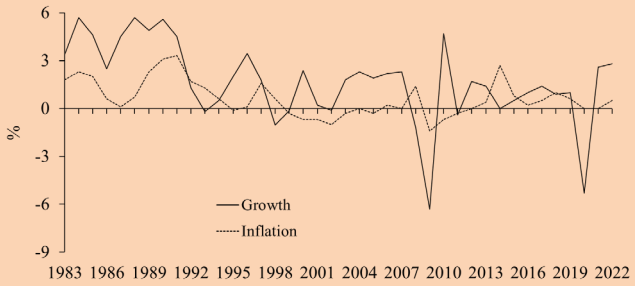


US

	2017	2018	2019	2020	2021	2022
Real GDP Growth (% p.a.)	2.3	3.0	2.2	–3.5	5.9	4.3
Inflation (% p.a.)	2.1	2.4	1.8	1.2	3.5	5.0
Real Short Int. Rate	–1.0	0.6	0.3	–3.1	–4.9	-4.9
Nominal Short Int. Rate	1.4	2.4	1.5	0.4	0.1	0.1
Real Long Int. Rate	0.4	0.9	0.7	-2.6	-3.3	-3.0
Nominal Long Int. Rate	2.8	2.7	1.9	0.9	1.7	2.0
Real Ex. Rate (2000=100)[1]	94.5	93.5	96.3	96.2	95.5	94.9
Nominal Ex. Rate[2]	101.68	100.96	104.31	106.41	101.60	100.50

[1]The real exchange rate is the domestic price level relative to the foreign price level converted into domestic currency. A rise in the index implies an appreciation of the real exchange rate.
[2] The series for the USA is a trade weighted index (1990=100)

Japan: Annual Growth Rates of Real GNP and Consumer Prices



Japan

	2017	2018	2019	2020	2021	2022
Real GDP Growth (% p.a.)	1.7	0.6	0.0	–4.7	2.6	3.0
Inflation (% p.a.)	0.5	1.0	0.5	0.0	0.0	0.5
Real Short Int. Rate	–0.9	–0.4	0.1	0.0	–0.4	–0.4
Nominal Short Int. Rate	0.1	0.1	0.1	0.0	0.1	0.1
Real Long Int. Rate	–0.9	–0.5	0.0	0.0	–0.4	–0.4
Nominal Long Int. Rate	0.1	0.0	0.0	0.0	0.1	0.1
Real Ex. Rate (2000=100)[1]	58.3	57.8	56.3	54.2	51.4	48.0
Nominal Ex. Rate	112.10	110.40	109.02	106.80	109.30	109.60

[1]The real exchange rate is the domestic price level relative to the foreign price level converted into domestic currency. A rise in the index implies an appreciation of the real exchange rate.

Japan

Japanese economic activity recovered modestly in Q2 due to the rebound in its domestic demand. Real GDP rose 0.8% in Q2, after a decrease of nearly 1.0% in Q1. Within this, private consumption rebounded strongly at 0.9% (after -

1.5% in Q1), private non-residential investment rose 2.3% (after -1.2% in Q1) and public demand rose 0.7% (after -1.0% in Q1). Net trade continued to drag the growth down. It subtracted 0.3 percentage points from Q2 growth (following -0.2% in Q1), as imports growth accelerated (5.0%, after 3.9% in Q1) faster than exports (2.8%, after 2.2% in Q1).

A surge in Covid-19 cases that caused the government to impose local restrictions, together with supply disruptions, brought a negative impact on the economic recovery. According to the recent data and surveys, the Q3 economic outlook became less optimistic. The September au Jibun Bank Japan Composite PMI of 47.7 (following 45.5 in August), below the threshold of 50, showed a contraction in the private sector. Manufacturing output declined in September as shown by the Manufacturing PMI of 48.1 (falling from 51.0 in August). The Services PMI was 47.2 in September (following 42.9 in August), as output contracted further, but at a more moderate pace.

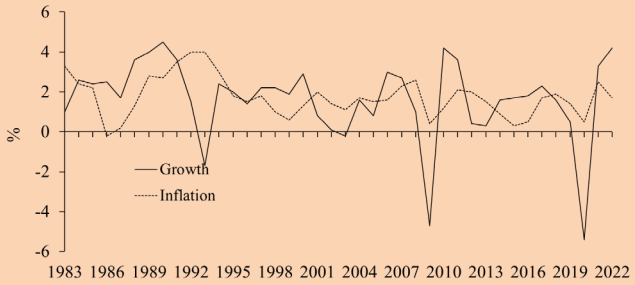
Annual CPI inflation was 0.2% in September, up from -0.4% in August. This increase was driven mainly by the surge in fuel, light and water charges and culture and recreation. The core inflation (less food and energy) was -0.5%, following -0.1% in August. Faced with relatively weak economic conditions and low inflation, the Bank of Japan continues to maintain all its accommodative conventional and unconventional policies to aid the economic recovery.

Germany

Economic activity rebounded strongly in Q2. Real GDP grew 1.6% after a big contraction of -2.0% in Q1. The recovery was driven by a strong rebound in domestic demand. Final consumption expenditure rebounded 2.8% (after -3.8% in Q1) and gross fixed capital formation rose 0.5% (after falling 0.7% in Q1). On the other hand, a negative contribution came from net trade. It subtracted 0.6 percentage points from the quarterly growth (after -1.0% in Q1), as imports grew (2.1%, after 4.2% in Q1) by more than exports (0.5%, after 2.1% in Q1).

According to recent data and surveys, the economic recovery process lost some of its momentum in Q3. Businesses became more pessimistic about business conditions in September with the Ifo Business Climate Index at 98.9, down from 99.6 in August. The private sector expanded at its lowest rate since February. The Markit Composite Output Index was 52.0, down from 55.5 in August. Supply shortages were responsible for a slowdown in manufacturing sector whose Flash Markit Output Index dropped to a 16-month low of 51.1 in October (from 54.2 in September). Service sector output also decelerated. Its activity rose at the slowest rate for four months as its Markit PBI business Activity went down to 56.2 in September from 60.8 in August.

Germany: Annual Growth Rates of Real GNP and Consumer Prices

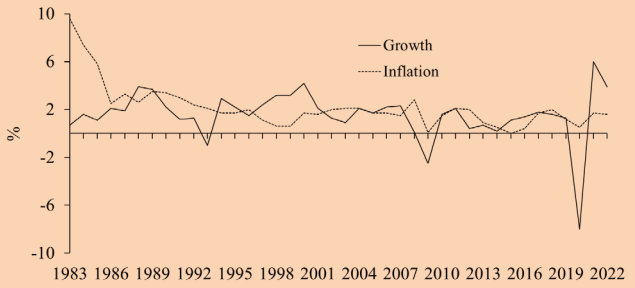


German

	2017	2018	2019	2020	2021	2022
Real GDP Growth (% p.a.)	2.6	1.3	0.6	–4.8	3.3	4.4
Inflation (% p.a.)	1.5	1.8	1.4	0.5	3.0	2.2
Real Short Int. Rate	–2.1	–1.7	–0.9	–2.9	–2.7	–2.7
Nominal Short Int. Rate	–0.3	–0.3	–0.4	–0.4	–0.5	–0.5
Real Long Int. Rate	–1.4	–1.2	–0.7	–3.1	–2.3	–2.2
Nominal Long Int. Rate	0.4	0.2	–0.2	–0.6	–0.1	0.0
Real Ex. Rate (2000=100)[1]	94.3	96.5	95.6	94.1	92.2	90.0
Nominal Ex. Rate	0.89	0.85	0.89	0.88	0.84	0.84

[1]The real exchange rate is the domestic price level relative to the foreign price level converted into domestic currency. A rise in the index implies an appreciation of the real exchange rate.

France: Annual Growth Rates of Real GNP and Consumer Prices



France

	2017	2018	2019	2020	2021	2022
Real GDP Growth (% p.a.)	2.4	1.8	1.8	-8.0	6.0	3.8
Inflation (% p.a.)	1.0	1.9	1.3	0.5	1.7	1.6
Real Short Int. Rate	–2.1	–1.4	–0.9	–2.1	–2.1	–2.1
Nominal Short Int. Rate	–0.3	–0.3	–0.4	–0.4	–0.5	–0.5
Real Long Int. Rate	–1.0	–0.4	–0.4	–2.0	–1.4	–1.3
Nominal Long Int. Rate	0.8	0.7	0.1	–0.3	0.2	0.3
Real Ex. Rate (2000=100)[1]	95.3	97.4	96.3	94.5	92.1	89.4
Nominal Ex. Rate[2]	0.89	0.85	0.89	0.88	0.84	0.84

[1]The real exchange rate is the domestic price level relative to the foreign price level converted into domestic currency. A rise in the index implies an appreciation of the real exchange rate.

France

The economic recovery returned. Real GDP rose 0.9% in Q2, after being stable in Q1. The positive contribution to GDP came from strong domestic demand with acceleration in both investment (1.1% in Q2, compared to 0.4% in Q1) and private consumption (0.9% compared to 0.2% in Q1). On the other hand, a negative contribution came from net trade. It subtracted 0.1 percentage points from the Q2 growth (after -0.5 percentage points in Q1) as imports (1.9%, after 1.1% in Q1) rose more than exports (1.5%, after -0.5% in Q1).

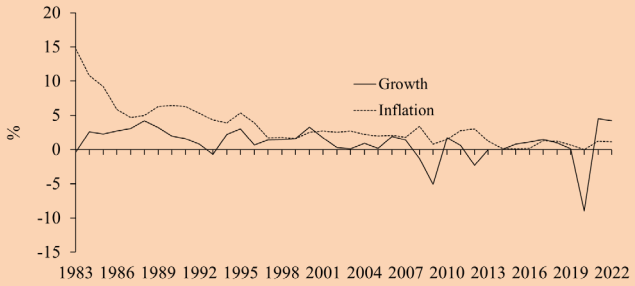
Looking ahead to Q3, data and surveys predicted that the economy would continue to expand, but at a lower rate, as supply shortages hit goods production. The Composite Output Index of 54.7 in October (down from 55.3 in September) signalled a slowdown in the private sector. This deceleration was driven by a contraction in the manufacturing sector, whose output index was 46.2 (down from 51.3 in September). This negative contribution was offset by a strong and accelerating expansion in services sector output. The Services Activity Index rose to 56.6 in October from 56.2 in September. Furthermore, business confidence of 106.3 in September (down from 109.6 in August) remained above the threshold of 100 and indicated that businesses continued to be optimistic about market conditions.

Italy

The economic recovery process continued robustly due to the easing of Covid-19 restrictions. Real GDP rose 2.7% in Q2, a sharp increase from 0.1% in Q1. The growth was driven by stronger domestic and foreign demand. Private consumption and investment increased 3.4% and 2.6% (following -1.2% and 3.7% in Q1, respectively). Net trade position improved as exports accelerated (3.2%, after -0.1% in Q1) stronger than imports (2.4%, up from 2.3% in Q1).

Despite the global supply problems and the surge in energy prices, recent data and surveys signalled a further economic expansion in Q3, though at a slower pace. The deceleration was evidenced across all sectors. The Markit Services PMI Business activity index was at 55.5 in September, following 58.0 in August. Service output expanded at the slowest rate since May. Manufacturing growth remained robust in September, but grew at the lowest rate since February. Its Market PMI Index was 59.7, down from 60.9 in August. Construction remained robust. Its Markit PMI Index was 56.6 in September (down from 65.2 in August), showing an eight-month consecutive increase in this industry.

Italy: Annual Growth Rates of Real GNP and Consumer Prices



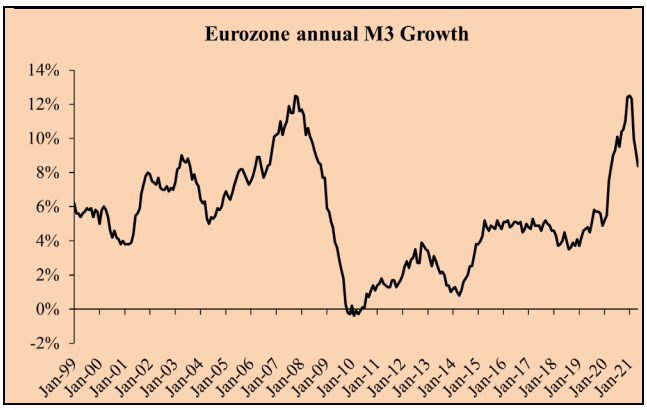
Italy

	2017	2018	2019	2020	2021	2022
Real GDP Growth (% p.a.)	1.7	0.9	0.3	–8.9	5.5	4.3
Inflation (% p.a.)	1.2	1.2	0.6	0.0	1.7	1.7
Real Short Int. Rate	–1.5	–0.9	–0.4	–1.6	–2.2	–2.2
Nominal Short Int. Rate	–0.3	–0.3	–0.4	–0.4	–0.5	–0.5
Real Long Int. Rate	0.7	2.2	1.4	–0.7	–0.8	–0.5
Nominal Long Int. Rate	1.9	2.8	1.4	0.5	0.9	1.2
Real Ex. Rate (2000=100)[1]	101.2	102.8	104.5	105.2	103.8	101.7
Nominal Ex. Rate[2]	0.89	0.85	0.89	0.88	0.84	0.84

[1]The real exchange rate is the domestic price level relative to the foreign price level converted into domestic currency. A rise in the index implies an appreciation of the real exchange rate.

Euro-zone monetary policy

The annual Harmonized Index of Consumer Price Inflation rate has been rising steadily. It was at 3.4% in September, up from 3.0% in August. The higher inflation was driven mainly by a continuously strong increase in energy prices (17.4% compared to 15.4% in August) and services (0.7% compared to 1.1% in May). The core HICP, without energy and food, rose 1.9% up from 1.6% in August. The European Central Bank regards the current increase in inflation as temporary, reflecting the increase in commodity prices and cost pressures from material shortages. Therefore, it expects inflation to be high in the medium term, but in the long term it is expected to return closely to its target. Considering the economic conditions and inflation prospect, in the September meeting, the European Central Bank maintained its accommodative monetary policy. It kept the interest rate on the main refinancing operations and interest rates on the marginal lending facility and the deposit facility at 0.00%, 0.25% and -0.50% respectively. It kept the net asset purchases under the pandemic emergency purchase programme of €1850 billion until at least the end of March 2022; and it decided to carry on its net purchases under the general asset purchase programme at monthly rate of €20 billion.


Eurozone annual M3 Growth
14%
12%
10%
8%
6%
4%
2%
0%
-2%
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
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Jan-21

WORLD FORECAST DETAIL

Growth Of Real GNP

	2017	2018	2019	2020	2021	2022
U.S.A.	2.3	3.0	2.2	–3.5	5.9	4.3
U.K.	1.8	1.3	1.4	–9.9	8.1	8.1
Japan	1.7	0.6	0.0	–4.7	2.6	3.0
Germany	2.6	1.3	0.6	–4.8	3.3	4.4
France	2.4	1.8	1.8	–8.0	6.0	3.8
Italy	1.7	0.9	0.3	–8.9	5.5	4.3

Growth Of Consumer Prices

	2017	2018	2019	2020	2021	2022
U.S.A.	2.1	2.4	1.8	1.2	3.5	5.0
U.K.	2.6	2.5	1.8	1.0	2.3	5.0
Japan	0.5	1.0	0.5	0.0	0.0	0.5
Germany	1.5	1.8	1.4	0.5	3.0	2.2
France	1.0	1.9	1.3	0.5	1.7	1.6
Italy	1.2	1.2	0.6	0.0	1.7	1.7

Real Short-Term Interest Rates

	2017	2018	2019	2020	2021	2022
U.S.A.	–1.0	0.6	0.3	–3.1	–4.9	-4.9
U.K.	–2.0	–1.1	–0.2	–2.1	–4.9	–3.5
Japan	–0.9	–0.4	0.1	0.0	-0.4	–0.4
Germany	–2.1	–1.7	–0.9	–3.4	–2.7	–2.7
France	–2.1	–1.4	–0.9	–2.1	–2.1	–2.1
Italy	–1.5	–0.9	–0.4	–2.1	–2.2	–2.2

Nominal Short-Term Interest Rates

	2017	2018	2019	2020	2021	2022
U.S.A.	1.4	2.4	1.5	0.4	0.1	0.1
U.K.	0.4	0.7	0.8	0.2	0.1	1.5
Japan	0.1	0.1	0.1	0.0	0.1	0.1
Germany	–0.3	–0.3	–0.4	–0.4	–0.5	–0.5
France	–0.3	–0.3	–0.4	–0.4	–0.5	–0.5
Italy	–0.3	–0.3	–0.4	–0.4	–0.5	–0.5

Real Long-Term Interest Rates

	2017	2018	2019	2020	2021	2022
U.S.A.	0.4	0.9	0.7	-2.6	-3.3	-3.0
U.K.	–1.8	–0.8	–0.4	–2.1	–4.6	–3.5
Japan	–0.9	–0.5	0.0	0.0	–0.4	–0.4
Germany	–1.4	–1.2	–0.7	–3.6	–2.3	–2.2
France	–1.0	–0.4	–0.4	–2.0	–1.4	–1.3
Italy	0.7	2.2	1.4	–1.2	–0.8	–0.5

Nominal Long-Term Interest Rates

	2017	2018	2019	2020	2021	2022
U.S.A.	2.8	2.7	1.9	0.9	1.7	2.0
U.K.	0.6	1.0	0.6	0.2	0.4	1.5
Japan	0.1	0.0	0.0	0.0	0.1	0.1
Germany	0.4	0.2	–0.2	–0.6	–0.1	0.0
France	0.8	0.7	0.1	–0.3	0.2	0.3
Italy	1.9	2.8	1.4	0.5	0.9	1.2

Index Of Real Exchange Rate(2000=100)[1]

	2017	2018	2019	2020	2021	2022
U.S.A.	94.5	93.5	96.3	96.2	95.5	94.9
U.K.	77.4	78.6	78.3	78.2	80.7	78.8
Japan	58.3	57.8	56.3	54.2	51.4	48.0
Germany	94.3	96.5	95.6	94.1	92.2	90.0
France	95.3	97.4	96.3	94.5	92.1	89.4
Italy	101.2	102.8	104.5	105.2	103.8	101.7

[1] The real exchange rate is the domestic price level relative to the foreign price level converted into domestic currency. A rise in the index implies an appreciation in the real exchange rate.

Nominal Exchange Rate (Number of Units of Local Currency To $1)

	2017	2018	2019	2020	2021	2022
U.S.A.[1]	101.68	100.96	104.31	106.41	101.60	100.50
U.K.	1.29	1.34	1.28	1.28	1.39	1.40
Japan	112.10	110.40	109.02	106.80	109.30	109.60
Eurozone	0.89	0.85	0.89	0.88	0.84	0.84

[1] The series for the USA is a trade weighted index (1990=100); the series for the UK is $ per £

* Forecasts based on the Liverpool World Model

EMERGING MARKETS

Anupam Rastogi

India

India's economy is signalling its readiness to accelerate, as its services sector resumed expansion and manufacturing activity retaining growth momentum in August. The monthly expansion in services and manufacturing activity coincided with relatively low new Covid-19 cases and a pick up in the pace of vaccinations — more than 900 million doses have been administered so far in the nation of 1.3 billion people. More than one-quarter of the eligible population is fully vaccinated and 40% of the eligible population has got one vaccine. Almost the whole of the population will be vaccinated by the end of the year. Business activity, exports, consumption and industrial activities are growing. India's indirect tax collection for September supports the Purchase Managers' Index (PMI) report, up by 23% over a year ago and up 4.5% sequentially. It has surpassed pre-Covid levels. Advance tax collection during the second quarter of the fiscal year grew over 50% over the equivalent period in 2020–21, providing the government with additional spending power to fuel economic recovery after the disruption caused by the second Covid-19 wave earlier this year.

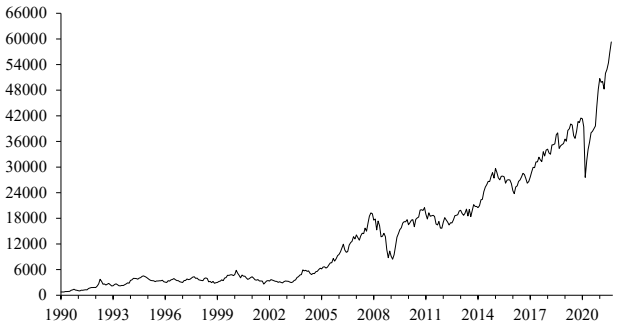
The PMI came in at 53.7, higher than August's 52.3 figure. We are not revising our GDP growth forecast as it had predicted the acceleration of growth on the basis of information available in June.

India's retail inflation in August marginally eased to 5.3%, staying within the Reserve Bank of India's comfort zone for a second month. Inflation based on the Consumer Price Index (CPI) was 5.59% in July and 6.69% in August 2020. This Reserve Bank of India's (RBI) comfort range is 2-6%. Inflation has been above the medium-term target of 4% for nearly two years. Inflation is expected to drift lower over the remaining months of 2021 on base effects and ebbing food prices. The RBI — which slashed its key interest rate by a cumulative 115 basis points last year — is expected to keep its policy unchanged until at least April as it prioritises growth over inflation.

India's merchandise exports jumped 21.35% to $33.44 billion in September on a year-on-year basis, mainly due to better performance by key sectors like engineering goods and petroleum products. In September, merchandise imports stood at $56.38 billion, an increase of 84.75% compared to the year-ago period. This resulted in a trade deficit of $22.94 billion as gold imports jumped nearly 750% to $5.11 billion.

India's current account balance recorded a surplus of US$6.5bn or 0.9% of GDP in Q1FY22 after registering a deficit for two consecutive quarters. Imports bore the brunt of renewed COVID-induced restrictions during the virulent

India: BSE Sensitive



second wave, which in turn hampered domestic demand. This has resulted in a higher-than-expected current account surplus. Healthy foreign capital inflows, on the other hand, resulted in Balance of Payments (BoP) recording a surplus of US$31.9bn in Q1FY22 — the second highest record surplus.

In the coming months import growth is expected to outpace exports in the wake of a) easing lockdown restrictions, b) increasing pace of vaccinations, c) rising crude oil and other commodity prices, and d) a favourable base. Consequently, we expect the current account deficit at balance to slip into deficit again in FY22, with our estimate pegged at 0.7% of GDP.

The INR is getting support from a gradual pace of normalisation, continued economic recovery, comfortable current account situation and renewed foreign capital inflows into debt markets. Moreover, adequate foreign exchange reserves (US$639bn as on September 17th) is expected to curtail the volatility and limit the depreciating bias. However, the Indian rupee will gradually depreciate versus the US dollar over the next quarters.

While the high valuation of Indian stocks is a risk, visible and less volatile corporate earnings growth suggests the bourse's premium relative to other emerging nations will remain in place.

The central government's production-linked incentive scheme (PLI) has become the fulcrum of Make in India with a triple objective — attract FDI, help domestic manufacturers scale, and make the country globally competitive in exports. The government approved an outlay of 259.38 billion rupees for the automobile sector, which generates the bulk of India's manufacturing GDP. The industry appreciates it. The GM and Ford Motor Company may have exited the country but many auto manufacturers, globally, are looking to de-risk their supply-chains. PLI, some argued, has arrived just in time.

	19–20	20–21	21–22	22–23	23-24
GDP (%p.a.)	4.0	-7.3	10.0	5.5	5.7
WPI (%p.a.)	3.6	5.5	6.0	5.5	5.3
Current A/c(US$ bill.)	-20.0	35.0	-20.0	-10.0	-10.0
Rs./$(nom.)	73.0	75.0	74.0	75.0	76.0

China

China's manufacturing purchasing managers' index fell to 49.6 in September, the first time since February 2020. This was the third straight month of weakening economic numbers. But, the positive signal came from China's service sector. China's official non manufacturing PMI, which includes the services and construction sectors, bounced back to 53.2 in September, compared with 47.5 in August. We maintain our forecast of GDP growth of 8% and 5.2% for 2021 and 2022 respectively. Expectation of lower economic growth in China, as electricity shortages worsen in the country is unlikely to materialise.

Vice Premier Han Zheng, who supervises the nation's energy policies, has ordered state owned energy companies "to increase coal supplies by all means." China's economic planning agency, the National Development and Reform Commission has reaffirmed that it would increase coal production, import more coal, increase domestic gas production and pass through some higher energy costs to end-users. The domestic shortfall of coal occurred due to an unofficial Chinese ban on imports of coal from Australia, previously a major supplier.

China's factory-gate inflation accelerated to a 13-year high, adding to the pressure on global consumer prices which have been pushed up by a commodities boom, soaring shipping costs and an uneven economic recovery from the pandemic. Producer prices in China rose 9.5% in August from a year earlier. The surge in PPI was largely due to the rising prices of products such as coal, chemicals and steel. However, the gains in PPI aren't being passed through to Chinese consumer inflation as yet. Hence, China's consumer price index (CPI), rose by 0.8% in August from a year earlier, down from 1% in July. China will continue its "normal" monetary policy for as long as possible and has no need to purchase assets according to Yi Gang, governor of the People's Bank of China.

Exports are expected to have risen 17.1% in August from a year earlier, compared with growth of 19.3% in July. Imports likely rose 26.8% last month year-on-year, compared with 28.1% growth in July.

China's fragile economic recovery from the pandemic is facing a new challenge — a relentless rally in the U.S. dollar. The U.S. currency's surge is helping the yuan record its largest gain in eight months on a trade-weighted basis in September. Unlike past episodes of China-related worries, there are no signs of capital outflows this time.

China: SSE Composite Index

The regulatory shift by the Communist Party has sent shockwaves around the world. Some investors now consider Chinese shares too risky while others see industries that still stand to profit. Communist Party is willing to forsake short-term growth for long-term stability. It had set a much lower GDP target of 6% expansion for the year in the month of March. Policymakers are far more interested in the quality of economic growth than its pace.

U.S. securities regulators have started a countdown that will force many Chinese companies to leave American stock exchanges, after a long impasse between Washington and Beijing over access to the companies' audit records. The action will accelerate the decoupling of the world's two largest economies and affect investors that own securities in more than 200 U.S.-listed Chinese companies with a combined market value of roughly $2 trillion.

China finds itself in bad light as the World Bank has shelved its annual survey on Doing Business ranking, because of some untoward lobbying by China. The survey, first published in 2003, "measures aspects of business regulation affecting small domestic firms located in the largest business city of 190 economies". It covers a wide range, from registering a business to resolving bankruptcy. This massive undertaking involves nearly 50,000 experts across the globe, and its conclusions guide perhaps billions of dollars of investment. But an independent investigation by the law firm WilmerHale has concluded that former World Bank CEO Kristalina Georgieva and other leaders pressured staff to improve China's Doing Business 2018 ranking. Ms. Georgieva, now managing director of the International Monetary Fund, has said the accusations are "false and spurious." She also claims to have stopped an effort by ex-World Bank President Jim Yong Kim's office to improve China's position by including Hong Kong's data with the mainland's ranking.

	19	20	21	22	23
GDP (%p.a.)	6.1	2.3	8.0	5.2	5.0
Inflation (%p.a.)	2.9	2.5	1.8	2.0	2.0
Trade Balance(US$ bill.)	40.0	60.0	80.0	60.0	52.0
Rmb/$(nom.)	7.1	6.7	6.5	6.7	6.7

South Korea

South Korea's GDP growth forecast is maintained to expand 4% and 3% in 2021 and 2022. Our forecast takes into account the impact of Covid-19 worldwide. The Bank of Korea has turned very bearish and expects potential GDP growth at 2.2%. We expect GDP growth to lose momentum but not this much.

As of now the inflation index does not include housing cost. The central bank is of the opinion that it is time to review the inflation index to include rising housing costs. The move is aimed at curbing record-high household debt and surging property prices that have become a risk for the economy. Apartment prices in the capital region surrounding Seoul, home to about half of the country's population, jumped 13.11% this year through August. In August, the BOK raised the policy rate by a quarter percentage point to 0.75% from a record low of 0.5%, marking the first pandemic-era rate hike. We expect the BOK to raise rates in the coming months or next year, with the base rate at 1.25% by end-2022.

South Korea's export growth slowed in September, mainly due to fewer working days, but still remained solid on brisk demand for semiconductors and other goods.

Overseas shipments expanded for the 11th straight month to rise 16.7% on year to $55.8 billion, following August's revised 34.8% jump, according to the trade ministry. Imports rose 31% to $51.6 billion after a 44% rise in August, resulting in a trade surplus of $4.20 billion.

The South Korean Won has depreciated from the last four months and may fall to 1,200 per dollar by December as exports moderate and the dollar strengthens on expectations for a tighter U.S. monetary policy. The Won has lost more than 6% since end-May as the dollar gained and South Korean authorities tightened restrictions to curb a rise in virus infections. Stock outflows have added to the pressure, with overseas investors withdrawing $7.9 billion from local equities in the last quarter.

	19	20	21	22	23
GDP (%p.a.)	1.8	-1.0	4.0	3.0	2.5
Inflation (%p.a.)	0.4	0.5	2.0	1.4	1.0
Current A/c(US$ bill.)	60.0	70.0	60.0	40.0	40.0
Won/$(nom.)	1200	1070	1150	1130	1100

Taiwan

We maintain our GDP growth forecast of 5.9% for Taiwan's economy in 2021 and 3.7% in 2022. Taiwan is benefitting from orders being shifted to the island as China's power curbs disrupted the country's exports. Taiwan is set to reap the rewards of the post-pandemic rebound in global trade and U.S. efforts to reduce economic ties with China all through next year.

Inflation in Taiwan has remained moderate. The consumer price index is expected to grow by 1.5% in 2021. In the moderate inflation and an uncertain economic recovery environment, the central bank is sticking to its loose monetary policy. Taiwan's central bank left its benchmark rate unchanged in September. Taiwan has kept its key interest rates at the same level for over a year, after the central bank cut rates in March 2020 for the first time in nearly four years at the peak of the pandemic's economic impact. Its discount rate is at 1.125%. It also maintained the secured loan rate at 1.50% and kept the unsecured loan rate at 3.375%.

Korea: Composite Index

Taiwan: Weighted TAIEX Price Index

For the export dependent island economy, overseas shipments of over $30 billion each month is the "new normal". Exports have topped that level 12 of the last 13 months.

The Taiwan dollar's exchange rate with the U.S. dollar has been stable this year without large fluctuations.

Taiwan plans to significantly increase military spending in the next five years, according to a draft bill that calls for new outlays on weapons systems that would better equip the island to repel an attack by China. The proposal, unveiled by Taiwan's cabinet, calls for the allocation of the equivalent of about $8.7 billion over the next five years to fund the acquisition of homegrown precision missiles, high-performance naval ships and weapons systems for existing warships.

The new spending would be on top of Taiwan's annual military-related budget, which is set to grow 4% in 2022 to a record $15.1 billion.

	19	20	21	22	23
GDP (%p.a.)	2.0	3.1	5.9	3.7	3.0
Inflation (%p.a.)	1.0	-1.0	1.5	1.0	1.0
Current A/c(US$ bill.)	70.0	71.0	90.0	100.0	65.0
NT$/$(nom.)	31.0	29.0	28.0	27.5	27.0

Brazil

With Brazil's unemployment rate falling between May, June and July as the economy is recovering. Notwithstanding benefits derived from the rising commodity prices, we maintain our GDP growth forecast for Brazil in 2021 and 2022. Our forecast is marginally bullish compared to Brazil's central bank forecast of 4.7% and bearish 2.1% in 2021 and 2022 respectively.

Inflationary pressures have increased significantly, with the Extended National Consumer Price Index 15 (IPCA-15) reaching 10.1% in September. A global commodities rally, the worst drought in almost a century and a weakened currency have contributed to sharp price rises for everything from food to fuel, hitting millions of people in Brazil. Consumer inflation remains high. Industrial goods price increases — due to higher input costs, supply restrictions and redirecting of services demands towards goods — have not subsided and are likely to remain at the elevated level in the short run. Environmental factors have also contributed in Brazil. A lack of rainfall across southern and central states has depleted reservoirs on which the country relies for the hydroelectricity generation that provides the bulk of its power supply, forcing utilities to switch on more expensive thermal plants. We expect inflation to slow down to 4.5% in 2022.

The Central Bank of Brazil has responded to this by tightening monetary policy. It increased the Selic rate by

100bp to 6.25% on 22 September and expects a similar 100bp increase in October in battle against runaway prices. In September, it had raised interest rates for the fifth consecutive time this year to contain inflation that has touched double digits. We would not be surprised if the Selic rates hit 8.25% by the end of 2021.

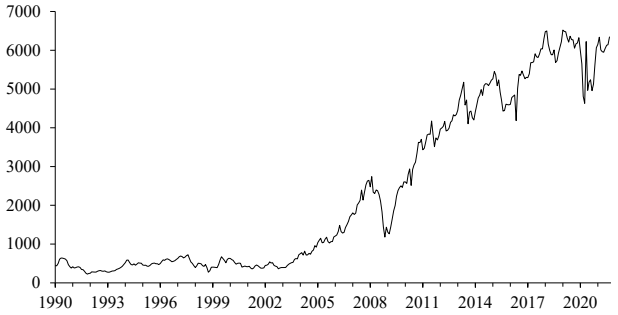
Brazil's trade surplus narrowed in September as exports declined and imports rose. Exports increased 33% over September 2020 to $24.28 billion, but imports rose faster by 52% to $20 billion, shrinking the surplus. The country recorded a surplus of $4.3 billion in September, after a surplus of $7.7 billion in August. Brazilian exports fell to $24.3 billion last month, from $27.2 billion in August, while imports increased to $20 billion from $19.5 billion a month earlier. Brazilian Real remained stable as rise in selic rates protected the currency.

	19	20	21	22	23
GDP (%p.a.)	0.8	-4.5	5.0	2.2	2.0
Inflation (%p.a.)	4.3	4.5	8.5	4.5	4.0
Current A/c(US$ bill.)	-36.0	-7.6	-10.0	-16.0	-22.0
Real/$(nom.)	4.2	5.5	5.1	5.3	5.4

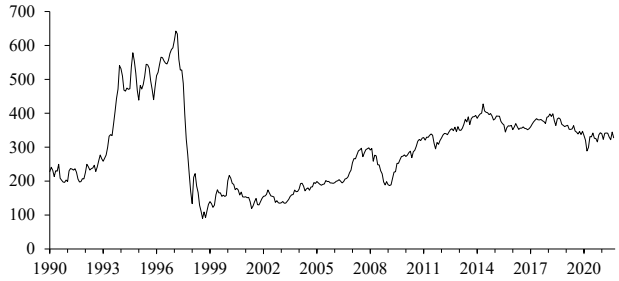
Other Emerging Markets

Hong Kong: FT-Actuaries

Indonesia: Jakarta Composite

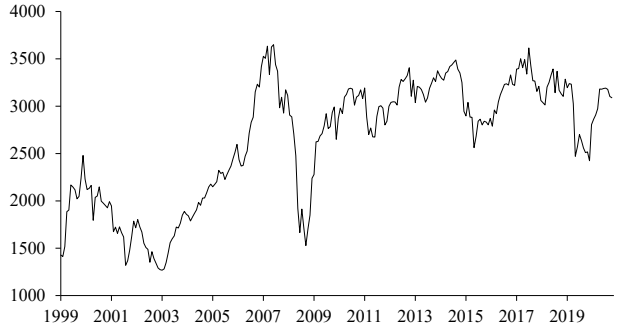


Malaysia: FT-Actuaries (US$ Index)



Thailand: Composite Index

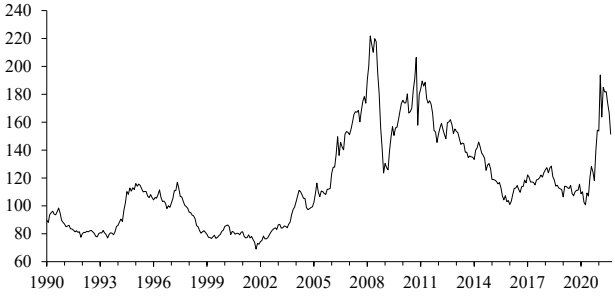
Singapore: Straits Times Index



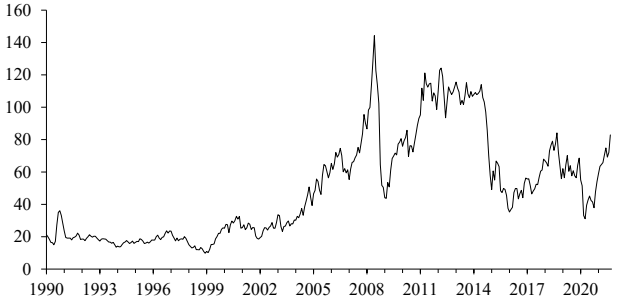
Philippines: Manila Composite

COMMODITY MARKETS

Commodity Price Index (Dollar)
(Economist, 2015 = 100)



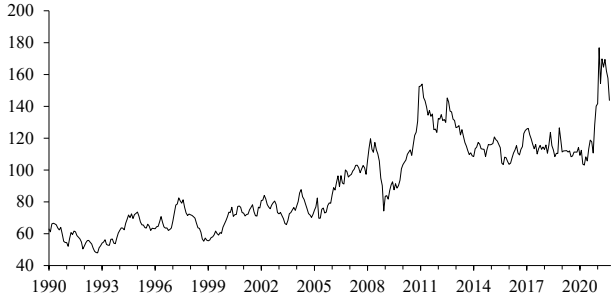
Oil Price: North Sea Brent (in Dollars)



Commodity Price Index (Sterling)
(Economist, 2015 = 100)

Gold Price (in Dollars)

Commodity Price Index (Euro)
(Economist, 2015 = 100)



FREE TRADE UNDER BREXIT-WHY ITS BENEFITS TO THE UK HAVE BEEN WIDELY UNDERESTIMATED

Patrick Minford

- Full details of the calculations and other work described here can be found in Minford, P. (2021)

Introduction

I was astonished during late 2015 to discover that most economists in the UK favoured staying in the EU on the basis of what appeared to be neo-protectionist arguments derived from recent 'gravity-related' trade thinking. In late additions to the second edition of my book 'Should the UK leave the EU?' Minford et al (2015) I pointed out that the gravity modelling was of a partial equilibrium nature (i.e. did not include the full effects of Brexit) and that attempts hitherto made to turn it into general equilibrium (the full effects) were misconceived. It soon became apparent that my professional colleagues were not going to take any notice of these points; and indeed the Treasury economists promptly enlisted help from the LSE's gravity trade group in developing the gravity-based case for opposing the programme of free trade agreements (FTAs) with non-EU countries that was at the heart of the Brexit agenda.

Now that Brexit has been enacted, with a trade-inclusive agreement with the EU ensuring tariff-free trade and the mutual recognition of standards, I focus in this article solely on the effects of FTAs with the non-EU world. The arguments set out here do of course have implications for the Brexit debate; and these are reviewed extensively in Minford (2021) which retrospectively also reviews the analyses of the main academic Remainer groups. But this article is forward-looking to the evaluation of future trade deals, whose potential gains are, as my title says, widely under-estimated. In this piece, I try to explain why; and also to estimate the gains properly.

I begin with an account of the 'Classical' and the 'Gravity' model, which imply very different approaches to protection. I then go on to set out the quantitative analysis of FTAs based on various models including those I developed with my Cardiff research group and contrast their results with different post-Brexit policy assumptions. As we will then see, the best-fitting models with realistic assumptions find that there are substantial gains from free trade with the rest of the world.

The Classical model of trade and the gravity-based takeover

At the heart of the Brexit debate there is a fundamental disagreement about how trade works and affects the economy. The Classical theory of trade is based on comparative advantage derived from a country's 'endowments' of resources, including land and labour, and the productivity with which those endowments are used, which is mainly due to the country's institutions. A country exports goods and services (goods for short) which these endowments imply it tends to produce more of, and imports others which it demands but does not produce so much of. In this theory protection of imports by tariffs or equivalent trade barriers (tariffs for short) causes it to distort its production away from the most productive pattern and to distort its demand away from the pattern that most satisfies it consumers; this creates welfare costs to the economy. However, if the tariff causes other countries' suppliers of imports to reduce their prices, that is a countervailing gain to the 'terms of trade' that can offset these welfare costs. If sufficiently large they can justify protection as in the 'optimal tariff' argument; but as we will see, they are not usually large. Besides, obviously they may provoke retaliation by other countries' tariffs pushing down the protectionist country's export prices.

A cornerstone of the classical theory, which is for the long run, is that competition will drive products to be homogeneous in the long run. Poor quality products will be eliminated, as consumers switch to choosing only the best; poorer productivity firms will be driven out by the expansion under free entry of the most productive firms. Hence the assumption of product and firm homogeneity in the classical model, under perfect competition and free entry.

It is this cornerstone that has been jettisoned in the trade theory now widely adopted by trade theorists and modellers. The reason for this originates with the 'gravity trade regressions' first published by Tinbergen in 1962. These regressions take data on trade at the micro level, i.e. imports product by product and country by country, and regress imports on the GDP of the importing country and relative prices of the country product to those of other country-products (which are affected by transport costs, i.e. distance, and trade barriers). This gives rise to a mass of micro-based regressions. In later work this was replicated in large panel data regressions- examples of these for the UK are in the Treasury's 2016 report on Brexit – HMT (2016) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/517415/treasury_analysis_economic_impact_of_eu_membership_web.pdf - see also Breinlich et al (2016). In this work it is found that the relative price elasticities are moderate to low, reflecting short and medium term behaviour. These regressions are taken as evidence against the classical product homogeneity assumption in the long run, to which they plainly do not apply; for example, it is usual to find that long-run homogeneous commodity groups may show limited substitution in the short run if different grade prices get out of line temporarily- Minford

(1975) demonstrates this for natural and manmade fibres whose prices converge in the long run due to the perfect substitutability well known in this case within the industry as coming from chemical engineering, and yet whose short run elasticity of substitution is moderate. These relationships between the trends of prices within defined commodity groups are well documented.

Yet in the light of the evidence from these gravity regressions, the majority of trade modellers have substituted into their trade models the assumption of product heterogeneity in the form of low substitutability between products of different country origin- notably between home and imports, and between different import origins. Armington (1969) provides a neat model of layers of substitution of this sort; this model was intended for open economy macroeconomics with its focus on the short to medium term and not for trade models, which are intended to explain long run trade behaviour since trade policy changes are generally intended to be permanent and 'institutional'. But this 'Armington assumption' has been taken over widely in trade models, to model product heterogeneity (eg Costinot and Rodriguez-Clare, 2013). In some models, this assumption is complemented by one of widespread imperfect competition, again based on micro-data regressions- the 'Krugman model'. But this is less prevalent.

Thus in recent times the dominant approach has been to find such micro relationships across countries and then use them to modify complete computable models of trading economies- termed 'Computable General Equilibrium' or CGE models- into what we will call for simplicity 'Gravity' CGE trade models. It should be noted however that these micro relationships are between solved-out ('reduced form') values of the 'endogenous' variables determined in the model by the 'exogenous' factors driving change from outside the model, since trade prices and GDP are all determined by the CGE model. While one can reverse engineer a CGE model in which an Armington demand system generates them, this does not establish this ('identify it') as the true model. Other CGE trade models- including the classical trade model unmodified- can also generate them. To test the different CGE models requires an empirical comparison to be made in terms of the different models' ability to match these regressions on endogenous variables.

The Armington assumption has been the key 'gravity-based' modification of the classical trade model. In addition to the Tinbergen-type regressions, there have been similar ones (originating with Melitz, 2003) relating micro firm productivity behaviour to factors like FDI, innovation and competition; again examples of this for the UK are given in the 2016 Treasury report, HMT (2016); see also Feyrer, 2009, 2011; Pain and Young, 2004; Dhingra et al, 2016; Cai, Li and Santacreu, 2019. It is also found in such regressions that FDI and innovation are related to the trade share in the economy. Accordingly, a mechanism linking productivity to trade intensity can be built into the trade model. Trade theorists doing so have interpreted these regressions as showing that trade, as an exogenous factor determined by demand and distance, determines FDI, patents etc and so productivity. However, again these reduced form relationships can emerge from a classical model where the exogenous variables are countries' factor supplies and policies determining productivity; the identification is entirely different, usefully distinguishing the Gravity CGE version from the Classical version.

Hence we face here a distinct choice of underlying causal (i.e. CGE) models which could be generating these regressions, i.e. data correlations. These last in turn cannot tell us on their own what the causal processes are. As is well known, correlation cannot establish causation.

The gains from trade- how their calculation depends on the models and the policy assumptions used

As the brief account above has explained, protection causes a welfare loss unless it brings a terms of trade gain. If the tariff causes world import prices to fall, there is as we have seen a countervailing gain from better terms of trade, viz lower import/export prices. The size of this gain depends on substitutability between goods, as we will see.

In the Classical model, there is only substitutability between different commodity types; every country sells identical goods of each type at the same price. So to get a reduction of import prices a tariff-raising country has to reduce demand for the commodity worldwide. But as its share of world demand is low any reduction in demand the tariff creates will have only a small effect on world prices. Hence in the classical model, the terms of trade case for protection is weak.

However, in the Gravity model it is assumed that the substitutability between goods of different origins is quite low. So now there is a potential terms of trade gain for each country-origin import. Because each country tends to have a big import share in these markets, it can drive down the price in them by tariffs more strongly. We see therefore that the temptation under Gravity models to raise tariffs is high, owing to the low substitutability these models assume between goods of different origins.

On the one hand, there are losses of consumer welfare, trade prices given, but on the other there are terms of trade gains from protection. While all models differ in their exact assumptions, we can discern a pattern in the welfare estimates: Gravity models will find a greater gain from the protection. He et al (2017) show that in CGE models the Armington assumption of country-product heterogeneity pushes optimal tariff rates before and after retaliation above 100%- clearly a worrying policy implication, which in itself casts doubt on the model's realism.

Hence we find that within a Gravity CGE model there is a bias towards protectionism. One study that is widely quoted in the UK media is the latest Treasury/Cross-Whitehall post-referendum report (Civil Service, 2018). This uses such a model- the GTAP model from Purdue University in Indiana (Corong et al, 2017), a CGE Gravity model which assumes low country-origin substitutability. It finds that Brexit FTAs give quite low welfare gains.

However, in addition to using this Gravity model, the Civil Service study uses policy assumptions about these FTAs that we cannot accept as realistic. First and foremost, it assumes that there will be little adoption of FTAs with the rest of the world. Whereas on this GTAP model the full elimination via FTAs of the 20% EU trade barriers (tariff and non-tariff) on food and manufactures would boost UK GDP by 4%, the Treasury assumes that only a twentieth of this would be eliminated in practice, so that the gain falls to 0.2%. The detailed reasons for this assumption are mixed. One is that trade, especially, non-tariff, barriers are less than we assume and will largely not be able to be dismantled because they involve product standards that are politically sensitive. Another is that government policy has not agreed to abolition of protection and maybe never will for similar political reasons (see Minford, 2021, appendix 3.) However, all appear unfounded, as noted in Minford, 2021; the trade barrier estimates of 20% on food and manufactures are well established (Minford et al 2015, chapter 4), while the government's policy to eliminate them in FTAs is well known, and was reiterated in the debate on the recently-signed Australian FTA. Of course there are strong protectionist lobbies, both in farming and manufacturing; however the government has argued robustly in the Australian case that UK farmers could compete, including by improving productivity; it is to be expected that similar arguments will be used when it comes to FTAs with large manufacturing countries. While pure manufacturing fabrication will contract sharply, as I have argued repeatedly (e.g. Minford et al, 2015, ch.4, p.74), the service aspects of manufacturing- such as design, assembly, and servicing- are likely to expand in its place, raising productivity as value-added rises, much as has occurred in past decades in response to globalisation.

Using the Classical model, as estimated in Cardiff research, in place of the Gravity model, one adds a further 11% of GDP to the calculated gains of Brexit- gains that in the Gravity model are offset by terms of trade losses from abandoning protection. If we assume that only half of the existing EU 20% protection of food and manufactures is abolished, then the gain to UK GDP is 7.2%, mainly via higher productivity, while consumer prices fall 6%; in addition, because UK and EU prices for food and manufactures, fall 10%, the terms of trade loss on paying 20% too much on its net imports of food and manufactures from the EU (worth 5% of GDP), is eliminated, representing 0.5% of GDP and making the total GDP gain 7.7%. If we assume that the full 20% protection is abolished, as seems to be intended in government policy for free trade via FTAs, these numbers of course double.

It is worth explaining how it is that these big gains come about. A key effect of agricultural protection is a large rise in the price of agricultural land. This acts as the base price in alternative use for all land that gets planning permission to be used in other sectors. Hence it raises costs of production across the whole economy, strongly reducing services output. The non-traded sector also contracts, as costs and prices rise. Capital and land are underutilised as outputs fall and we assume that they cannot realistically be sold off (eg. into foreign ownership) to create offsetting resource savings.

By moving to free trade through a comprehensive set of FTAs, these higher costs of land are swept away and both capital and land are supplied as needed to the different sectors as they expand. Consumer prices fall generally as do costs of production; and at the same time the greater competition from falling import prices puts pressure on home producers to raise productivity. Of course in the classical model there are no terms of trade gains from protection to offset these major welfare gains from abolishing it.

Notice in all this that the gains from free trade come from abolishing our protection on imports, not -as widely suggested in popular writing- from the greater access to foreign markets granted reciprocally in these FTAs. This greater access does give short run gains to our exporters, which helps to get political support for FTAs; however, in the long run these gains get eroded by the downward pressure on our export prices in other markets as other countries' exports are displaced from the markets where we get access. One can see from this point that the gains from reaching FTAs with non-EU countries in general, either individually or by joining a multilateral FTA such as the CPTPP for Asia are the same as those from establishing unilateral free trade.

We summarise these results in the Table showing the gains/losses from FTAs in % of GDP under the different model/assumption combinations; we label the assumptions we have argued reasonably represent the policy reality as 'Realistic', which of course contrast with those used in the Civil Service (2018) report. As can be seen, the failure to compute sufficient gains in trade from Brexit come about one quarter from weak policy assumptions, three quarters from the gravity modelling mistake.

Table 1. Assumptions/models: differing estimates of gains/losses from FTAs (% of GDP)

Model	Cardiff Classical	Cardiff Gravity	GTAP	
Policy assumption	Realistic: 15	Realistic: 3.0	Realistic: 4.0	Treasury: 0.2

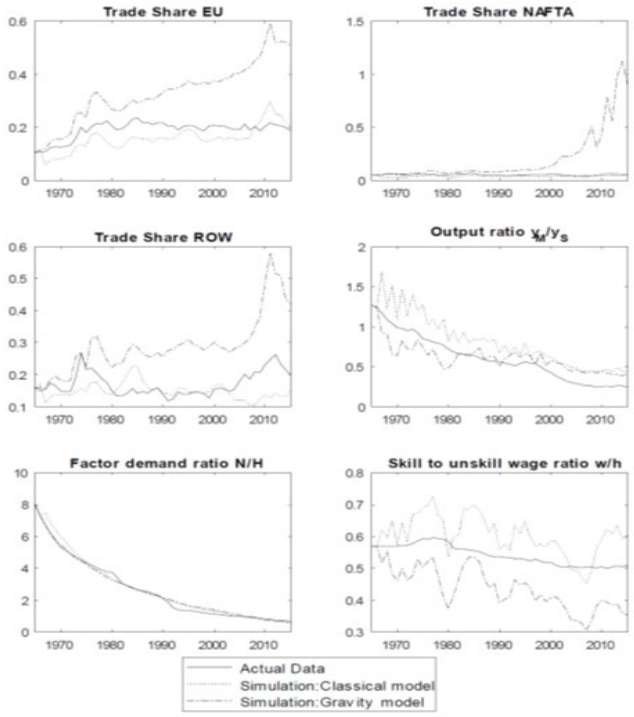
Why the Gravity model should not be used and instead the Classical model should be- latest results from testing models on UK and other countries' trade behaviour

While as we see, one key element in understating free trade gains has been the use of false policy assumptions biasing calculations towards the negative even on mistaken gravity models, nevertheless it has mainly been the 'Gravity' models used widely by trade economists that have implied modest free trade gains.

As we have explained, these two models, the Classical and the Gravity models, are critically different and so have very different welfare implications. However, while trade economists have recently tended to favour the Gravity model over the Classical, there has been no convincing empirical test of the two models as overall predictors of the data. As we have seen, we face here an 'identification' problem: two models can both generate the same data, at least that would be the claim of their proponents. We need an empirical test that can discriminate powerfully between the two models. In our Cardiff research we have developed such tests, using indirect inference (Le et al, 2011, 2016) and they reveal that the Gravity model is rejected for the UK, while the Classical model largely fits the UK facts-Minford and Xu (2018). Chen et al (2021) show that this extends also to other major countries and groups including China and the EU- for the US gravity makes little difference. More on their results below.

These indirect inference tests compare the simulated behaviour of our models with the actual behaviour of the data. The latter's probability under the model, the p-value, can be assessed from this comparison; if this falls below 5%, we reject the model. Basically, one can see informally how well the two models do in the test by comparing the trends in the data with the average simulated trends from the model. The charts below- Figure 2- show this for the UK. If you examine the trade shares, you can see that the average Gravity simulations depart sharply from the data, while the Classical broadly mirror the data. It is not surprising therefore that for the UK, the Gravity model is strongly rejected. Similar charts occur for China where the Gravity model is also rejected.

Figure 2: Actual and average of simulated data



The Classical model when simulated over past histories thus comfortably fits the data of actual history for the UK- Minford and Xu (2018). This implies that the Classical model is likely to be close to the true model for the UK; and so is a reliable guide to the policy effects of the government's programme of free trade deals around the world, as discussed in the last section.

We have, as noted, recently been extending our tests to other major countries or groups, namely the US, China and the EU (Chen et al, 2021). We do this through simulating each country model on its own, with world variables simulated by a separate statistical model of world behaviour (for the UK this is not needed, as the UK is too small to affect world activity and prices); this 'Part of Model' indirect inference test (Minford, Wickens and Xu, 2019) can tell us how likely the trade behaviour of each country is to come from either the Classical or Gravity model. The Table below summarises our findings in the form of the p-values.

PART-OF-Model tests for major countries- p-values

	Classical	Gravity
UK	**0.09**	**0.000***
US	**0.07**	**0.07**
EU	**0.115**	**0.075**
CHINA	**0.11**	**0.034***

***Model rejected at 5% level.**

One can see that for all these countries the Classical Model is accepted; and also that the Gravity Model is in all cases either as or less probable than the Classical. In two cases, the UK and China, the gravity model is strongly rejected. For the UK the rejection is extremely strong; the test we have used implies that the Classical Model cannot be more than 5% inaccurate for the UK- in other words a model very close to the assumed Classical one is virtually certain to be the true one. For all the other countries the test used implies the Classical Model cannot be more than 20% inaccurate- so a model close to the Classical is very likely to be the true one.

Finally, in a very recent paper Minford, Xu and Dong (2021) have tested the full Global model of all countries on average world behaviour. The p-values are 0.31 for the Classical model and 0.026 for the Gravity model- a result decisively accepting the Classical and rejecting the Gravity version.

The policy implications of these results generally in favour of the Classical Model are, as we have argued above, of great importance for the UK and its free trade policies, as well as more widely for trade policies. Policies of free trade deliver best welfare results for all countries; protection implies self-harm. According to the model a 10% tariff equivalent on food and manufacturing (the EU's is 20%) causes welfare to fall by between 6.4% (EU) and 9.4% (US); the cost to China is 8.1% and to the UK 7.7% (as detailed in the last section). Clearly the model condemns protection severely. Customs union also damages the totality of members signing up, as set out in Meade (1955) and illustrated for the EU, where the customs union choices made (i.e. trade protection of food and manufactures double the 10% illustrative tariff above) are assessed to reduce welfare by 12.8%; it can of course benefit particular members whose exports are the most protected but then others are better off refusing to join.

Conclusions

Economists in the UK and in international organisations, as well as in the British Treasury and civil service, have widely claimed that FTAs with the non-EU world would create tiny gains for the UK economy. To support these claims they have both assumed that in practice these FTAs would eliminate little of the existing tariff and non-tariff protection inherited from the EU and they have used trade models in which 'gravity' is a major feature; according to this gravity theory trade is caused mainly by size and proximity, not by comparative advantage and there is low substitutability between the products of different countries. This model favours protectionism because tariffs can force down import prices a lot. However the model does not fit the UK trade facts. The classical model based on comparative advantage does fit them- and not just for the UK but for all major countries we have looked at. According to this classical model there are big gains from free trade with the rest of the world. The British Treasury and Civil Service's claims that the gains are trivial are widely cited in the UK media, hence giving the widespread impression that free trade with the non-EU world is not worth pursuing; the difference of these from the properly calculated gains comes about three quarters from using the wrong gravity-based model and the rest from using false policy assumptions that the FTAs will barely reduce protection against the non-EU world.

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