

## More than just the Covid-19 response

As the pandemic continues to cause mayhem across the world, we've been looking at the curious employment situation in the eurozone. As the Democratic Convention ends in the US and the Republicans begin theirs next week, what's really at stake? And we have a special report on how the coronavirus could unlock the potential of smart cities in China

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By James Knightley

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Article | 29 September 2020

# The US elections: What you need to know

After the first presidential TV debate, we outline the key issues, the factors that could still swing the outcome and three possible scenarios



Source: Shutterstock

Former Vice President Joe Biden, left, and President Donald Trump

## ✓ The election - what to look out for

This briefing note summarises what is happening at the election on 3 November, the key issues and what could yet swing the outcome of the vote. We outline the key policy thrusts of the two candidates and conclude with some scenarios and their implications for the economy and markets.

We will be publishing an updated scenario analysis together with Oxford Analytica in the upcoming week with a subsequent webinar – invites will be sent soon. Our previous report can be found [here](#).

## ? What is happening?

### The President

- The US presidency is determined by the electoral college. It is not a straight vote count but a state-by-state battle and is a four-year term.
- In 2016, Hillary Clinton received 2.8 million more individual votes than incumbent president Donald Trump. Joe Biden currently has a six-point national polling lead, which would equate to 9 million more votes than Donald Trump based on the 2016 turnout.

- The number of electoral college votes per state (electors) is equal to the sum of the state's seats in the Senate (2 each) and the House of Representatives. There are 538 electors in the Electoral College with at least 270 votes required for victory.
- It is a (very) rough proxy for population size with California receiving 55 votes while Wyoming gets 3. However, there are 720,000 people per the electoral college vote in California and just 193,000 people per electoral college vote in Wyoming so there is an inherent bias that boosts the influence of predominantly rural states

## Congress

- All 435 members in the House of Representatives are up for election (currently 232 Democrat, 198 Republican, 1 Libertarian, 4 vacant). This is a two-year term.
- The Senate is comprised of 100 members each with six-year terms; a third are up for election every two years. Currently, the Senate membership is 53 Republican, 45 Democrat, and two independents who vote with the Democrats
- 33 Senate seats + two seats due to vacancy are up for special elections on 3 November; of the 35 Senate seats up for election, 23 are Republican and 12 are Democrat
- Democrats would need to win a net four seats from the Republicans to control the Senate. If Joe Biden wins the Presidency they would only need to win three additional seats since VP Kamala Harris would have a deciding ballot on any vote. Polls suggest Democrats will likely lose their Alabama Senate seat.



Donald Trump supporters

## ? What are the key issues?

- The Presidential election will likely come down to five “swing” states since we know California and New York will vote Democrat and we know Wyoming and Alabama will vote Republican.
- The main five swing states are Pennsylvania (Biden +5.5% versus Trump in the latest local poll), Florida (Biden +1%), Wisconsin (Biden +5.5), Michigan (Biden +5%) and Arizona (Biden 3.5%). President Trump won all five in 2016
- Local polls are currently pointing to the potential for a landslide Biden victory – even Texas and Alaska are fairly close calls in some polls. (In 2016, Trump beat Clinton by 9% in Texas

- and by 14.7% in Alaska)
- **Covid-19** - Consumer confidence crushed on renewed containment measures implemented by states that had re-opened too quickly; Florida seniors are deserting Trump on his Covid response. A vaccine could be a game-changer, but even with a million inoculations a day, it would take a year to complete. Containment measures will continue through the election.
  - **Jobs** - Michigan, Wisconsin, Pennsylvania have been hit hard by job losses, worse than the national average. Jobs growth is plateauing and 31 million people's incomes dropped after the ending of \$600 unemployment benefit payment. President Trump has introduced a new \$400 payment, with states contributing 25%, but many can't afford to.
  - **#BLM** - Polls suggest a majority are uneasy about how Trump has handled the Black Lives Matter protest/movement



Joe Biden supporters

## ? What factors could yet swing the outcome?

- A significant increase in "mail-in" ballots is likely, but the US Postal Services has warned it may not be able to handle the situation in a timely manner – perceived to be damaging to Democrats although extra funding may arrive
- A rapid acceleration in Covid-19 cases would reflect badly on Trump's muddled messages on the virus regarding masks/a potential vaccine/dubious treatments
- We see the risk of some economic data disappointment with high-frequency indicators suggesting employment is no longer growing and credit and debit card transactions are falling. An equity market correction after a vigorous rally would be bad news for Donald Trump
- Developments in the sexual assault allegations against Joe Biden/accusations regarding Ukraine and family connections would be damaging to Biden
- The Democrats have more money to spend. Biden to spend \$280mn on advertising in 15 states versus Trump's \$145mn according to latest estimates. Senate Republican party investing \$100mn in just 8 seats to protect its majority
- Presidential debates – could see Biden come under major pressure. The risk of an error or rambling, weak performances as sometimes occurring during Democrat primaries means victory is not assured. The Format could be important



US Vice President, Mike Pence

### Potential for dispute – Historical precedent

- **2000 Presidential election.** Democrat Al Gore received 544,000 more votes, but George W Bush won 30 of the 50 states (271 electoral votes to 266).
- **Florida was undecided.** Gore conceded, but then withdrew the concession – Bush had won by a small margin and a recount was required. Bush won by 537 votes and Supreme Court voted 5-4 in favour of ending additional recounts. Bush declared the winner after five weeks on December 12th – November 7 was election day
- **Checks and balances.** Republicans will step up to prevent harm to the party rather than to protect Trump should he refuse to concede the election – they swiftly rebutted his idea of delaying the election. The Supreme Court would rule.
- A potential issue could be violence with the threat of right-wing militia action. QAnon etc.



President Donald Trump campaigning in Pennsylvania

## ✔ Trump's re-election campaign

- Campaign slogans: "**Keep America Great**" and "**Promises Made, Promises Kept**"
- A continuation of the **tax cut and deregulation** policy thrust from his first term, this time centred on the payroll tax
- "**America First**" worldview equates to prioritising America's economic interests over leadership roles in global affairs
- Withdrawal of the World Trade Organisation appears likely with **tariffs** continuing to be used as the main tool to **promote reshoring of manufacturing and lowering the trade deficit**
- Further **reductions in immigration** with the promotion of a "merit-based" system prioritising migrants with certain skills while clamping down harder on illegal immigration
- Renewed attempts to **repeal President Obama's Affordable Care Act** to be replaced with a new system promoting choice and lowering premiums
- An energy policy that remains focused on the use of fossil fuels and the **scaling back of Obama era environmental regulations**



Joe Biden giving a speech at the end of the Democratic Party convention

## ✔ Biden's policy stance

- Campaign Slogans: "**Unite for a Better Future**" and "**Build Back Better**"
- Not a radical, not a revolutionary
- Will **remain tough on China** with regard to technology, Intellectual Property, trade, bringing American jobs home, but more likely to do it within an international framework (collaborate with allies) with less belligerence and more willingness to engage. He wants to return to WHO and is unlikely to pull out of WTO. International relations are increasingly driven by security and human rights/environmental issues
- He **may remove some tariffs** on China, which have put up costs for US business and instead offer financial incentives to US companies to bring jobs back to America
- **European relationships would likely improve**, but NATO will remain an issue – America will not write cheques to cover defence. Will likely **re-join Paris climate change accord** and be more willing to work with Europe
- Encouragement for European tech companies to replace Chinese partners. In return the US may seek broader access to gas markets in Europe at the expense of Russia
- The perception that Biden takes **a dim view of Brexit** and given his Catholic Irish heritage

- could be vocal on any deal that may be detrimental to Ireland
- **Promoting unionised labour** in rebuilding infrastructure – roads, bridges, water systems, electricity grid. Raise the minimum wage to \$15/hour
  - Supporting investment in US auto in return for greater unionisation
  - **Raising the corporate tax rate** to 28%, reversing 2017 tax cuts and raising capital gains tax to the marginal income tax rate
  - \$2 trillion to be invested over 4 years in **clean energy** with 100% clean energy electricity standards by 2035 – an opportunity for European companies
  - \$775bn plan to **bolster child-care and care for elderly** financed by taxes on real estate investors with incomes greater than \$400k – preventing investors deferring taxes if capital gains are invested in another property while also preventing the use of real-estate losses to lower income tax bills.
  - Will fund **universal pre-school for 3 and 4-year-olds** with an \$8000 tax credit for childcare for low/middle-income households with increased pay for caregivers. Creates 3 million jobs. Will also fund policies to make caring at home easier for the elderly. Fund equipment (handrails etc, easier door handles)
  - **Elizabeth Warren could receive a role regarding financial services** – reform private equity to abolish “legalised looting” by changing tax and bankruptcy rules and ensuring impacted workers continue to receive pay and benefits when it goes broke. Reform bank executive pay and create a 21st century Glass-Steagall Act to create a barrier between commercial and investment banks. Reversing Trump deregulation (Trump has lowered capital requirements, weakened stress tests & living wills, allowed more proprietary trading, reducing prudential regulation)

## The Kamala Harris effect

- Like Joe Biden, she is seen as a centrist more orientated to incremental rather than radical change. As such it doesn't signal a meaningful shift in the outlook for what a Biden presidency would seek to achieve.
- Long been the market's anticipated VP candidate so it had limited market impact – betting markets saw her as the clear favourite with implied odds giving her a 50% chance of being nominated through July and August in what was a crowded field.
- It re-affirms the belief that the left-wing of the party has been side-lined. For example, Harris does not support a wealth tax or call for the break-up of big tech companies. No support for Modern Monetary Theory as espoused by the likes of Representative Alexandria Ocasio-Cortez, which would risk severe market discontent, especially for the US dollar
- Harris is a Senator from California – safe Democrat territory, so she doesn't meaningfully boost the chances of winning one of the swing states where a VP candidacy would be more influential on the overall outcome
- She is of Indian and Black heritage which may boost voter appetite/turnout in some demographics – Black voters make up around 13% of the electorate, but Asian Americans only make up 5% (Hispanic is 13% and white is 67%)



Source: Shutterstock

Democratic vice-presidential nominee Kamala Harris

## ✓ Three possible scenarios

### 1. Trump wins a narrow victory

- Policy thrust is low tax, low regulation with some infrastructure spending
- A continuation of somewhat unpredictable and impulsive decision making
- Congress is split with the Democrats retaining the House so Trump struggles to implement major domestic legislation.
- Democrats block key tax cuts and major de-regulation. Some scope for compromise on infrastructure spending, but Trump is effectively left with an international agenda = intensifying trade/tech/security/IP battles with China and Europe.
- Federal Reserve Chair Powell is replaced by with a more sympathetic Fed Chair.
- Extension of protectionism leaves activity currencies under pressure (EUR & CNY) and by default the dollar stronger. This could reverse if President Trump hollows out the Fed.
- Return of the trade war agenda keeps interest rates pinned down whilst the absence of tax cuts in the next two years fails to boost risk appetite. Wide deficit already priced in. Slow re-steepening of the USD curve as the recovery takes hold.

### 2. Biden wins the presidency, but Senate held by Republicans

- Policy thrust is higher taxation for corporates and wealthier/higher incomes with more spending on health/education & infrastructure. Greater regulation of big tech, energy and financial services
- A more consensual style of presidency with better European relations, but retaining a robust attitude towards Chinese business practices and behaviours.
- Will need to work with Republicans on a quid pro quo basis, which may dilute some of his plans, but an effective legislative agenda is possible working with Republican moderates.
- The scenario that probably leads to the best fiscal performance given watering down of key spending plans.
- Federal Reserve left largely unchanged.

- Net tighter fiscal policy under Biden and a return of multilateralism is initially a dollar negative, where a benign dollar decline unfolds as world trade volumes slowly recover.
- Initial knee jerk reaction of policies that can be construed as detrimental to the stock market partially offset by more predictable trade policy and relationship with allies/trade partners plus less scope to implement anything radical. Slightly faster bear-steepening of the USD yield curve to account for the lower trade risk premium in the months following the election.

### 3. Biden landslide with Democrats controlling both the House and the Senate

- Policy thrust and behaviours identical to above.
- Looking for lots of “quick wins”. He will recall the issue with Obamacare and will want quick results fearing that a resurgent Republicans in two years at the mid-terms could mean future policy changes are more likely to be blocked by Congress.
- Federal Reserve required to take greater account of social factors in monetary policy decision making. Policy arguably looser for longer, but at the current juncture with no rate hikes expected before end 2022, limited impact on markets.
- Likely to see Federal deficits remain wider for next couple of years, but significant investment programmes and employment strength could result in structurally healthier performance in subsequent years, particularly if accompanied by higher taxes for corporates/wealthy.
- The dollar initially weaker as above, but should better-balanced growth emerge, and the budgetary position improves as it did under Bill Clinton in the late 90s, Biden could ultimately prove to be a dollar positive.
- Could result in a negative knee jerk reaction in stocks in the near-term but leave room for a reflation trade as investment programmes, minimum wage, greater growth are priced in. Possible initial bull-flattening of the USD curve on risk-off markets but a subsequent re-steepening with a much higher endpoint compared with the two scenarios above.

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## The eurozone's labour market Cinderella story

Unemployment in the eurozone is currently artificially low and will continue to run up for quite some time, as short-time work schemes come to an end, more people look for work and structural changes hit the labour market



Europe's labour fairytale could soon be over. Pictured, masked tourists at Disneyland Paris

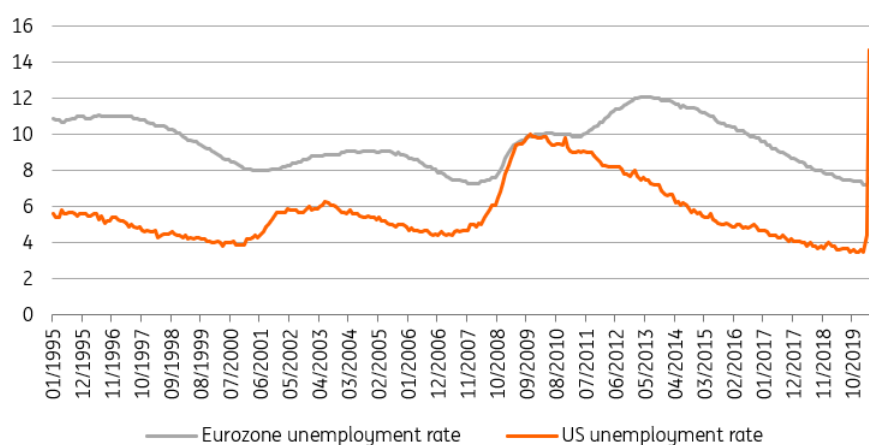
At face value, eurozone unemployment almost looks like a Cinderella story. With barely any increase in unemployment, it is currently the belle of the global labour market ball, at least compared to many other developed economies. When the clock strikes midnight, however, and short-time work schemes come to an end, the fairy tale is unlikely to continue. We expect a second wave of job losses towards the end of the year and going into 2021 although the peak in unemployment should still remain below the highs seen in the aftermath of the financial crisis.

### Short-time work is the main driver of the strong labour market numbers

This crisis is not like the others. Even economists who've written books about how recessions are all broadly similar admit to this. One of the ways through which this plays out is the unemployment

rate. Even though the economy has seen an unprecedented shock, unemployment has only inched up so far, from 7.1% in February to 7.7% in June. This is in no way reflective of the historic decline in economic output experienced in the first and second quarters. By contrast, in the US, the unemployment rate increased from 3.5% to 14.7% in April, after which it declined but still remained in double digits, at 10.2% in July. One of the driving factors behind the difference is the short-time work schemes that eurozone economies have implemented. This has suppressed the amount of people being laid off on a large scale.

## The eurozone unemployment rate has only marginally increased, in stark contrast to US unemployment



Source: Macrobond, ING Research

Short-time work schemes were introduced in Germany more than 100 years ago and gained enormous popularity during the financial crisis in 2008/9. Back then, they helped the German economy to exit the crisis quickly. Other eurozone economies also implemented similar schemes and have been motivated to do so during the current crisis. The Support to mitigate Unemployment Risks in an Emergency (SURE) programme, a newly-introduced policy tool at the European level, is the best illustration of how popular such schemes are. However, this policy instrument works best when it is applied in sectors which quickly return to full strength so that employers do not lose time and money laying off and re-hiring employees. The Dutch short-time work scheme is a good illustration of this as it works with multiple rounds. The first round which started at the beginning of the crisis was used by just under 140,000 businesses, but the second version of the short-time work scheme which started recently has drawn significantly less demand than the first, at just 36,000 businesses so far, as better economic prospects reduced the need to apply again. While short-term work schemes are an effective tool to smooth unemployment for cyclical purposes, the tool will be less effective in sectors which are undergoing structural change, posing a risk for unemployment in the recovery phase.

Another factor contributing to the artificially low unemployment rate is the decline in people looking for work. People who have not been actively looking for jobs are not officially counted as unemployed. This is especially the case in Italy and Spain, where the increase in the number of unemployed has been accompanied by an unusual drop in the active population. Adding the “dropouts” in Italy, Spain and Portugal to the number of unemployed would raise the eurozone unemployment rate by about 1.5%. Other eurozone countries have seen the opposite effect

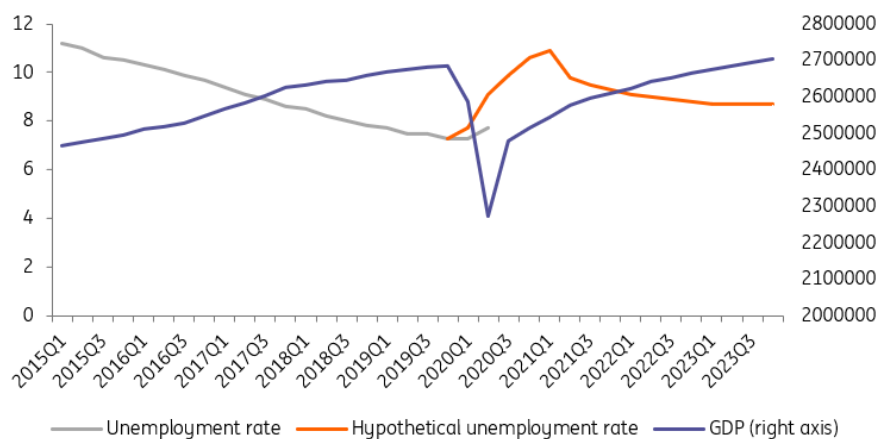
though, and as such, the overall active population decline in the eurozone has had a negligible impact on the unemployment rate. Still, it does add to the risk of unemployment trending higher in the months to come even though the effect will likely fade as economies reopen. A lot of downside risk to the labour market outlook therefore remains.

## Without short-time work, unemployment could have risen to around 11%

All large eurozone economies have put short-time work schemes in place for companies to bridge the economic fallout caused by the lockdowns. In Germany, around 15% of workers are on short-time schemes, compared to just above 30% in Italy. This means that government is supporting employment on a massive scale at the moment. To simply add those numbers to the amount of unemployed would overstate the current “actual” unemployment situation, so it still does not tell us much about the state of the eurozone labour market in this unusual crisis.

To get a better sense of what the unemployment situation would look like if governments had not massively subsidised work in the first months of this crisis, we create a hypothetical unemployment rate using Okun’s law. This simple historical relationship between GDP and unemployment also helps us sketch a path of the quarters ahead under our baseline GDP growth scenario, which is helpful in estimating a possible peak in unemployment under current circumstances. As chart 1 shows, unemployment would have gone up much quicker in the hypothetical scenario, the second quarter unemployment rate would be 9.1% instead of the 7.7% we experience now.

## Cyclical factors would cause unemployment to top out around 11%, but the curve is being flattened



Source: Macrobond, ING Research

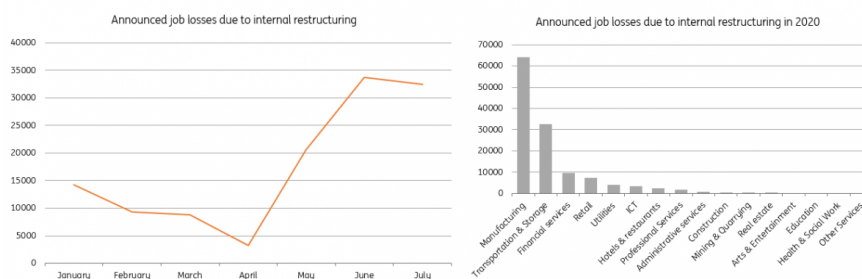
For the months ahead, the hypothetical unemployment rate would increase to around 11% based on our base case for GDP growth which does not include a second lockdown. This is still lower than the peak of 12.1% reached in 2013 during the euro crisis. A possible explanation for why the current crisis, even without government measures, would not have a more negative impact on the labour market could be the short-lived nature of the initial shock. A strong economic rebound followed by a levelling off is required to prevent unemployment from accelerating further. In the aftermath of the financial crisis, austerity measures, plus a second wave of the crisis (aka the euro

crisis) led to a protracted increase in unemployment in many countries.

## Beware structural shifts thanks to Covid-19

Even without short-time work schemes, eurozone unemployment would peak below its 2013 record, and thanks to the schemes, it is logical to assume that the peak will be lower as they flatten the cyclical curve. However, the big unknown in this prediction is the structural element of the current crisis. Besides the regular cyclical element, there is a significant risk of companies laying off workers to adapt to a new post-Covid reality. This could lead to a more long-lasting increase in unemployment, and will determine how many employees currently subject to short-time work schemes actually return to full employment.

## Cases of internal restructuring have been going up significantly since May



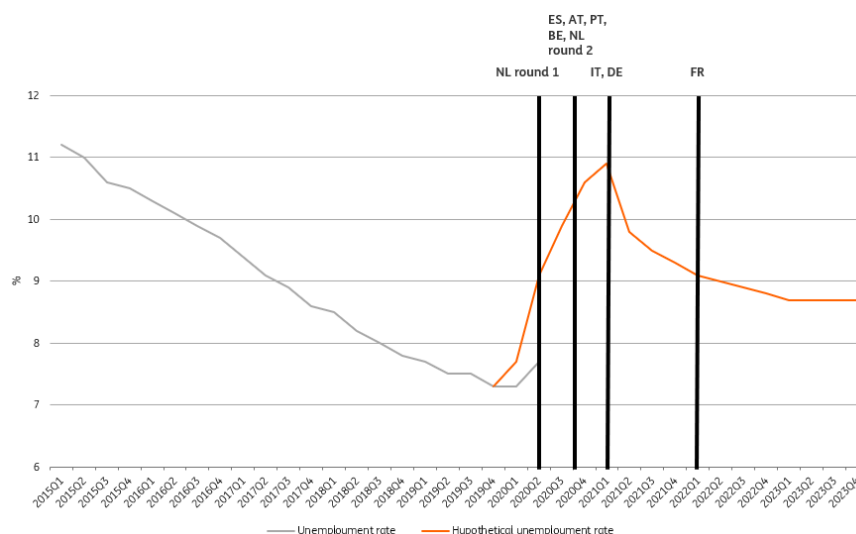
Source: European Restructuring Monitor

So far, we have already seen businesses starting to restructure, with big names in sectors that are likely to experience a more structural impact from the virus standing out. The European Restructuring Monitor - a database that tracks restructuring events - indicates that incidents of businesses laying off workers for internal restructuring purposes has indeed shot up since May. It is not the case though that the job losses indicated by the dataset are dominated by the most obvious sectors impacted more long-term by the coronavirus. Judging from recent company announcements, some 25% of the jobs currently under short-term work schemes, in the worst hit sectors, could eventually be lost.

The manufacturing and financial services sectors have seen a large number of job losses from internal restructuring, which hints at the fact that in some industries, businesses are using the corona crisis to push through already necessary reforms. Other sectors high up on the list are more specifically affected by the crisis, like hotels, restaurants and retail. This is and will be an important factor contributing to the unemployment rate creeping up, despite significant government support. It is definitely not a given that companies will be able to adapt to a post-corona world in a way that improves productivity, but structural change could well push up unemployment in the short- to medium term.

So, from a cyclical perspective it is unlikely that unemployment reaches 11%, but structural factors are an unknown for the coming quarters and could mean higher unemployment. If 10% of all employees currently subject to short-term work schemes do not return to full employment, this would add about two to three percentage points to eurozone unemployment.

## Many short-time work schemes will come to an end around the turn of the year



Source: Macrobond, ING Research

At what point the peak in unemployment will be reached is, in our view, very dependent on the end of short-time work schemes, returns to the labour force from discouraged workers and restructuring to adapt to a post-coronavirus world. New waves of unemployment are not easy to time, but the official end of short-time work schemes could signal potential starting points. Most eurozone employment schemes are set to come to an end between the end of the third quarter 2020 and the first quarter of 2021. For Germany, they are now set to end in the first quarter of next year. This is also true for certain sectors in Italy, while for most, they are set to end in December. However, it is possible that governments once again extend the length of their respective schemes, especially as the EU's SURE programme allows for short-time work funding to do this. France has extended until early 2022 and Italy has already requested €28 billion from SURE for current funding, but could request more to extend. Whether all companies would actually make use of another extension is, however, a different story as the cyclical need for the programmes will be a lot smaller, as the rebound in economic activity has begun. This makes the peak in unemployment especially hard to time, but it seems logical that the run-up in unemployment will not end before mid-2021 based on the timing of short-time work schemes. In a country like Germany, the forthcoming elections in autumn 2021 should also play an important role in the decision on whether to extend short-time work schemes again.

All of this means that the turn of the year could mark the start of a second wave of adverse labour market developments. This will be the labour market's Cinderella midnight moment; the point at which the labour market starts to slow down the recovery. Another reason for the European Central Bank to stay fully in the quantitative easing game and a clear reminder that the V-shaped rebound is unlikely to continue.

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## Listen: End of job retention schemes risks recession in Europe

Many short-time work schemes in Europe are set to end at the turn of the year, suggesting the unemployment rate will finally start to reflect some of the huge economic damage caused by Covid-19. In this podcast, ING's Carsten Brzeski discusses his forecasts for the job market and the chances of a double-dip recession



Unemployment has remained artificially low throughout the Covid-19 pandemic, with European governments stepping in to subsidise wages and keep workers on the payroll. But many job retention schemes are set to end in the fourth of 2020 and first quarter of 2021. [In this podcast](#), ING's Chief Economist for the Eurozone and Global Head of Macro Carsten Brzeski tells Senior Editor Rebecca Byrne what this could mean for the unemployment rate and the shape of the recovery in Europe. And you can read more on this here, [The eurozone's labour market Cinderella story](#).

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# Covid-19 unlocks the potential of smart cities in China

The Health Code app in China has helped to reduce infection cases quickly and avert a larger loss of life. It is one of the functions of a 'smart city'. This note discovers the potential of smart cities and the economic value of the technology in China



## Technology is an economic growth facilitator

Technology is a facilitator of economic growth in economic theory. And we are in the middle of another technology revolution. The digital economy will contribute 48% of GDP in China in 2035, up from 23% in 2020, according to the [Boston Consulting Group](#) (p.10). The sector "Information Transmission, Software and Information Technology Services" grew 14.8% in 2019. We estimate that this growth rate could accelerate to 22% per year on average between 2020 and 2025 (even taking technology friction with the US into account) due to the implementation of 5G, consumer AI, the industrial Internet of Things, smart cities, and the Internet of Vehicles.

## Covid-19 showcases the advantages of smart cities

This note will focus on the potential for smart cities in China. We have chosen this topic because smart cities are no longer just a concept. Indeed, in a surprising silver lining to the Covid-19 pandemic, smart city apps have shown they can help China contain the spread of the virus, helping to turn the economy from contraction in 1Q20 to growth in 2Q20. We saw some smart city apps in

Wuhan during the Covid-19 pandemic, and later, in other parts of China. Similar apps that identify potential Covid-19 cases have emerged in [some other countries](#).

In China, the smart system for Covid-19 is called the Health Code, with red, yellow, or green symbols to identify whether a person is potentially a high-risk candidate for Covid-19 infection or not.

The colour code system began as one of the functions of a very popular payment app originally for the app's staff in China, then later developed as a national standard function in some popular apps. The app's new Covid-19 function indicates whether a person can enter public places, e.g. the wet markets, or public transportation, based on calculations on whether that person has had contact with or gathered around people who are identified as confirmed Covid-19 cases. The calculations use input from sensors and surveillance cameras installed in the street and also on smart street lights. The Health Code has avoided the need to over-tighten social distancing measures that could result in a huge economic loss while at the same time identifying possible infection cases, and it's managed to reduce infection rates in cities where it has been used.

## The benefits of smart cities

This is only one example of a smart city management system. But it's helped to accelerate other smart city applications, as the government has gained confidence in these systems during this public health crisis. Other examples include applications for better traffic management when there is an accident, sewage leak alarms and apps for flood control and crime reduction.

The building blocks of smart cities are the telecommunications networks, smartphones, sensors, and surveillance cameras built on street lights, traffic signals, and buildings, big data centres and AI computation to analyse the data and find a solution.

The current market for "smart city" technology in China is estimated at CNY181 billion by the [IDC](#) in 2020, which is equivalent to just 0.18% of GDP but will increase to 0.3% of GDP in 2025 by our estimates. The market value does not net out the potential saving of lives and prevention of economic loss from outcomes such as flood or disease prevention/reduction, which could be huge.

We believe that without the help of smart city technology, China would not have emerged from the recession created by Covid-19 as quickly as it did (2Q20). Though not all of the recovery was the result of the success of smart city applications helping to end China's lockdowns, in suppressing the spread of Covid-19, smart city apps did contribute to this growth. In this sense, smart cities are a relatively cheap enhancement in city management to increase the efficiency of urban crisis management and prevention. They can also facilitate driverless cars by enhancing transport signals and sensor management.

The table below shows that there is a positive relationship between the development of smart cities and GDP per capita of selected cities in China. High GDP per capita facilitates better smart city management, and smart city management can also help poorer cities to improve GDP through the convenience of city management.

## Smart cities in China

Selected cities in China experience different stages of smart cities in 2020  
(bracket is GDP per capita in CNY in 2019)

Mature	Developing	Emerging
<ul style="list-style-type: none"> <li>Shenzhen (200K)</li> <li>Nanjing (167K)</li> <li>Hangzhou (152K)</li> <li>Shanghai (157K)</li> <li>Guangzhou (157K)</li> <li>Beijing (160K)</li> <li>Ningbo (146K)</li> <li>Hefei (116K)</li> <li>Qingdao (120K)</li> </ul>	<ul style="list-style-type: none"> <li>Guiyang (82K)</li> <li>Chongqing(75K)</li> <li>Chengdu (103K)</li> <li>Ha'erbin (55K)</li> <li>Nanchang (100K)</li> <li>Wuhan (77K)</li> <li>Changsha (137K)</li> <li>Fuzhou (107K)</li> <li>Xiamen (80K)</li> <li>Nanning (61K)</li> </ul>	<ul style="list-style-type: none"> <li>Zhengzhou (113K)</li> <li>Kunming (93K)</li> <li>Dalian (46K)</li> <li>Haikou (72K)</li> <li>Shijiazhuang (53K)</li> <li>Xining (28K)</li> </ul>

Source: ING based on the Annual Report on the Development of the Internet of Cities in China (2020)

Source: ING

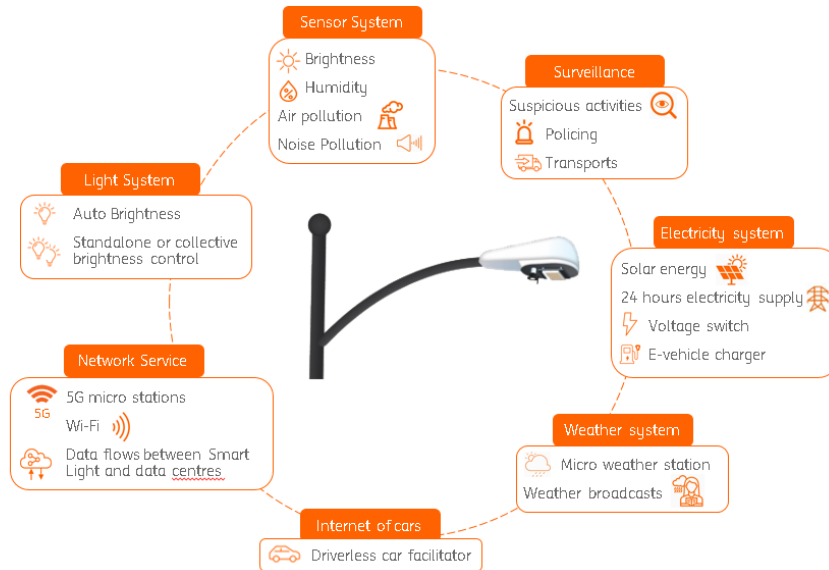
## Smart street lights are at the heart of China's smart cities

The number of smart street lights required in China is estimated at 13 million assuming a [30% penetration rate of all street lights in 2025](#). This would take the market for smart street lights from an estimated CNY11.8 billion in 2019, according to the Annual Report on the Development of the Internet of Cities in China (2020) (p.114-115), to CNY59 billion by 2025 (ING estimate). Most of the investment will be via public-private partnerships with local governments. We believe that the speed of building smart cities in Beijing, Shanghai, Guangzhou, Shenzhen, Hangzhou will be faster than the national average as they have already had more local government investment, according to the annual report on the development of the internet of cities in China (2020) (p.113). Moreover, the economic value of smart cities is likely to be higher than the cost of the investment. Covid-19 has demonstrated the benefit of smart cities in limiting the damage from crises when they occur, and they could help to prevent crises, too.

When the network of smart street lights increases further, it will also likely expand to cover more functions. In addition to basic lighting, it could include surveillance cameras, auto-police calling when the data shows abnormalities, traffic management, weather information collection and display, sewage system fault detection, Wi-Fi hotspots converting telecommunication signals from 4G/5G, e-vehicle chargers, signal senders and as a facilitator for driverless cars.

## Functions of smart street lights in China

### China smart street light



Source: ING

## 5G+AI parking

Parking in a busy traffic city has been a big problem for city management. For example, Shenzhen has combined 5G and AI to enhance the efficiency of car park usage. There are more than **3.5 million motor vehicles but there are only 1.69 million parking spaces in car parks**. To solve this problem, the local government is partnering with corporates to enhance the efficiency of the usage of existing parking spaces in hospitals, tourism spots, transportation hubs, airports, commercial districts, and a large stadium. For example, drivers can seamlessly book a parking space at a hospital at the same time as scheduling a doctor's appointment. Drivers do not need to worry about whether there is enough parking space and arrive early to wait for a space or to occupy the parking space for longer than needed. Drivers also know if all of the parking spaces are occupied at the time of the doctor's appointment and can choose other transportation.

Auto-valet parking is also increasing in popularity. This is not only to help drivers save time in the car park but also to increase the number of car parks in limited floor space. This makes parking less expensive as land becomes increasingly valuable in big cities. Robots and sensors installed in the car parks work together to find a space and park the car for drivers. This needs a precise indoor location system using combined technology of 5G and AI. For example, there is a 20-storey auto-valet car park building, which has 387 parking lots in a high-rise building which takes up only 638 square metres in Chongqing city. This city's GDP was over CNY2 trillion in 2019, the fifth largest city by GDP in China. The land price for this high rise parking facility costs CNY3.4 million instead of CNY61.5 million for the same number of parking lots in an ordinary car park. The saved land costs should bring down the cost of parking and, at the same time, provide a more convenient parking service.

## China's own global navigation satellite positioning system

In July 2020, the Beidou navigation satellite positioning system, the Chinese version of GPS, covered the entire globe. This solves the issue of China's reliance on US GPS, which could

someday be a target in the US technology war. As smart cities rely tremendously on navigation positioning functions, it would be disastrous if navigation positioning did not work. In addition, it is essential for China to have its own navigation system to avoid total reliance on a US system. What's more Beidou - which has taken 30 years to develop, according to [the Economist](#) - has an accuracy to 10cm while GPS offers just 30cm. To facilitate smart city functions, Beidou has to pair with smartphones for coconsumer navigation. China's satellite navigation service is estimated to provide a market value at [CNY 400 billion](#), equivalent to around 0.4% of China GDP in 2020. Though not all the market value is related to smart cities, navigation is a large component.

## Costs of smart cities

The cost of such technological advancement is a bit more complicated though than just the investment cost.

With more technology applications, there is bound to be disruption to existing activities and the labour they require. If smart cities help driverless cars to take off, the thousands of drivers of taxis or delivery drivers that find low skilled employment in China's cities could be displaced and struggle to find alternative employment. New jobs will certainly arise from the implementation of smart city technology, but will likely require different skills and knowledge to those being displaced. The government will need to assist those whose employment is disrupted to find alternatives.

## Risks

There is also the risk of disruption when cities that have become reliant on smart-city technology experience technical glitches - for example, if the smart traffic lights stop working and cause gridlock. This might just be a technical problem resulting from, for example, bad weather affecting sensors. But it could also potentially be vulnerable to system hackers. Once people get used to the convenience of smart city technology, this could result in a shock to the public and to local governments if the smart city system collapses. In China, as cities become increasingly reliant on smart street lights, contingency plans to cope with failure will become very important.

## Conclusion

Our 'guesstimate' is that by 2030, Beijing, Shanghai, Guangdong, Shenzhen and Hangzhou could be experienced practitioners of smart city technology. And by 2035, most locations in China could enjoy some smart city functions. This means that the Chinese economy could achieve urbanisation at a faster speed. But before we reach 2030, the technology war between China and US could delay more sophisticated functions of smart cities that need advanced semiconductors. This is likely to be the biggest hurdle for China as it strives to lead the world in smart city applications, and China is investing in its own advanced semiconductor chips. The more successful China is in achieving technological growth, the more difficulties it is likely to face from the technology war.

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Snap | 20 August 2020

## ECB minutes: In one word, “uncertainty”

The minutes of the European Central Bank's July meeting can be summarised with one word: “uncertainty”. Uncertainty about the economic outlook and the pandemic is keeping the central bank on high alert



The ECB's inflation forecasts, in particular, suggest the current neutral stance on policy is the right one

The just-released minutes of the ECB's July meeting illustrate that, at least in the current crisis, the ECB does not have any exclusive insights but is looking at the same developments like the rest of us. And the conclusion from looking at the available data is and was that the eurozone economy will see a sharp initial rebound, while the shape of the subsequent recovery is anything but clear. The word “uncertainty” appeared 20 times in the minutes.

During the discussion on the economic outlook, the ECB made the important distinction between rebound and recovery, by for example stating that “it was important to emphasise that, although economic activity was gaining momentum, there was no room for complacency.” The fact that the outlook for growth and inflation in the June staff projections was “conditional on substantial monetary policy support, while any premature tightening of financial conditions could put the ongoing recovery at risk”, shows that the current monetary stance is here to stay for a while.

Interestingly, there seems to have been at least a bit of a controversy during the discussion. Not surprisingly regarding the Pandemic Emergency Purchase Programme. Some ECB members argued that the total size of the PEPP purchases (€1.35 trillion) should be “considered a ceiling rather than a target”. When such a statement is followed by “the point was made that incoming data had

surprised on the upside and some of the downside risks surrounding the outlook prevailing at the time of the Governing Council's June monetary policy meeting had receded", weathered ECB watchers know that opponents to quantitative easing have not given up their resistance, yet.

Looking ahead, the latest comments from senior ECB officials at the start of August underlined that the ECB remains on high alert. A blog entry by Chief Economist Philip Lane stressed that the ECB expects a very gradual recovery after the initial rebound and suggested a clear willingness to do more if needed in order to bring inflation back to target. In this regard, the next ECB meeting in September will probably come too early to take a more distinct position on the shape of the recovery but will definitely create some more headaches regarding the inflation outlook. The appreciation of the euro exchange rate over the summer months could lower the inflation forecasts almost mechanically by between 0.2 and 0.4 percentage points. Remember that in the June forecasts, inflation was expected to come in at 0.8% in 2021 and 1.3% in 2022. An inflation forecast of below 1% for 2022 would, in our view, be a strong invitation for additional monetary stimulus before the end of the year.

As uncertainty will definitely not have disappeared at the September meeting, the meeting will come too early for new action. However, new downward revisions to the inflation forecasts could be the trigger for fresh monetary stimulus before year end.

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## US: A wary Fed keeps its powder dry

The minutes to the July 29th FOMC meeting are not especially reassuring. The commentary suggests an ongoing weak economic backdrop whereby inflation remains persistently low yet there is little inclination to offer additional imminent support to the economy



Source: Shutterstock  
Federal Reserve

### Weaker recovery, little inflation

The tone of the minutes indicate some concern over the state of the economy with the Fed's staff economic outlook warning that the "projected rate of recovery in real GDP, and the pace of declines in the unemployment rate, over the second half of this year were expected to be somewhat less robust than in the previous forecast". This was due to the renewed pick-up in Covid-19 cases and many states scaling back the reopening of their economies with "some high-frequency indicators that pointed to a deceleration in economic activity".

Given this backdrop "the negative effect of the pandemic on aggregate demand was more than offsetting upward pressures on some prices stemming from supply constraints or from higher demand for certain products, so that the overall effect of the pandemic on prices was seen as disinflationary".

In response to this situation and with uncertainty remaining "extremely elevated" the minutes noted "several participants suggested that additional accommodation could be required".

Furthermore, "some participants observed...strong fiscal policy support would be necessary to encourage expeditious improvements in labor market conditions."

However, amongst the broader committee there wasn't the appetite to deliver anything despite agreement that inflation "would likely continue to run well below the Committee's 2 percent objective for some time". Instead, all we got was the agreement from members that "over coming months it would be appropriate for the Federal Reserve to increase its holdings of Treasury securities and agency RMBS and CMBS at least at the current pace to sustain smooth market functioning".

## The Fed really, really, really won't be raising rates soon...

The long-awaited Review of Monetary Policy Strategy is coming. The minutes acknowledged that "refining the statement could be helpful in increasing the transparency and accountability of monetary policy" and stated it was "important to finalise all changes to the statement in the near future" – suggesting a potential September announcement.

The communication is seemingly going to be taking the form of outcome-based forward guidance. This means that the Fed would "maintain the current target range for the federal funds rate at least until one or more specified economic outcomes was achieved". This, according to the minutes could use "thresholds calibrated to inflation outcomes, unemployment rate outcomes, or combinations of the two". A possibility is that they could state they will not be raising interest rates until unemployment has fallen below 5% and inflation has consistently hit 2%, for example.

They did mention the possibility of incorporating a calendar-based approach in addition, indicating that the current target range would be maintained at least until a particular calendar date is possible. Either way this is unlikely to be massively market moving given the Fed's "dot plot" of individual member forecasts suggests just two members expect rates to be raised before the beginning of 2023 – it will merely reinforce the message that the Fed really, really, really won't be raising rates imminently, thereby anchoring the short end of the curve even more sturdily.

## Lack of YCC enthusiasm keeps the curve steepening trend in play

The longer end is not so anchored. The limited enthusiasm for Yield Curve Control expressed in the minutes has served to reinforce the recent curve steepening trend. YCC is where the Fed could use focused asset purchases to limit the upside for Treasury yields at certain points of the curve. "Of those participants who discussed this option, most judged that yield caps and targets would likely provide only modest benefits in the current environment, as the Committee's forward guidance regarding the path of the federal funds rate already appeared highly credible and longer-term interest rates were already low."

Officials are worried about potential costs of YCC including "the possibility of an excessively rapid expansion of the balance sheet and difficulties in the design and communication of the conditions under which such a policy would be terminated". However, should yields start to rise more significantly – perhaps as Treasury issuance is ramped up to finance a record deficit – thereby pushing up mortgage rates and corporate borrowing costs, this option could be up for more discussion.

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