Economics 442
Macroeconomic Policy
10/12/2020

Instructor: Prof. Menzie Chinn
UW Madison
Fall 2020

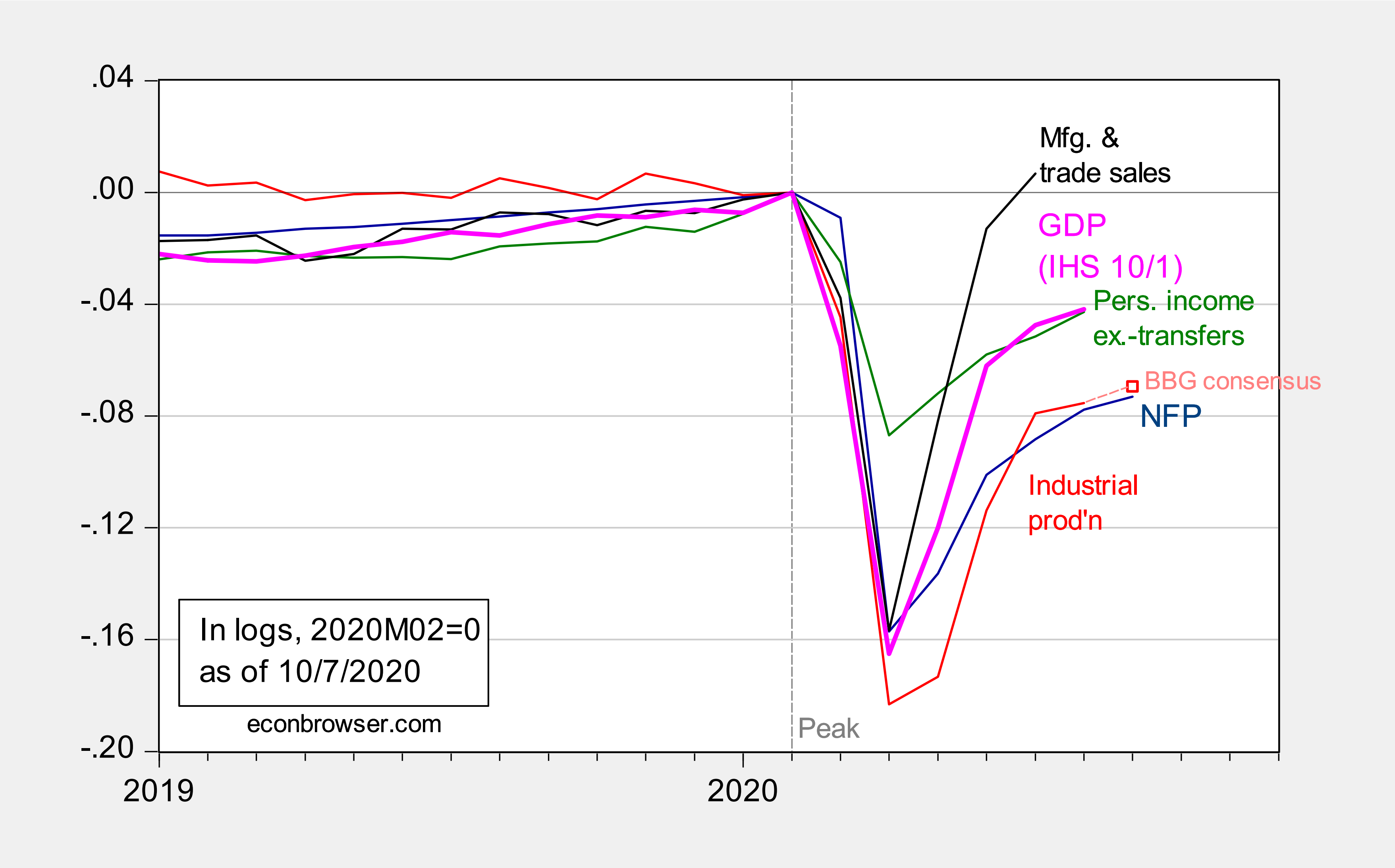
Outline

- Economic indicators now
  - Conventional
  - Unconventional
- The unique nature of the recession
- Analysis
- Implied policy responses

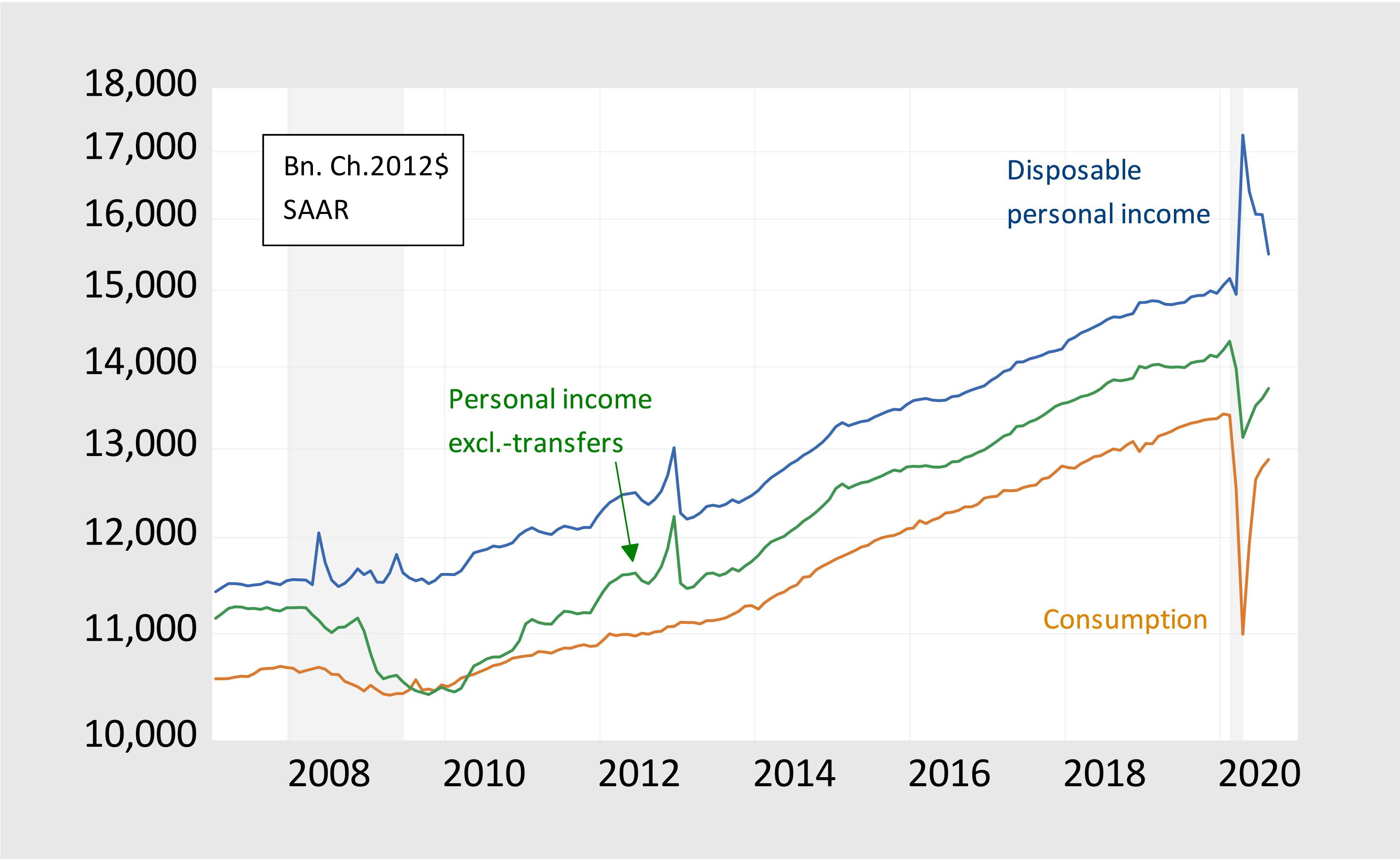
Economic Indicators Now

Conventional

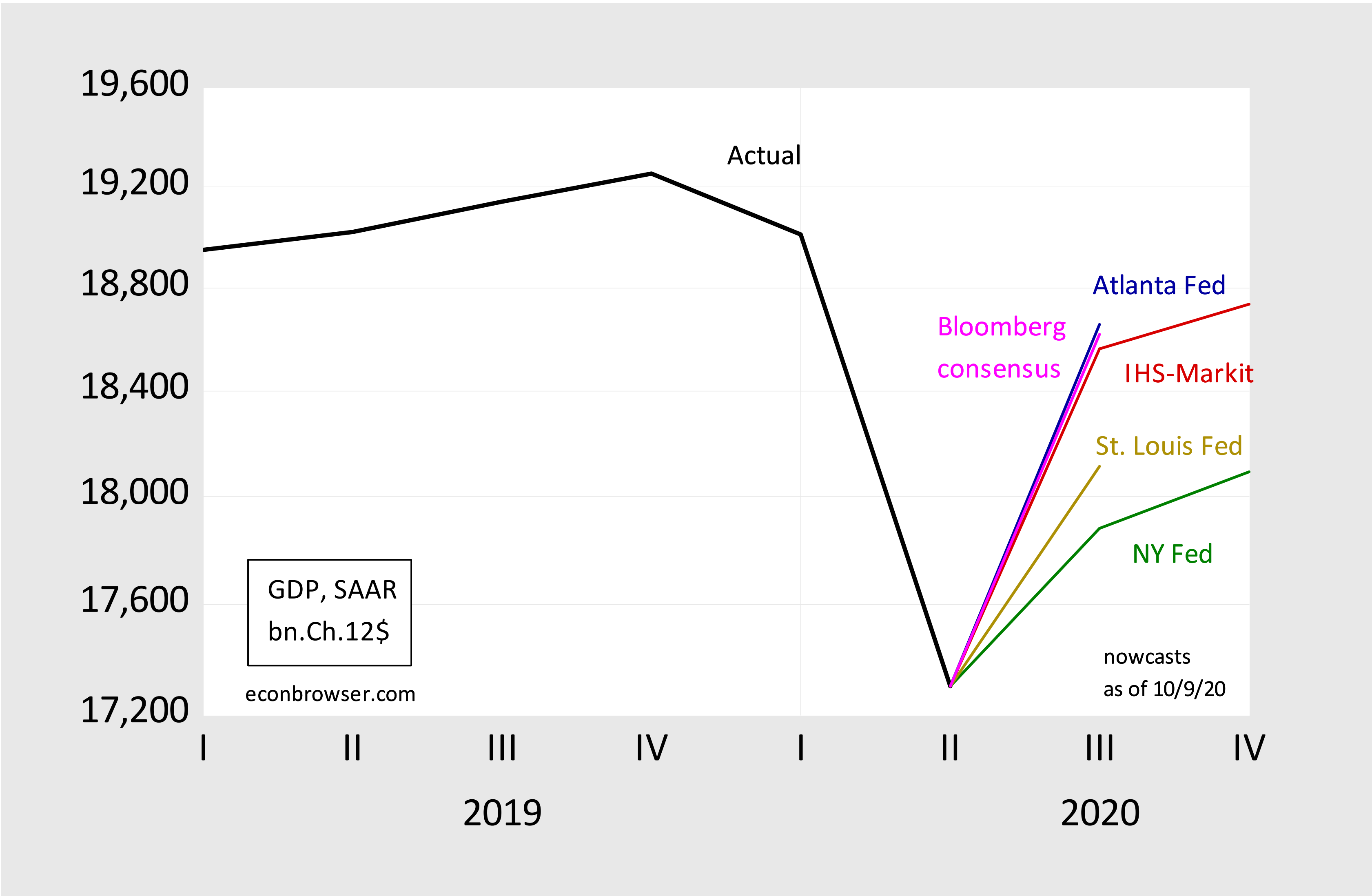
Conventional Macroeconomic Indicators



Conventional Macroeconomic Indicators



Conventional Macroeconomic Indicators



Atlanta Fed: GDPNow

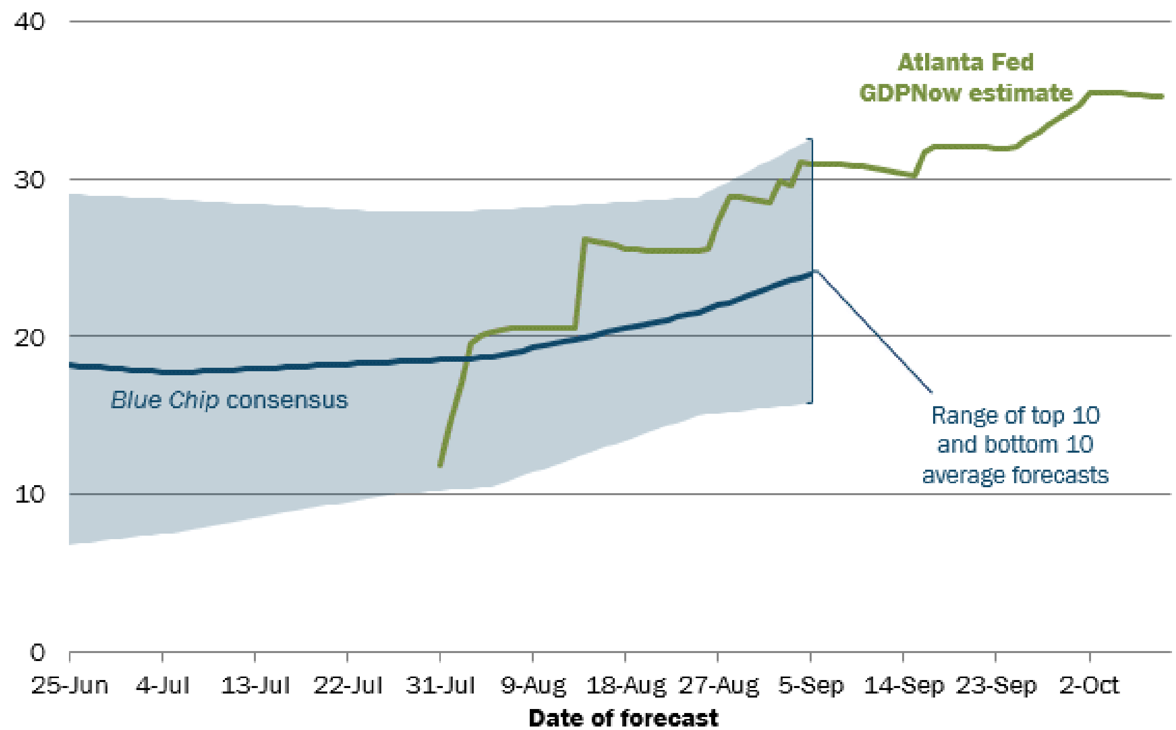
FEDERAL RESERVE BANK of ATLANTA | GDPNow™

GDPNow is not an official forecast of the Atlanta Fed. Rather, it is best viewed as a running estimate of real GDP growth based on available economic data for the current measured quarter. There are no subjective adjustments made to GDPNow—the estimate is based solely on the mathematical results of the model.

In particular, **it does not capture the impact of COVID-19 and social mobility** beyond their impact on GDP source data and relevant economic reports that have already been released. It does not anticipate their impact on forthcoming economic reports beyond the standard internal dynamics of the model.

Evolution of Atlanta Fed GDPNow real GDP estimate for 2020: Q3

Quarterly percent change (SAAR)



Sources: *Blue Chip Economic Indicators* and *Blue Chip Financial Forecasts*

Note: The top (bottom) 10 average forecast is an average of the highest (lowest) 10 forecasts in the *Blue Chip* survey.

https://www.frbatlanta.org/cqer/research/gdpnow

Atlanta Fed: GDPNow

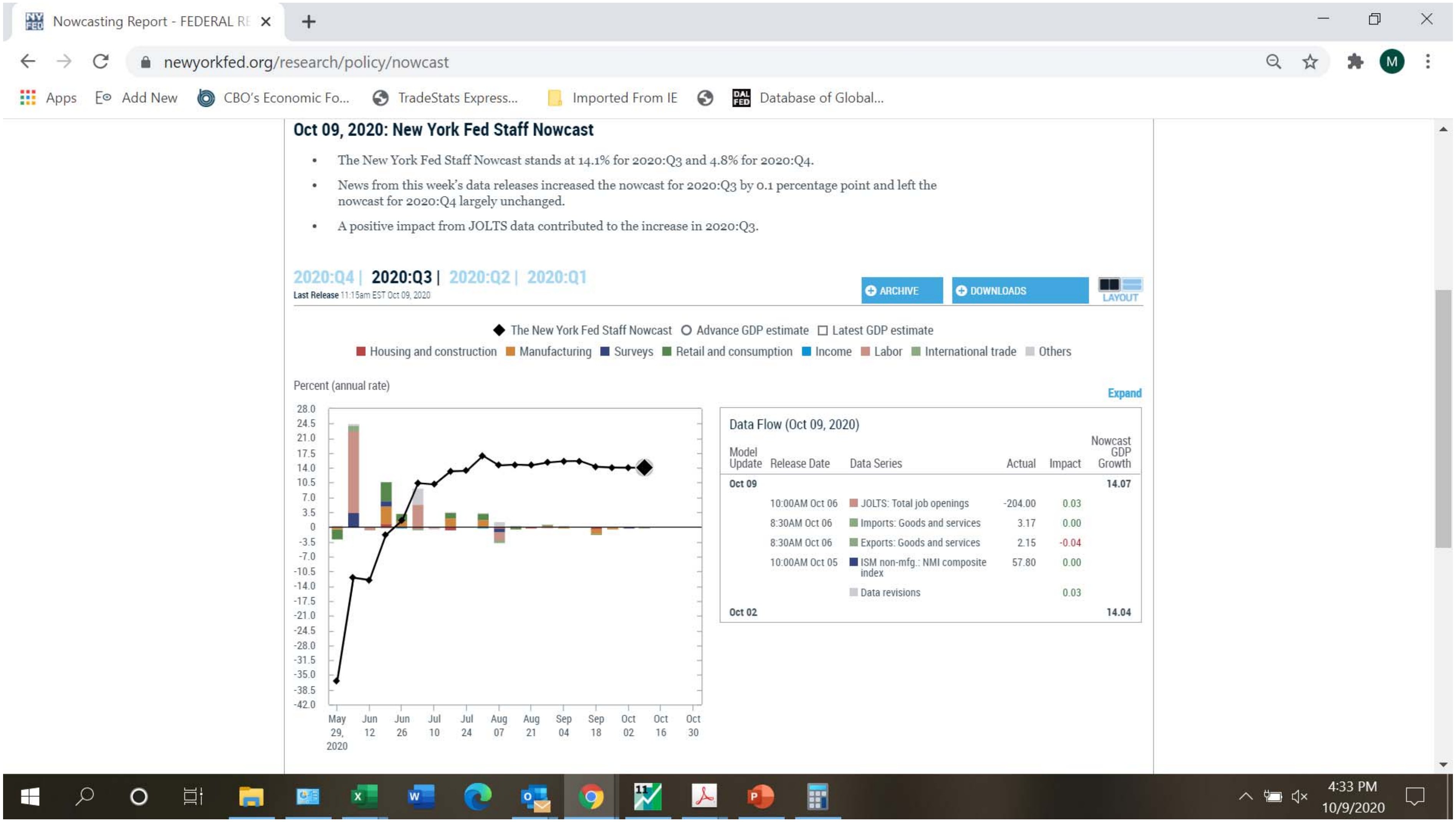
Evolution of Atlanta Fed GDPNow real GDP growth estimates for 2020: Q3

Date	Major Releases	GDP*	Date	Major Releases	GDP*	Date	Major Releases	GDP*
31-Jul	Initial nowcast	11.9	28-Aug	GDP (8/27), Personal income and outlays, Advance Econ Indicators	28.9	1-Oct	GDP (9/30), Pers Inc/PCE, NIPA underlying detail tables, ISM Manuf Index, Construction spending	34.6
3-Aug	ISM Manufacturing Index, Construction spending	19.6	1-Sep	ISM Manufacturing Index, Construction spending	28.5	2-Oct	M3-2 Manufacturing, Light vehicle sales, Employment situation	35.4
4-Aug	M3-2 Manufacturing, Light vehicle sales	20.0	2-Sep	M3-2 Manufacturing, Auto Sales	29.8	5-Oct	ISM Nonmanufacturing Index	35.4
5-Aug	International trade, ISM Nonmanufacturing Index	20.3	3-Sep	International trade, ISM Nonmanufacturing Index	29.6	6-Oct	International Trade	35.3
7-Aug	Employment situation, Wholesale trade	20.5	4-Sep	Employment situation	31.0	9-Oct	Wholesale Trade	35.2
11-Aug	Producer Price Index	20.5	10-Sep	Wholesale trade, PPI	30.8			
12-Aug	CPI, Monthly Treasury Statement	20.6	11-Sep	CPI, Monthly Treasury Statement	30.7			
13-Aug	Import/Export prices	20.5	15-Sep	Import/Export prices, Industrial Production	30.2			
14-Aug	Retail Trade, Industrial Production	26.2	16-Sep	Retail Trade	31.7			
18-Aug	Housing Starts	25.6	17-Sep	Housing Starts	32.0			
21-Aug	Existing-home sales	25.4	22-Sep	Existing-home sales	32.0			
25-Aug	New-home sales	25.4	24-Sep	New-home sales	31.9			
26-Aug	Advance durable manufacturing	25.6	25-Sep	Advance durable manufacturing	32.0			
			29-Sep	Advance Economic Indicators	33.8			

*Note: Annualized quarterly growth rate of real GDP.

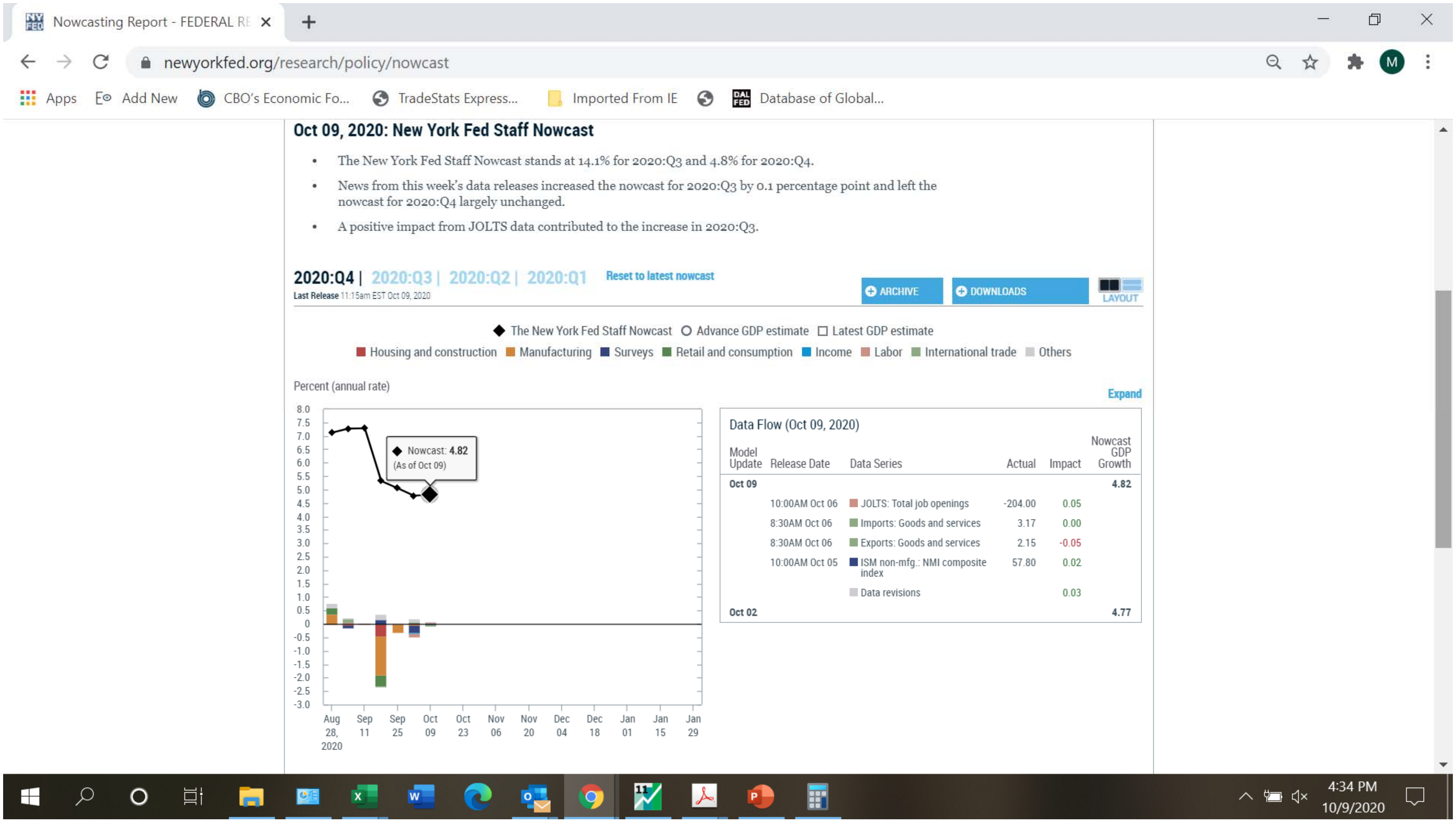
https://www.frbatlanta.org/cqer/research/gdpnow

NY Fed: Nowcast



https://www.newyorkfed.org/research/policy/nowcast

NY Fed: Nowcast



https://www.newyorkfed.org/research/policy/nowcast

IHS-Markit: Nowcast

IHS Markit | US GDP Tracking

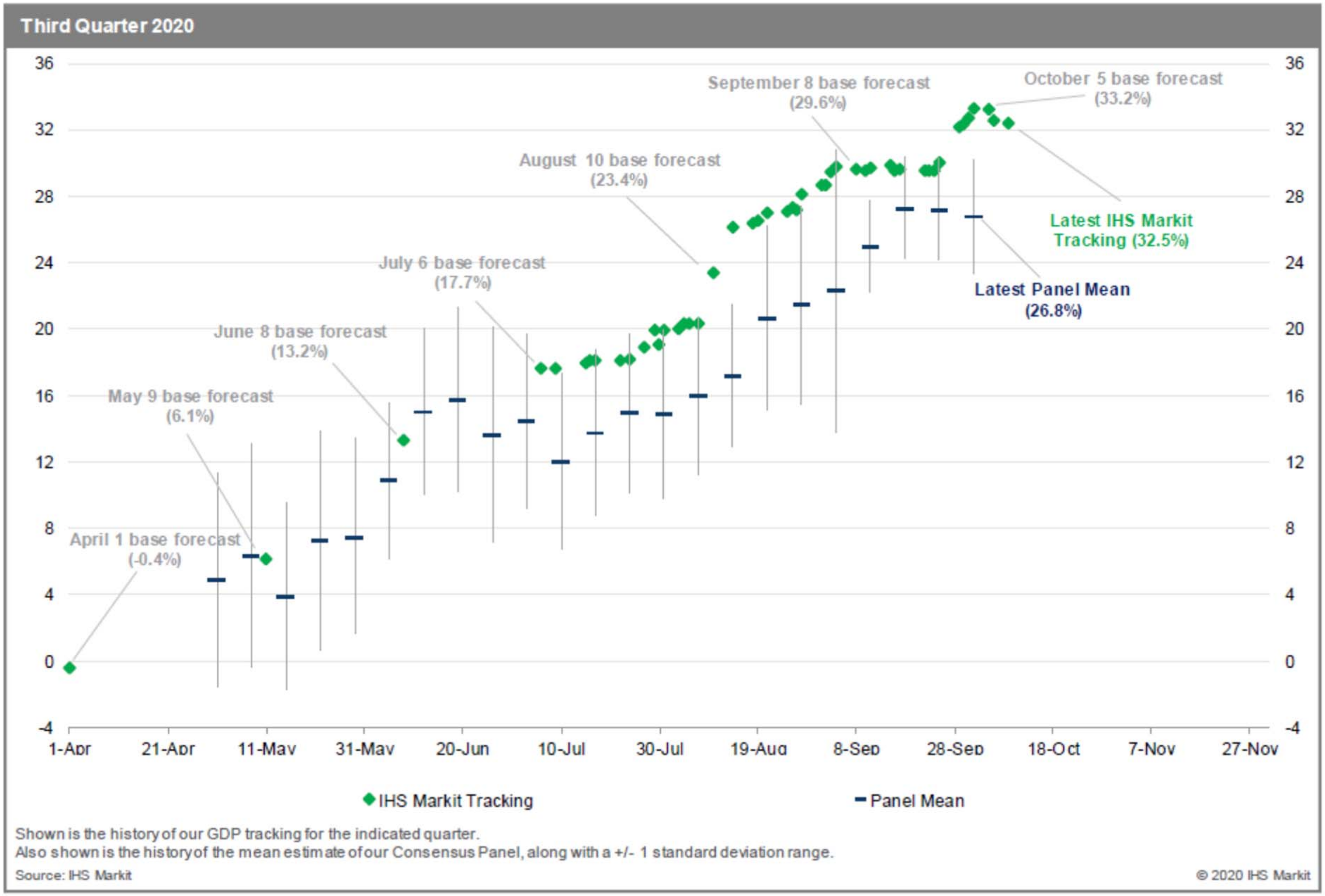
Third Quarter 2020

			GDP		Final Sales of Domestic Product														CIPI	
					Total	Final Sales to Domestic Purchasers								Net Exports					
Release Title	Release Date	Data Month	Chng	% ch		Total	Private	PCE	Struct	Equip	IPP	Res	Gov	Level	Chng	Exp	Imp	Level	Chng
IHS Markit Base Forecast	5 Oct	-	1286	33.2	26.4	29.0	37.0	38.5	-15.4	83.1	-1.8	60.4	-1.5	-962	-187	73.4	90.3	-28	259
International Trade	6 Oct	Aug	1264	32.6	25.8	28.9	36.9	38.5	-15.4	**80.7**	-1.8	60.4	-1.5	**-984**	**-209**	**68.3**	**91.6**	-28	259
Wholesale Inventories	9 Oct	Aug	1260	32.5	25.8	28.9	36.9	38.5	-15.4	80.7	-1.8	60.4	-1.5	-984	-209	68.3	91.6	**-33**	**254**
Retail Sales	16 Oct	Sep																	
Industrial Production	16 Oct	Sep																	
Business Inventories	16 Oct	Aug																	
Housing Starts	20 Oct	Sep																	
Existing Home Sales	22 Oct	Sep																	
New Home Sales	26 Oct	Sep																	
Advance Durable Goods	27 Oct	Sep																	
Advance Economic Indicators	28 Oct	Sep																	
Tracking as of	9 Oct		1260	32.5	25.8	28.9	36.9	38.5	-15.4	80.7	-1.8	60.4	-1.5	-984	-209	68.3	91.6	-33	254
Contributions to GDP Growth					*27.0*	*29.4*	*29.6*	*24.3*	*-0.5*	*3.7*	*-0.1*	*2.2*	*-0.2*		*-2.5*	*5.4*	*-7.9*		*5.5*
BEA's Advance Est.	29 Oct																		

Note: This table summarizes how the monthly data affect our current-quarter forecast of real GDP growth. Components labeled "Level" are expressed as billions of chained 2012 dollars at annual rates. Components labeled "Change" are the changes in the annualized levels of the component from the previous quarter. All other table entries are annualized growth rates of the real GDP components listed in the column headers. The first row of the table indicates the component growth rates, levels, and changes which constitute our most recent model-based forecast. Where data releases have implications for our current-quarter forecast of GDP components, the table cells bold. The reference month is the month for which new data will become available with the indicated release. GDP growth is calculated off-line by chain-weighting. Please contact Ben Herzon if you have any questions.

Source: IHS Markit

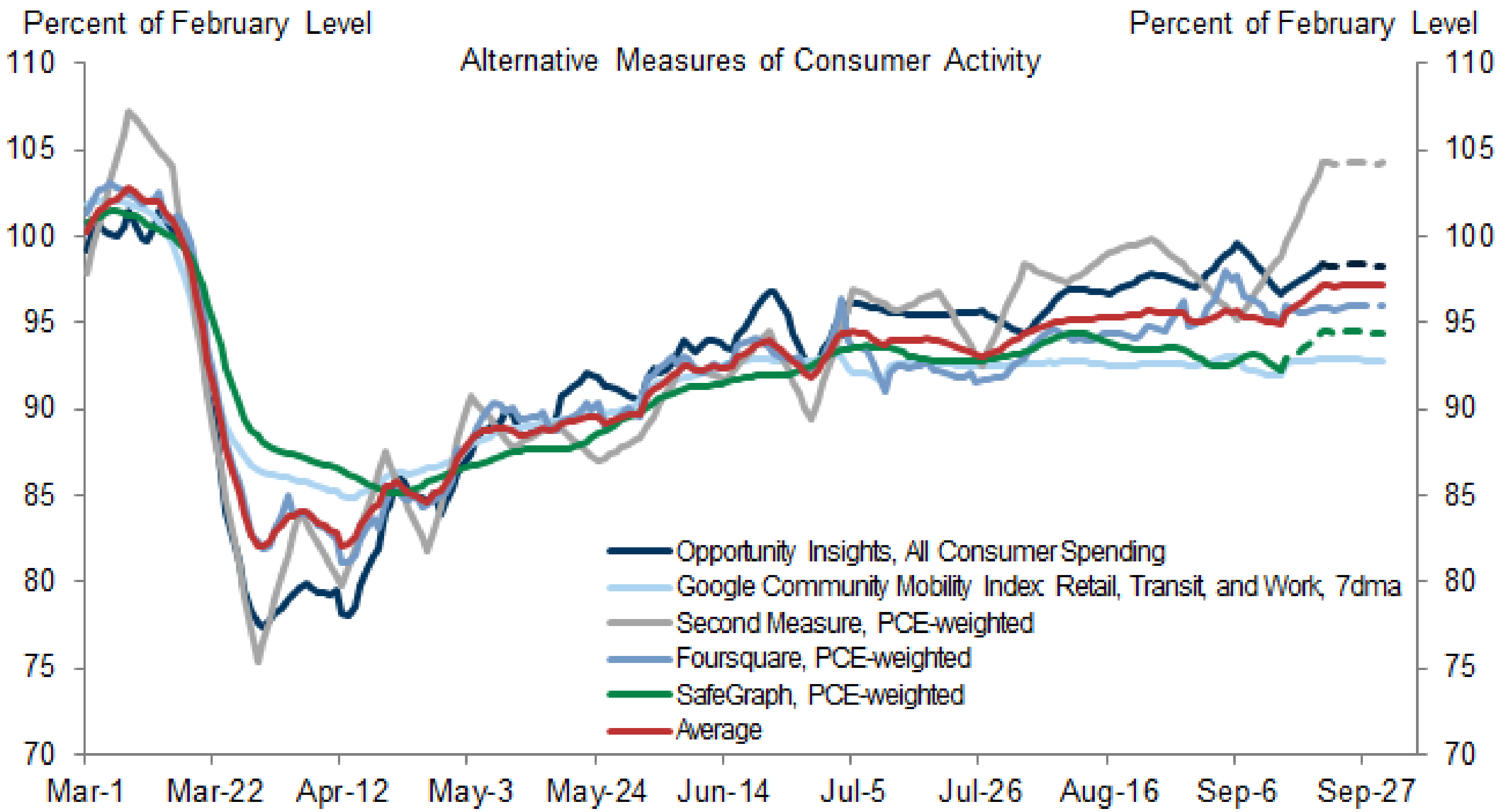
IHS-Markit: Nowcast



Economic Indicators Now

Unconventional

Nowcasting Consumption using High Frequency Data

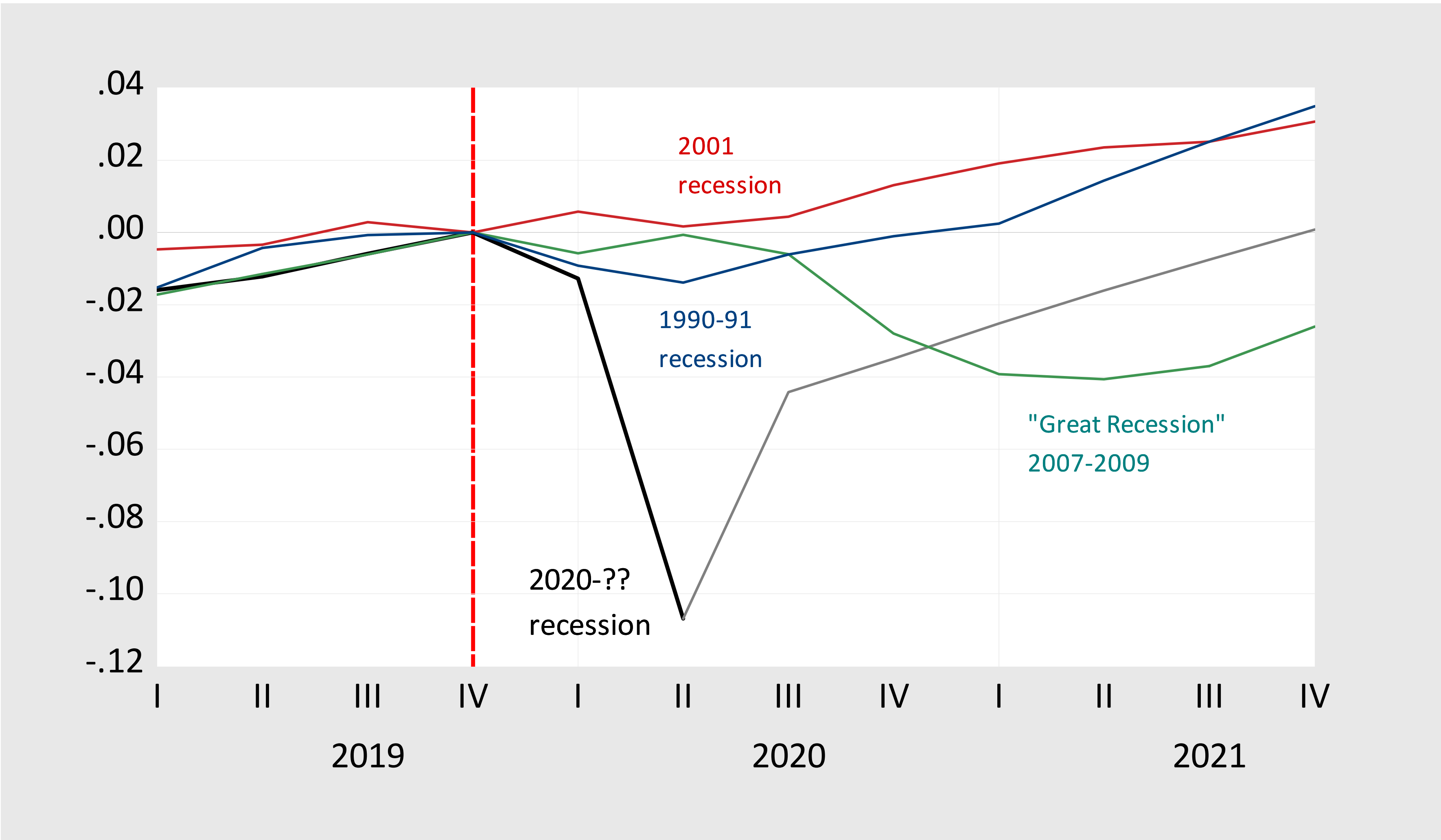


Note: Dotted lines denote projections based on growth of other series. All measures rescaled to actual real PCE spending.

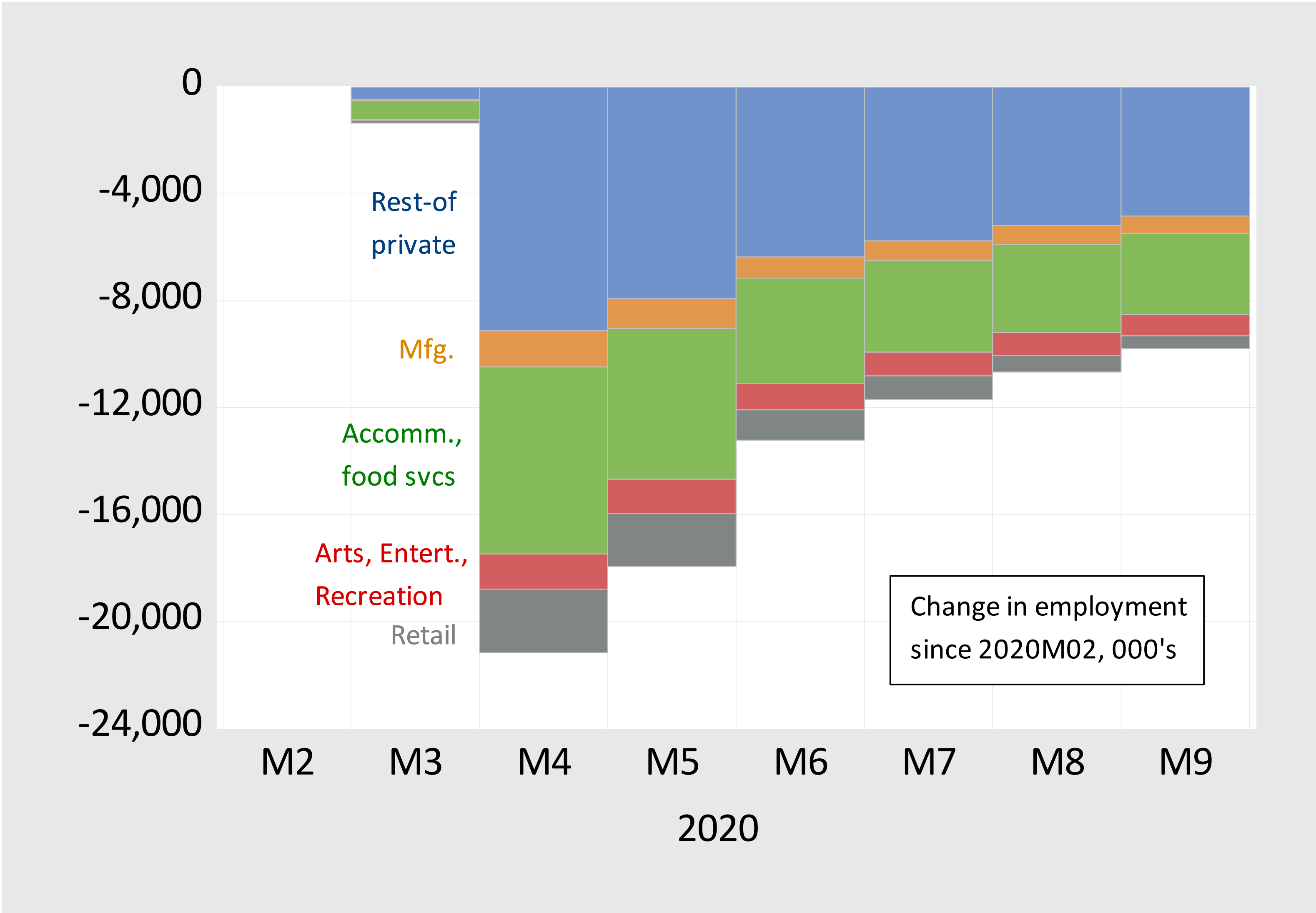
US Economic Recovery Tracker: October 9 Update (Walker), Goldman Sachs

Unique Nature of the Recession

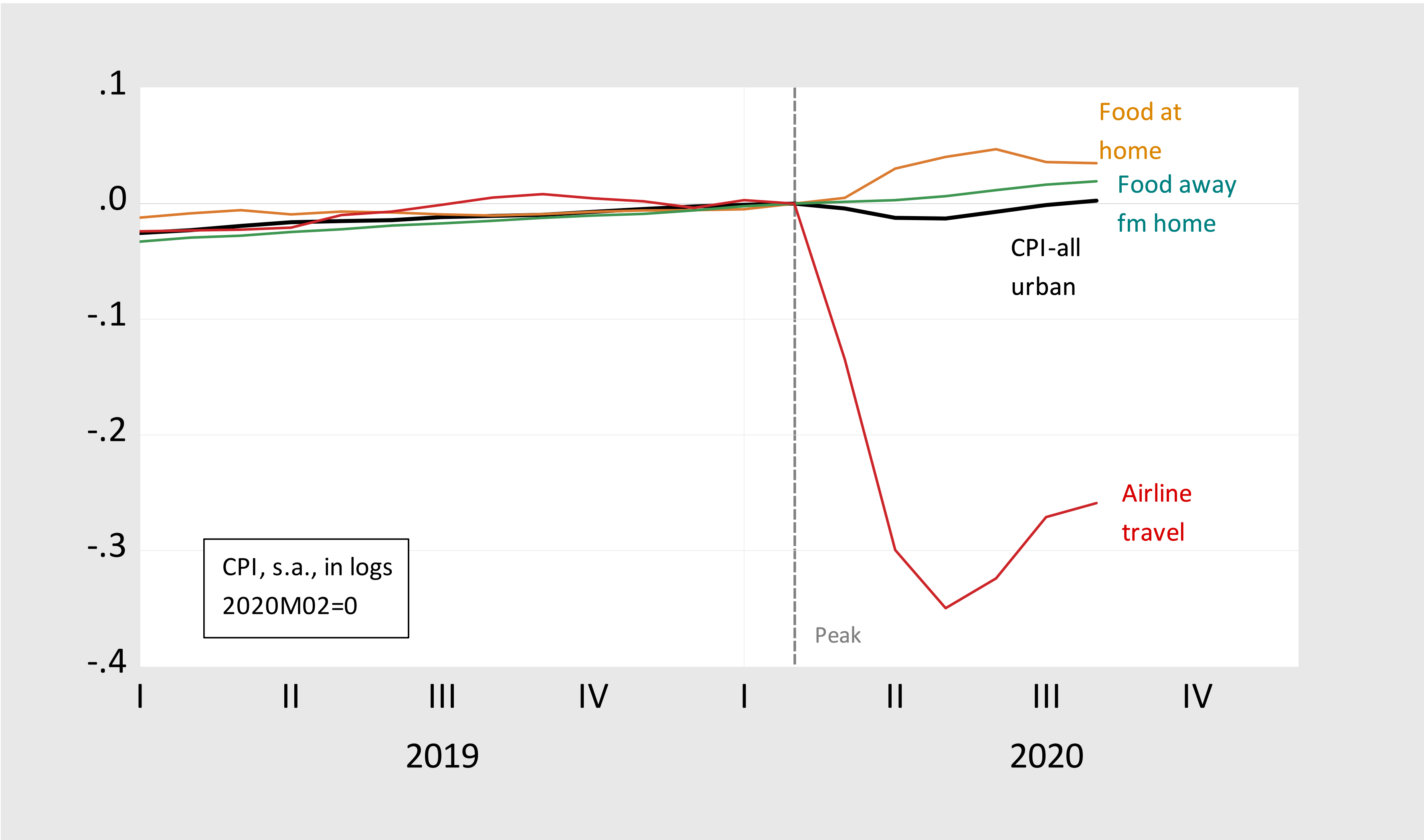
Deep and Quick (at least part of)



Concentrated Impact

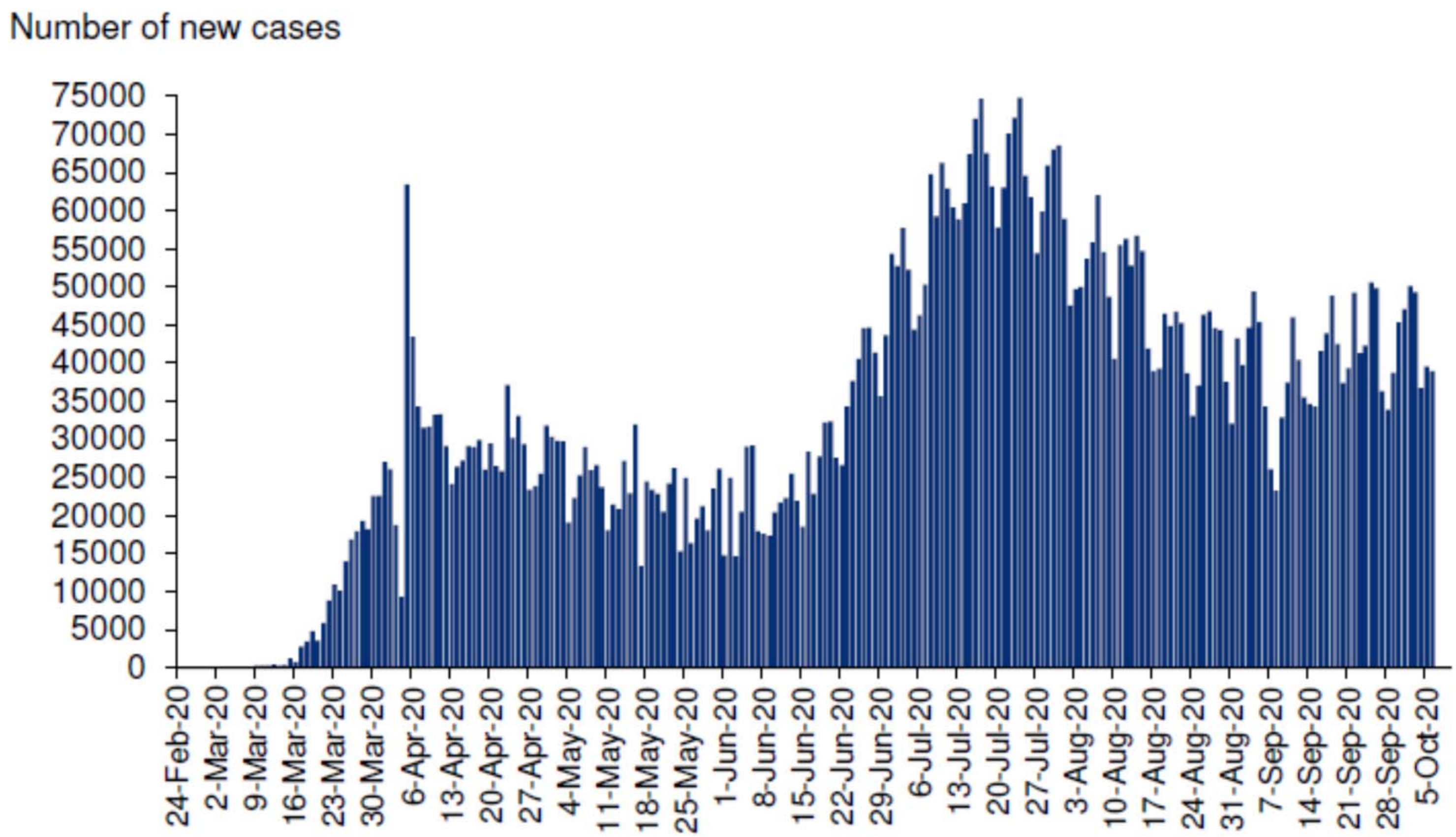


Concentrated Impact



Economic/Public Health Nexus

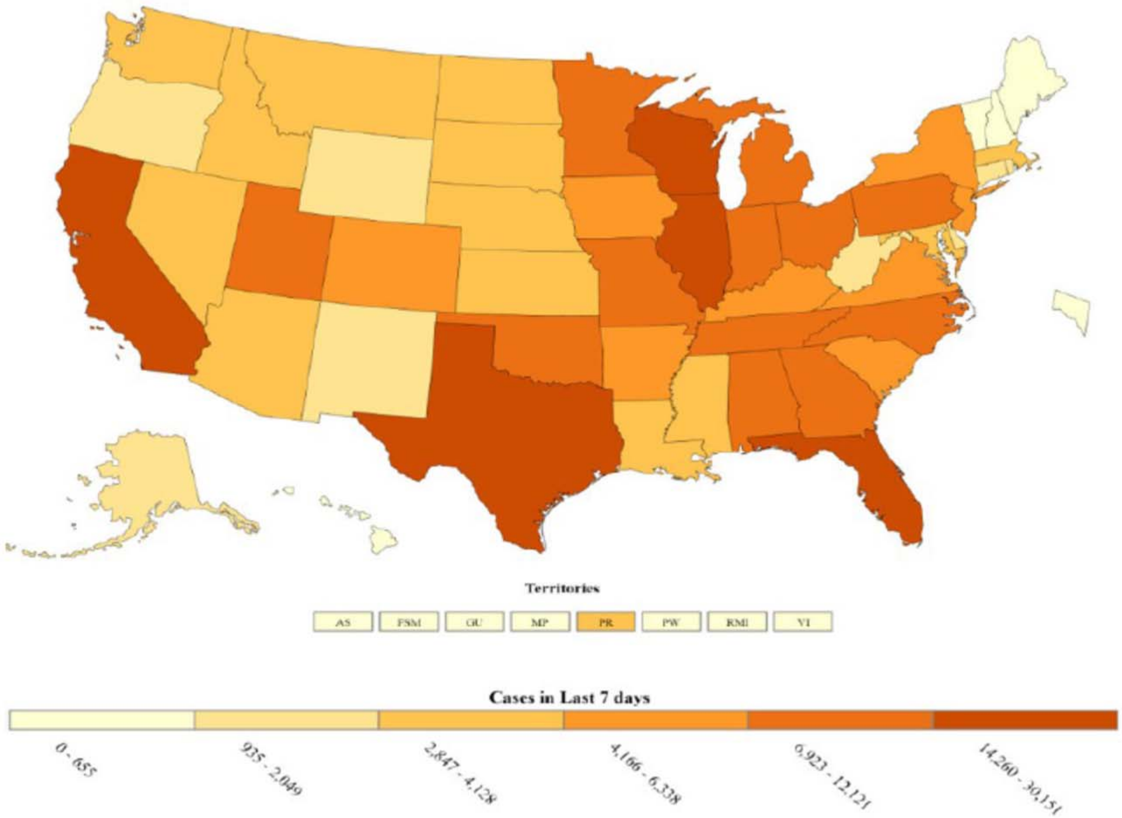
Figure 4: Coronavirus cases in the U.S. by date of illness onset, January 12, 2020, to October 6, 2020



Weidner, “Covid-19 impact tracker (8 Oct.),” Deutsche Bank US Economic Perspectives

Economic/Public Health Nexus

Figure 3: Case growth picking up again in the Midwest and South

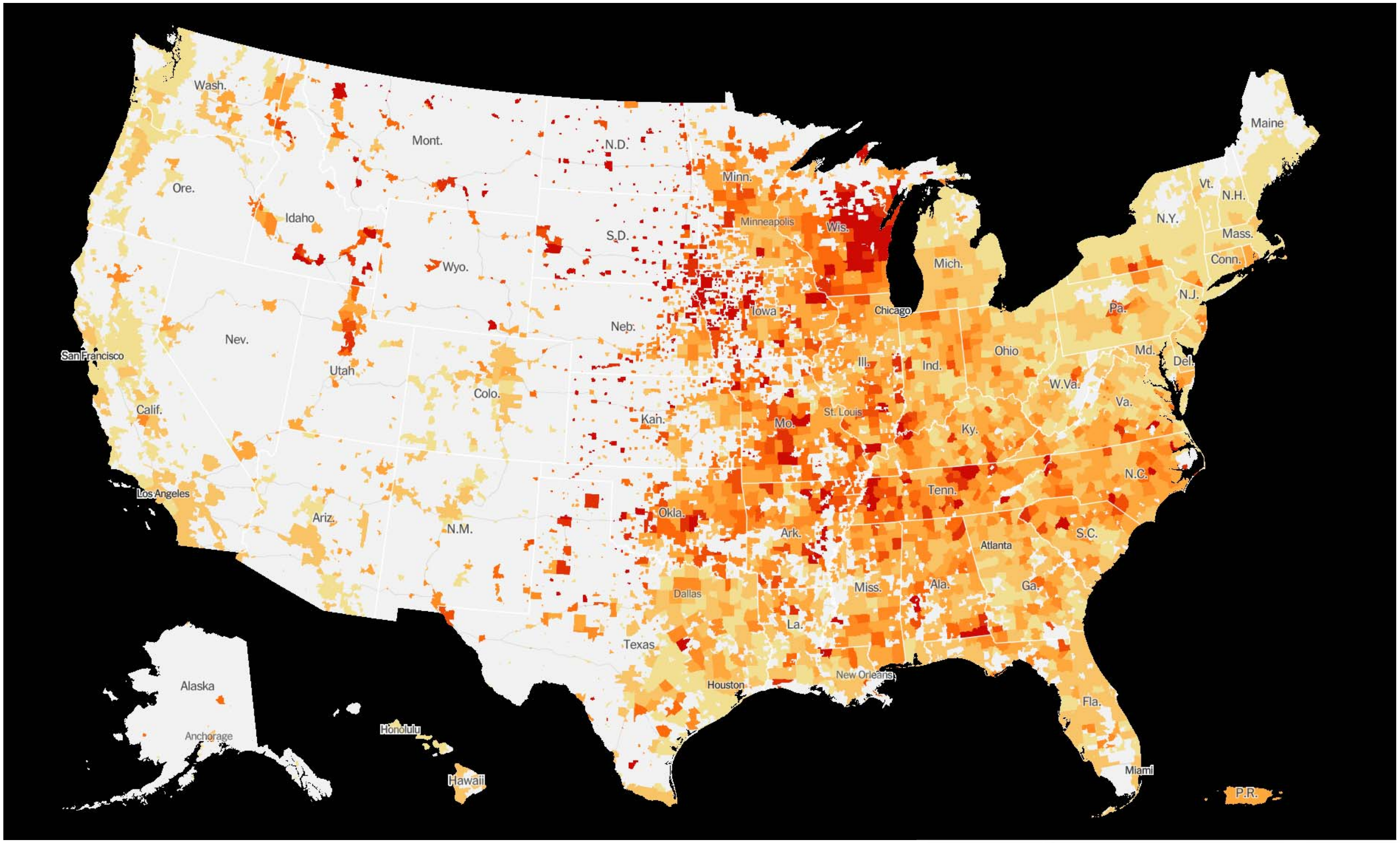


Source : CDC, Deutsche Bank
Note: Data include both confirmed and presumptive positive cases of COVID-19 reported to CDC or tested at CDC since April 23, 2020. Data reported as of October 7.

Weidner, "Covid-19 impact tracker (8 Oct.)," Deutsche Bank US Economic Perspectives

Cases per 100,000

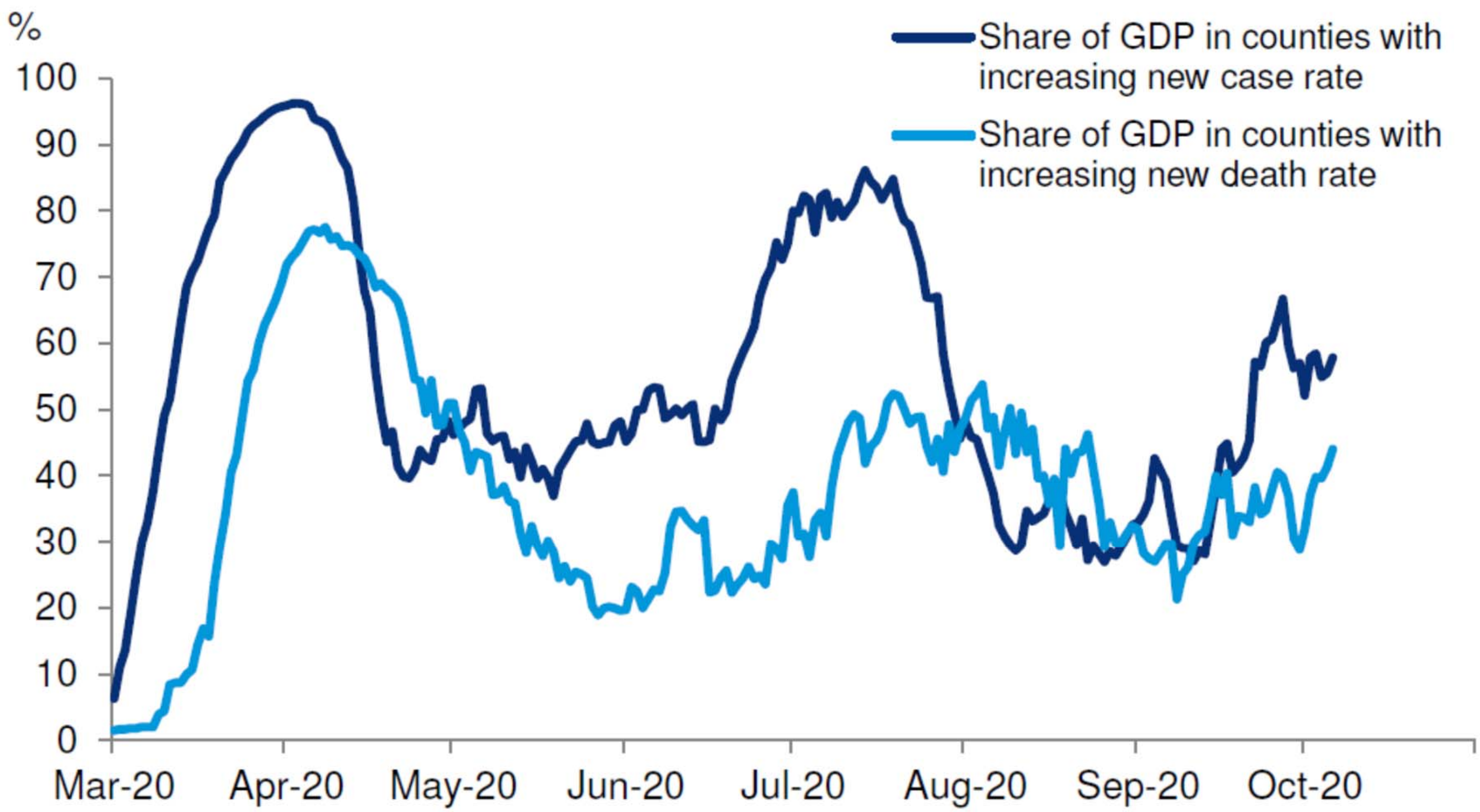
as of 10/10/2020



https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html

Leading to Stop and Go

Figure 11: About 60% of GDP from counties with increasing number of new cases and 40% from those with increasing numbers of new deaths



Source : BEA, USAFacts, Haver Analytics, Deutsche Bank

Weidner, "Covid-19 impact tracker (8 Oct.)," Deutsche Bank US Economic Perspectives

Analysis

Three Phases

- Pandemic & lockdown

And following Blanchard’s chapter

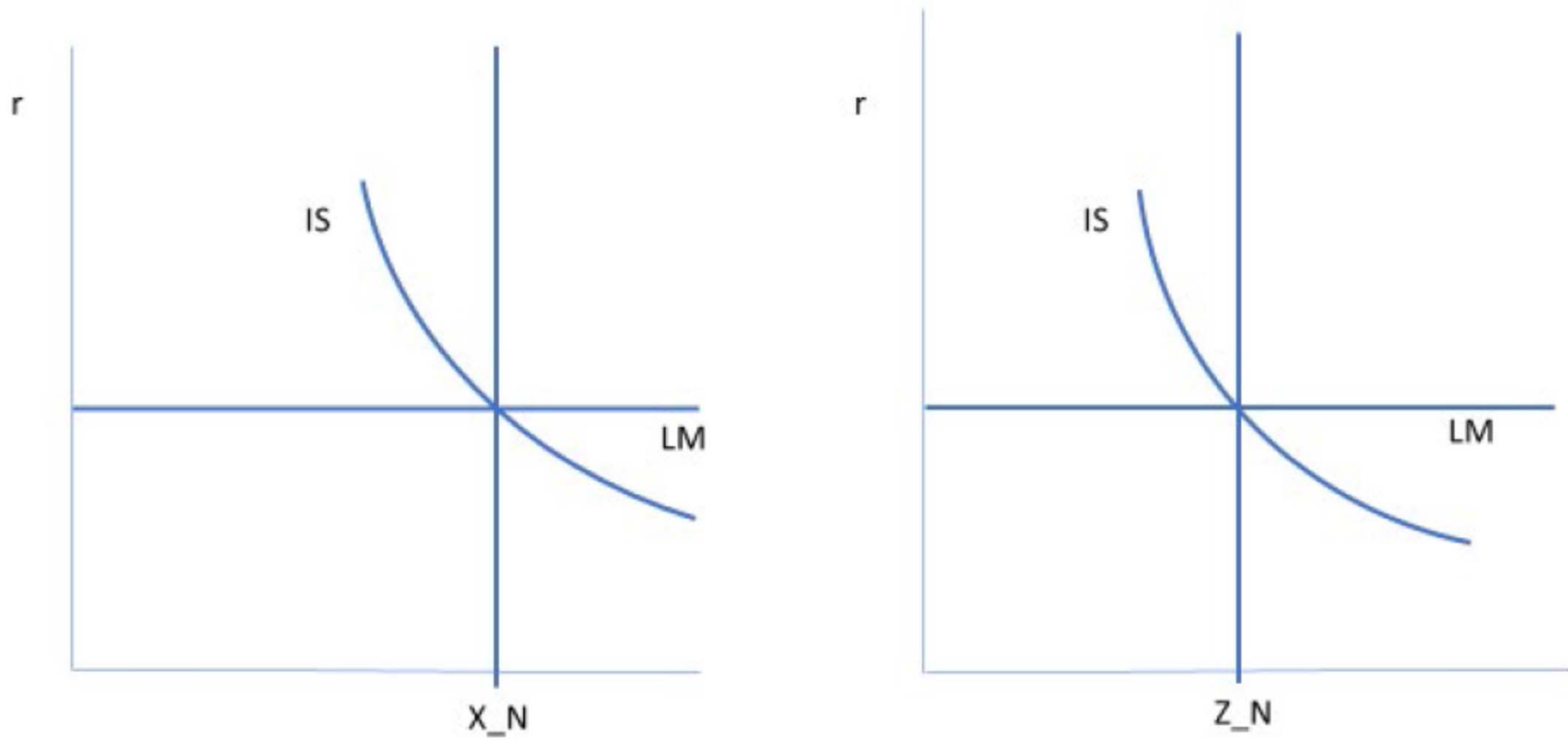
- “post-lockdown but pre-vaccine” phase
- “post-vaccine” phase

Pandemic & Lockdown

- Model as two sectors
- Affected sector: hotels, airlines, restaurants, and suppliers (output X)
- Non-affected sector: all else (output Z)
- Outputs are somewhat substitutable
- Central bank targets short term rate
- Start at natural rate in both sectors, (Z_n, Z_n)

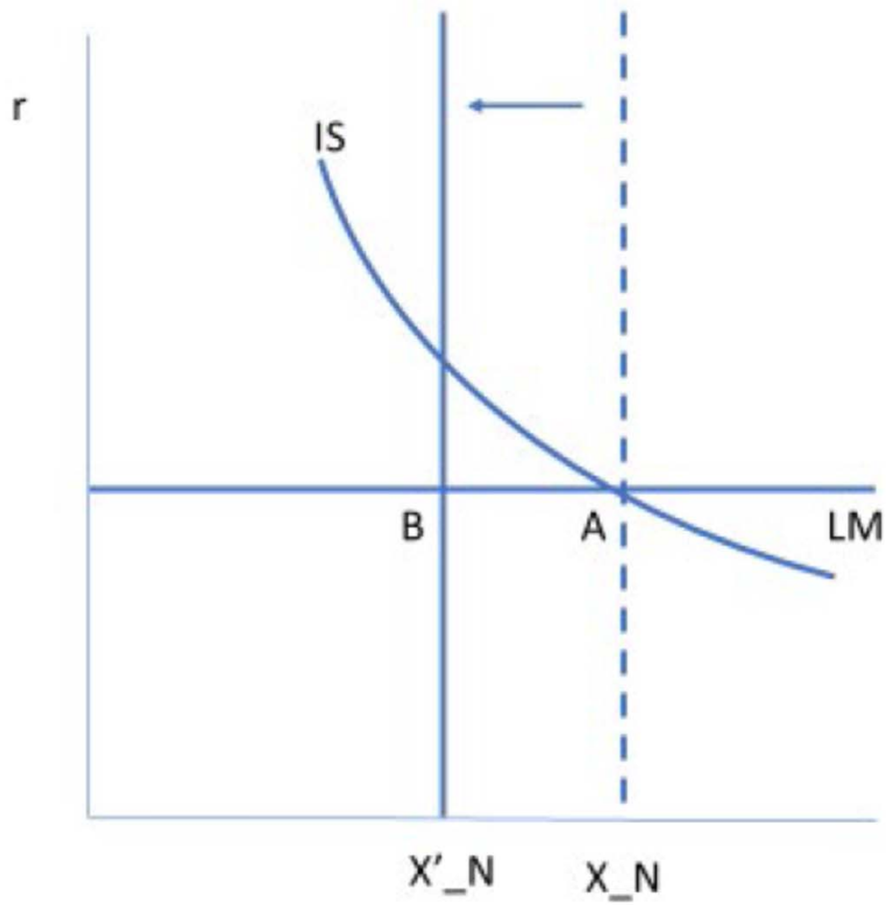
Pandemic & Lockdown

Figure 3. Initial equilibrium in both sectors



Pandemic & **Lockdown**

Figure 4. Decrease in output in the affected sector



Pandemic & Lockdown

Three Effects

- To the extent that goods produced by the two sectors are substitutable, there is an increase in the demand for the goods produced by the non-affected sector. If people cannot go to cinemas, they watch more Netflix. If they cannot go to restaurants, they order more take-out. This effect increases demand, shifting the IS curve to the right.

Pandemic & Lockdown

Three Effects

- To the extent that people lose their jobs in sector X, then, unless fiscal policy compensates (more on this below), the large decrease in their income leads to a large decrease in demand for goods Z. For example, a laid-off worker from the airline industry may delay buying a car. This effect decreases demand, leading to a shift in the IS curve to the left.

Pandemic & Lockdown

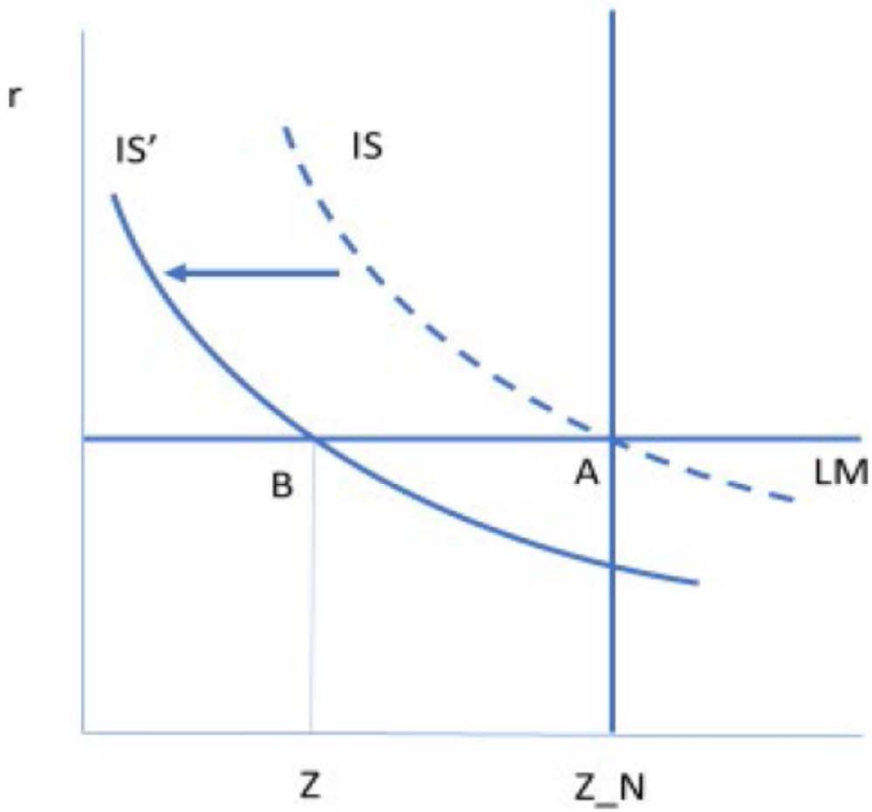
Three Effects

- Given the uncertainty about long the COVID will last (e.g. whether the government has the infection under control; whether and when there will be a widely available vaccine; and whether jobs in the affected sector will come back), consumers are likely to worry about the future, and thus do precautionary saving and limit their consumption. This again will shift the IS curve to the left.

Pandemic & Lockdown

Three Effects

Figure 5. The decrease in output in the non-affected sector, absent a macroeconomic policy response



Assumes 2nd, 3rd effects overwhelm 1st effect

Summary of policy responses to COVID-19 by country

Figure 1: United States

Country	Containment measures	Fiscal Policy	Monetary Policy
United States	Citizens told to avoid social gatherings of more than 10 people. Advice to work from home whenever possible. Advice to avoid bars and restaurants, as well as not visit nursing or retirement homes.	On March 6, Congress passed the first emergency fiscal package of USD8.3bn, tageted at the healcare cirsis reponse.	The Fed cut the target range for the fed funds rate by 150 bps to 0-0.25%. In addition, the Fed announced initial QE purchases of 500bn of Treasuries and 200bn of agency MBS, expanding these to open ended purchases on 23 March, with purchases averaging $500bn per week in the last two weeks of March. Last week, they reduced the pace of purchases to $30bn of Treasuries per day.
	The federal social distancing guidelines have been extended until at least 30 April. Over 40 states have stay-at-home orders in force.	On March 13, President Trump declared a National Emergency under the Stafford Act, which immediately provided FEMA with $40-50bn to combat the virus. At the same time, the "Families First" Act provided around $100bn of tax credits for sick while a delay of the April tax date to October would act as a bridge loan of up to $300bn for households and businesses.	Together with the fed funds cut, the FOMC lowered the discount rate on primary credit and extended the term of lending at the discount window to 90 days. The Fed further encouraged banks to tap the discount window and cut required reserves to zero. The Fed is considering other regulatory capital changes to further encourage banks to tap their capital and liquidity buffers, which totaled $1.3 trn of common equity and $2.9 trillion in HQLA.
	On 16 April, the President oulined guidelines for state authorities on easing restrictions. Recommendations include that states showing a downward trajectory in cases for at least two weeks can begin a three-phase process to reopen, with declines in cases to be assessed every two weeks before states can move onto the next phase. **Most state-level restrictions have been extended to early-to-mid May, with minor easing in places.**	The new fiscal package passed as the CARES Act, and signed by President Trump on 27 March, amounts to slightly over $2trn. To support household incomes, the two key components are i) a tax rebate of $1200 for all U.S. residents income below $75k, ($150k married), phased out for higher earners; ii) additional unemployment insurance of $600 per week for up to 16 weeks. State and local authorities will receive $150bn of additional resources, while $340bn of direct spending will be provided to various federal agencies.	To improve liquidity and functioning in asset markets, the Fed has rolled out its full suit of credit facilities. The Commercial Paper Funding Facility, the Primary Dealer Credit Facility, the Money Market Mutual Fund Facility all address market dislocations and provide several trillion USD of liquidity to these markets. The Fed introduced massive repo operations at extended terms - with 1- and 3-month tranches. On 13 April, the NY Fed announced that from 4 May it will halve the frequency of its overnight repo operations (from 2 to 1 per day) as well as that of its 3-month repos (from every week to every two weeks). Both are up to $500bn in size. On 23 March, the FOMC announced broad credit easing measures, in addtion to unlimited QE in Treasuries and agency MBS markets. The Fed established two new facilities to support credit to large firms – the Primary Market Corporate Credit Facility (PMCCF), to finance new bond and loan issuance directly via an SPV, and the Secondary Market Corporate Credit Facility (SMCCF) to provide liquidity for secondary corporate bonds.
	Travel restrictions in place for foreign nationals from the EU, the UK, China and Iran. On March 19, the State Department issued a Travel Advisory telling its citizens to avoid all international travel.The US has limited land border crossings from Canada and Mexico to "essential travel". **The closure of the US-Canada border to non-essential travel was extended by a further 30 days on 18 April.**	To support companies, the Act will first provide close to $50bn of loans to airlines and critical defense industries. Second, $349bn will be directed to make loans to SMEs that meet certain requirements, in particular maintaining employment at 90% plus of pre-Covid shock level. Third, to support large corporates, the Treasury is providing $454bn of support, effectively as an equity investment to backstop several of the Fed's lending facilities. Firms will also benefit from a suite of mostly temporary tax provisions. Deferral of employer payroll tax payments through year end should further free up $350bn of liquidity near term. **What to expect? More easing is likely, with a new package of nearly $500bn, including a $300bn top up of the Payroll Protection Program to support SMEs, being negotiated this week. Steps could expand into broader strategic goals such as national infrastructure. We assume that the next phase of fiscal stimulus will amount to another $1tn in 2020-21.**	A third facility, the Term Asset-Backed Securities Loan Facility (TALF), will enable the issuance of ABS backed by a broader range of underlying assets including student loans, auto loans, credit card loans. The additional $454bn of Treasury injections to finance these facilities, unlocked by Congress "phase 3" package, could allow the Fed to inject up to $4.5trn of liquidity into credit markets. On 9 April, the Fed detailed the steps to provide $2.3trn of support via its new facilities, using just under half of the $450bn injection by the Treasury. First, the two corporate credit facilities could amount up to $750bn of purchases of eligible corporate debt (those IG rated before 22 March and also HY ETFs). Second, the Main Street Business Lending Program (MSBLP) allows the Fed to purchase up to $600bn in SME loans. Third, the newly established Municipal Liquidity Facility will offer up to $500bn of lending to states and municipalities. The Fed also filled in the details of its facility to support the Payroll Protection Program ($350bn). The Fed will retain flexibility when using the remainder of the capital given by Treasury as necessary to further support markets.

Source : Deutsche Bank

DB, April 22, 2020

Fiscal Response

Table 1.

The Effects of Pandemic-Related Legislation on the Deficit

Billions of Dollars

	2020	2021	2022	2023	Total 2020–2023	Total 2024–2030
Paycheck Protection Program and Related Provisions[a]	616	13	0	0	628	0
Enhanced Unemployment Compensation	370	71	0	0	442	0
Recovery Rebates for Individuals[b]	272	20	0	0	292	0
Direct Assistance for State and Local Governments	150	*	0	0	150	0
Other Spending Provisions[c]	359	218	101	21	700	13
Other Revenue Provisions[d]	539	253	-186	-182	425	-50
Federal Reserve's Emergency Lending Facilities	11	0	0	0	11	0
Total	**2,317**	**576**	**-85**	**-160**	**2,648**	**-37**

Sources: Congressional Budget Office; staff of the Joint Committee on Taxation.

The years shown are federal fiscal years.

Positive numbers indicate an increase in the deficit.

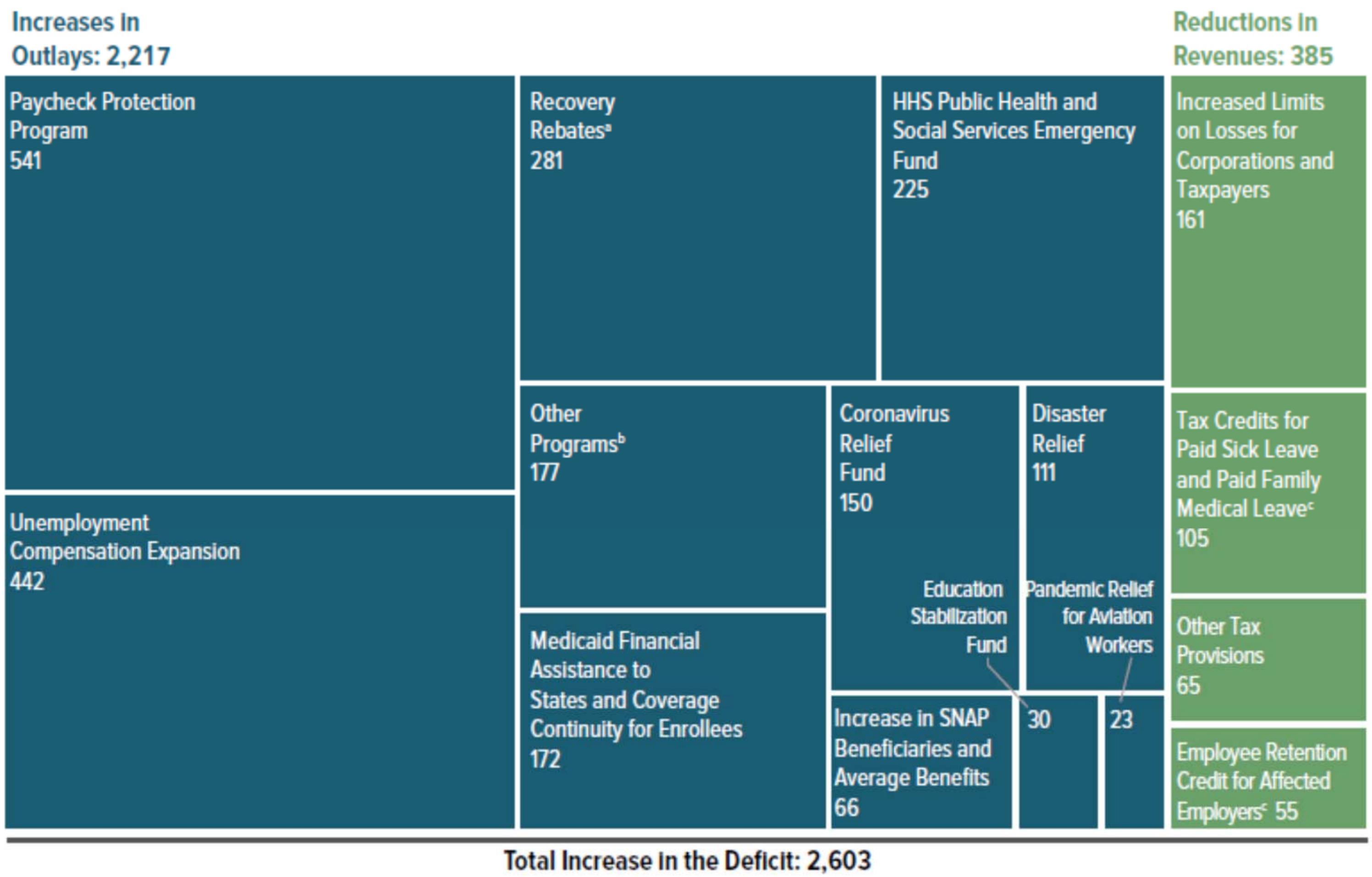
CBO, Economic Effects of Pandemic Legislation, Sept 2020
https://www.cbo.gov/system/files/2020-09/56537-pandemic-legislation.pdf

Fiscal Response

Figure A-2.

Deficit Increases Over the 2020–2030 Period From Legislation Enacted to Address the Coronavirus Pandemic, by Major Provision

Billions of Dollars



CBO, An Update to the Budget Outlook, Sept. 2020.

Fiscal Response

Table 2.

The Effects of Pandemic-Related Legislation on Real GDP

Percent

	2020				2021				Annual			
Policy	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**2020**	**2021**	**2022**	**2023**
Paycheck Protection Program and Related Provisions[a]	0	0.9	1.4	1.0	0.7	0.4	0.2	0.1	0.8	0.3	*	*
Enhanced Unemployment Compensation	0	1.1	1.8	1.5	0.8	0.5	0.3	0.1	1.1	0.4	*	*
Recovery Rebates for Individuals[b]	0	1.1	0.8	0.6	0.6	0.3	0.1	0.1	0.6	0.3	*	*
Direct Assistance for State and Local Governments	0	0.3	0.9	0.8	0.4	0.2	0.1	*	0.5	0.2	*	*
Other Spending Provisions[c]	0	1.2	2.3	1.9	1.8	1.4	1.1	0.7	1.3	1.3	0.4	0.1
Other Revenue Provisions[d]	0	0.4	0.7	0.4	0.3	0.8	0.3	0.2	0.3	0.4	-0.1	-0.1
Federal Reserve's Emergency Lending Facilities	0	*	0.2	0.3	0.4	0.3	0.2	0.2	0.1	0.3	*	*
Total	**0**	**5.0**	**8.1**	**6.4**	**5.0**	**4.0**	**2.4**	**1.3**	**4.7**	**3.1**	**0.3**	**0.1**
Memorandum:												
Real GDP Without the Effects of the Legislation												
Real GDP (Billions of 2012 dollars)	4,744	4,064	4,103	4,250	4,369	4,466	4,596	4,680	17,161	18,112	19,158	19,617
Growth since previous quarter (Percent)	-1.3	-14.3	1.0	3.6	2.8	2.2	2.9	1.8	n.a.	n.a.	n.a.	n.a.
Growth at annualized rates (Percent)	-5.0	-46.2	3.9	15.1	11.7	9.2	12.2	7.5	-10.0	5.5	5.8	2.4
Real GDP in CBO's Current Economic Forecast												
Real GDP (Billions of 2012 dollars)	4,744	4,266	4,436	4,522	4,588	4,646	4,706	4,740	17,968	18,679	19,222	19,631
Growth since previous quarter (Percent)	-1.3	-10.1	4.0	1.9	1.5	1.3	1.3	0.7	n.a.	n.a.	n.a.	n.a.
Growth at annualized rates (Percent)	-5.0	-34.6	17.0	7.9	6.0	5.1	5.3	2.9	-5.8	4.0	2.9	2.1

Source: Congressional Budget Office.

These values are presented as a percentage of an implied projection of real GDP that does not include the effects of pandemic-related legislation—a projection computed by removing the estimated effects of the legislation from CBO's July economic forecast. However, CBO did not construct a comprehensive projection of what the economy would have looked like without those legislative effects. See Congressional Budget Office, *An Update to the Economic Outlook: 2020 to 2030* (July 2020), www.cbo.gov/publication/56442.

CBO, Economic Effects of Pandemic Legislation, Sept 2020
https://www.cbo.gov/system/files/2020-09/56537-pandemic-legislation.pdf

Fiscal Response

Table 3.

The Effects of Pandemic-Related Legislation on the Deficit and on GDP, Fiscal Years 2020 to 2023

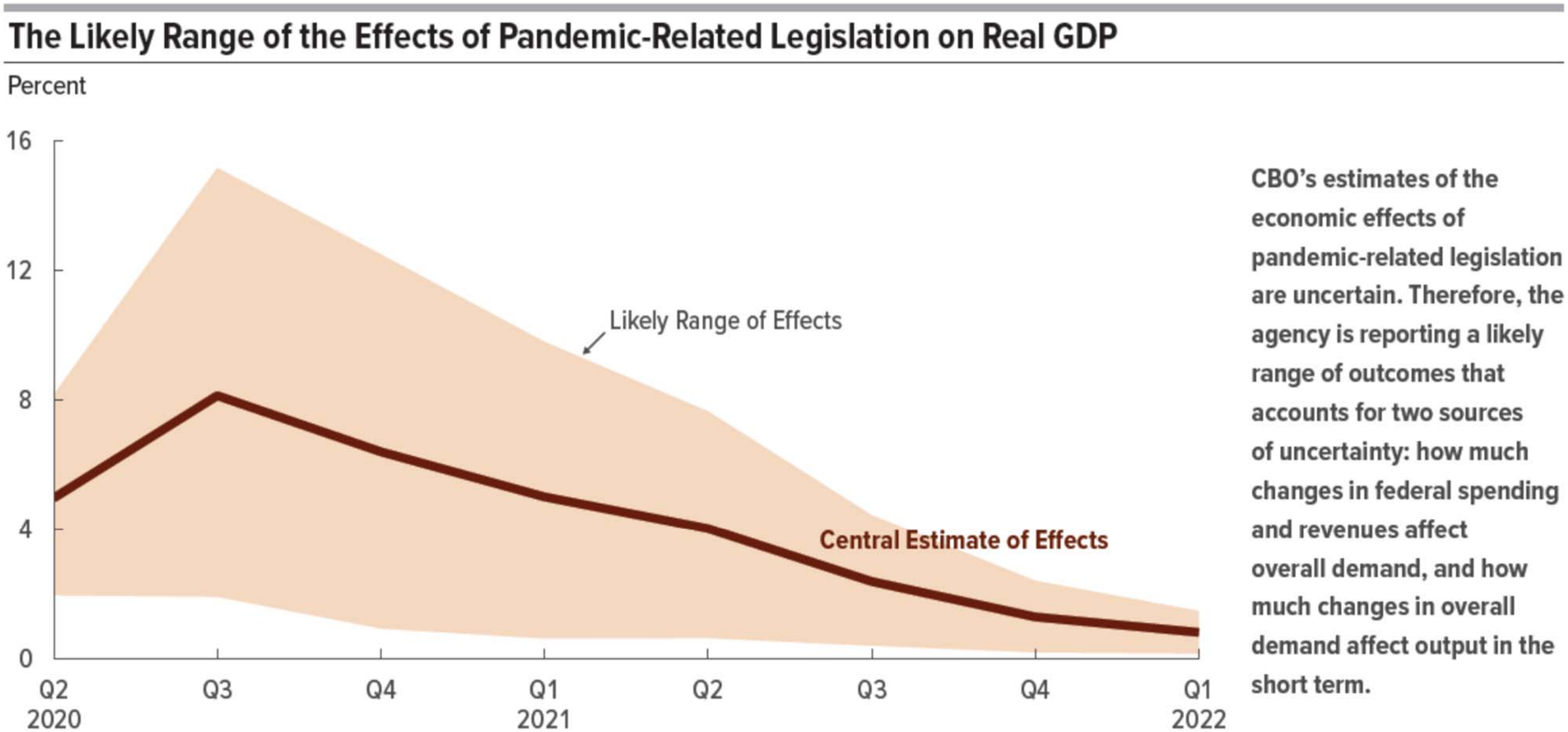
Policy	Effect on the Deficit (Billions of Dollars)[a]	Cumulative Effect on GDP (Billions of Dollars)	Cumulative Effect on GDP per Dollar of Effect on the Deficit (Dollars)
Paycheck Protection Program and Related Provisions[b]	628	231	0.37
Enhanced Unemployment Compensation	442	301	0.68
Recovery Rebates for Individuals[c]	292	177	0.61
Direct Assistance for State and Local Governments	150	133	0.89
Other Spending Provisions[d]	700	621	0.89
Other Revenue Provisions[e]	425	100	0.24
Total[f]	**2,637**	**1,564**	**0.59**

Sources: Congressional Budget Office; staff of the Joint Committee on Taxation.

CBO, Economic Effects of Pandemic Legislation, Sept 2020
https://www.cbo.gov/system/files/2020-09/56537-pandemic-legislation.pdf

Fiscal Response

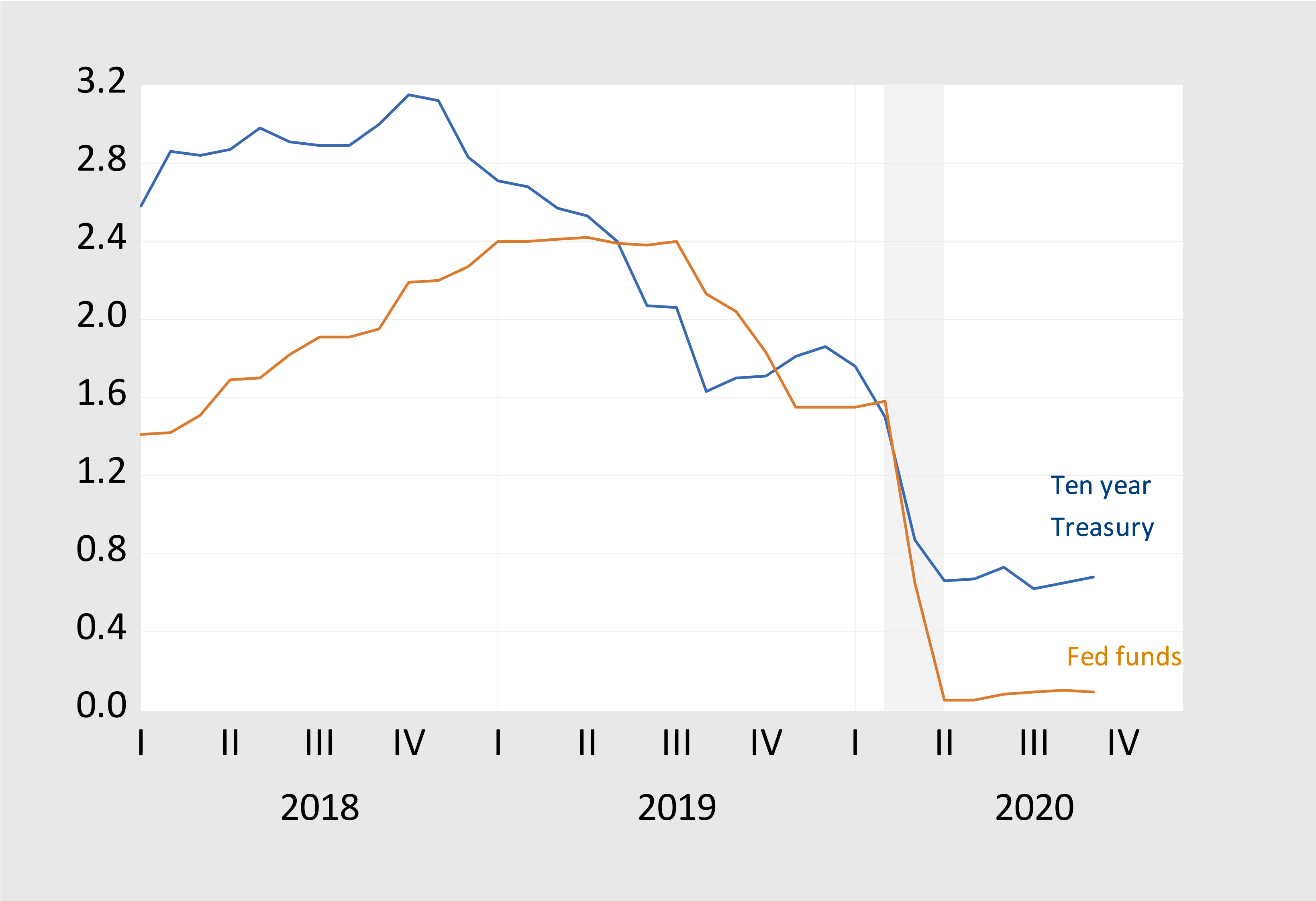
Figure 1.



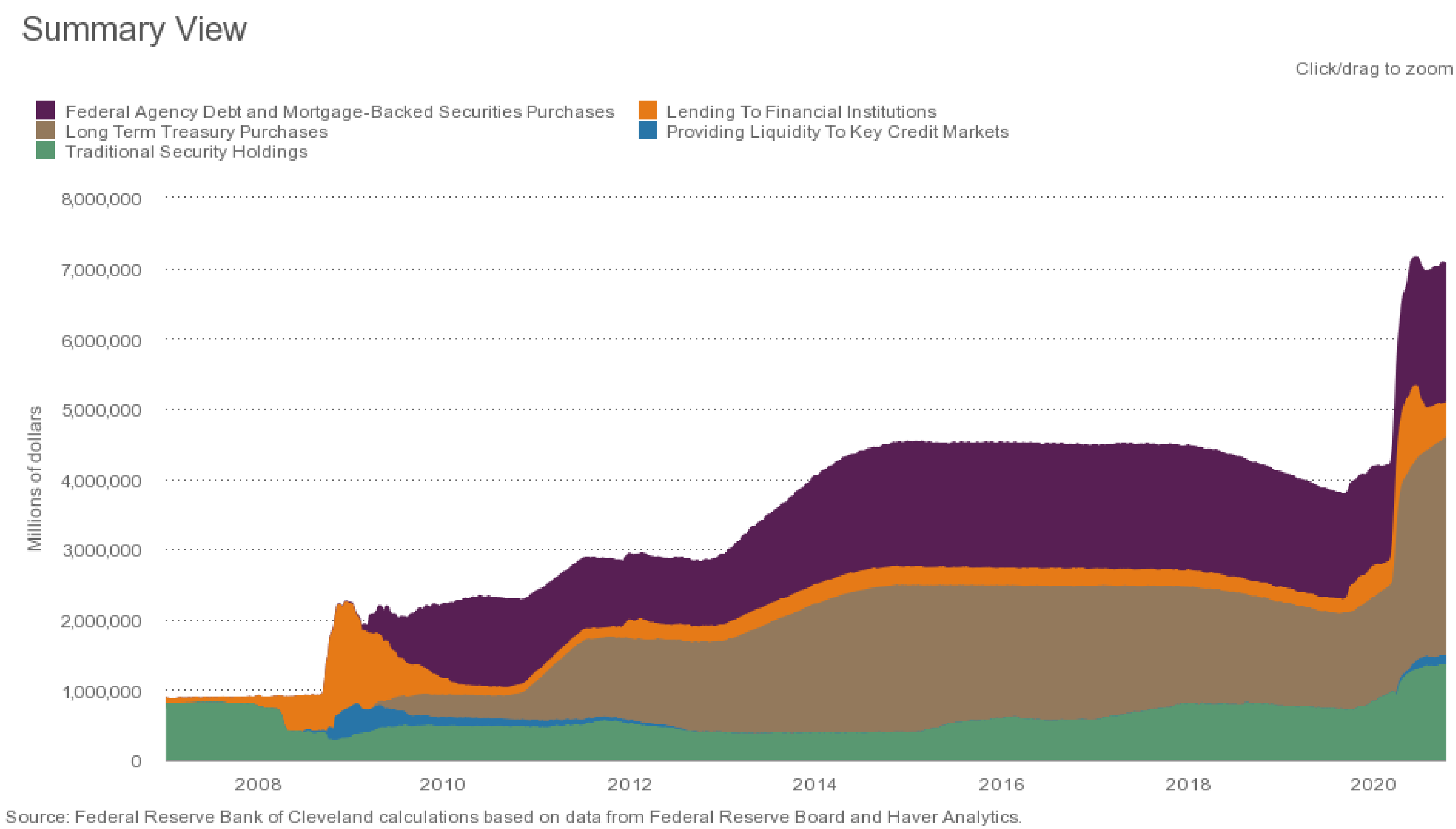
Source: Congressional Budget Office.

CBO, Economic Effects of Pandemic Legislation, Sept 2020
https://www.cbo.gov/system/files/2020-09/56537-pandemic-legislation.pdf

Monetary Response (I)



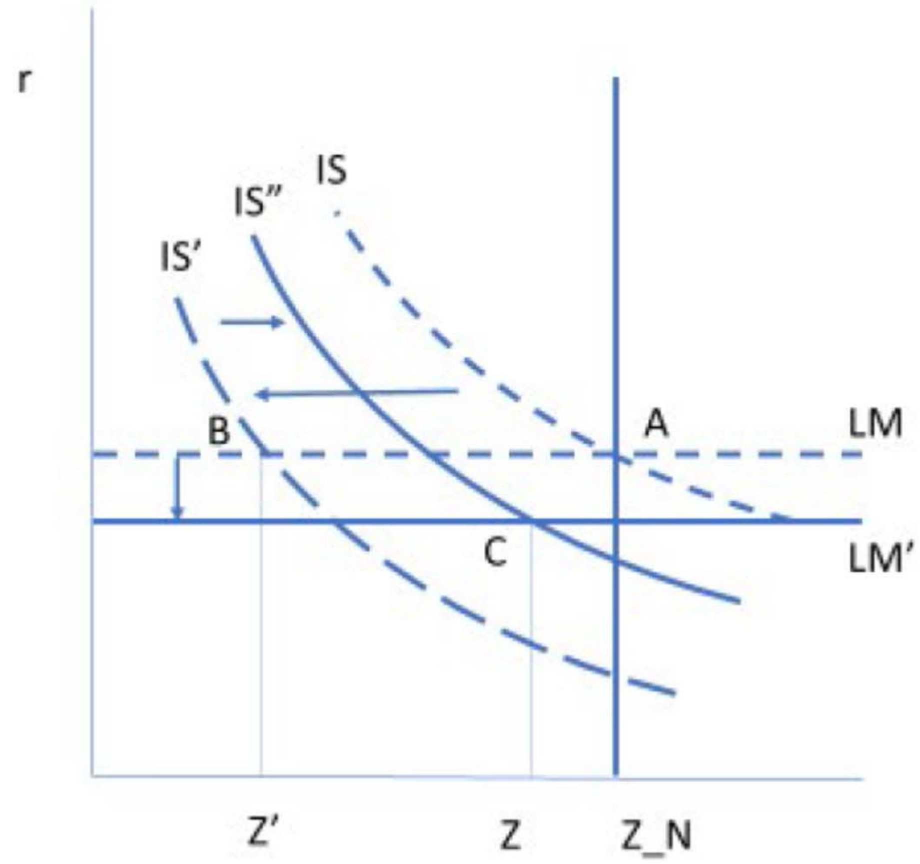
Monetary Response (II)



https://www.clevelandfed.org/en/our-research/indicators-and-data/credit-easing.aspx

Post-Lockdown, Pre-Vaccine

Figure 6. The decrease in output in the non-affected sector, given the macroeconomic policy response



Post-Lockdown, Pre-Vaccine

Table 2. Evolution of employment in different sectors

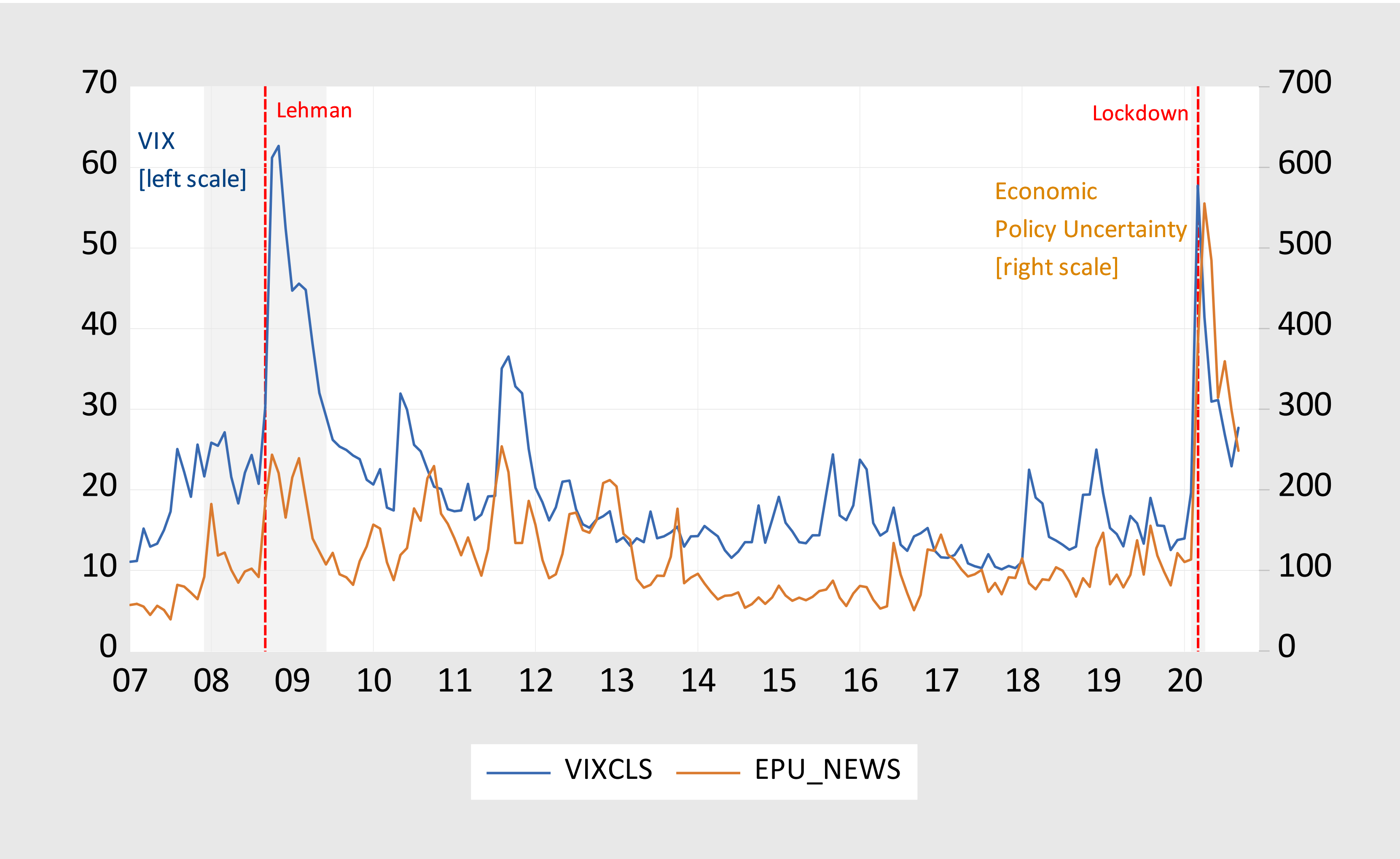
	February	April	August
Total nonfarm payrolls	**100**	**85**	**92**
Motion picture and sound recording industries	100	48	50
Performing arts and spectator sports	100	53	54
Scenic and sightseeing transportation	100	34	57
Amusements, gambling, and recreation	100	42	67
Leisure and hospitality	100	51	75
Air transportation	100	85	79
...			
Furniture and home furnishings stores	100	54	87
Electronics and appliances stores	100	90	91
Motor vehicles and parts	100	82	93
...			
Food and beverage stores	100	99	101
Building material and garden supply stores	100	97	106
Couriers and messengers	100	102	109

Recovery Thus Far

- Much of the recovery so far has been the mechanical result of firms reopening. …firms rehired some of their workers and started producing again. This mechanical effect is coming to an end.

- There is still a lot of uncertainty about the course of the infection: new drugs, vaccines... The hope was that, when the lockdown ended, countries could contain the infection to a low level. This has not happened in the US …This uncertainty is likely to weigh on consumer spending and on investment.

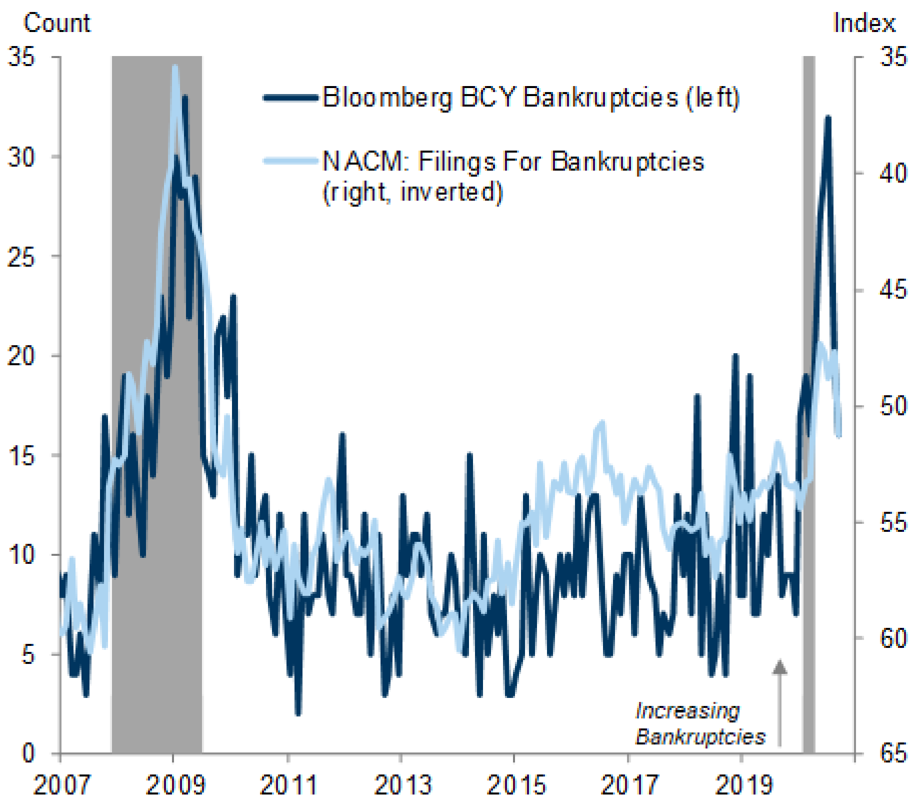
Risk and Uncertainty

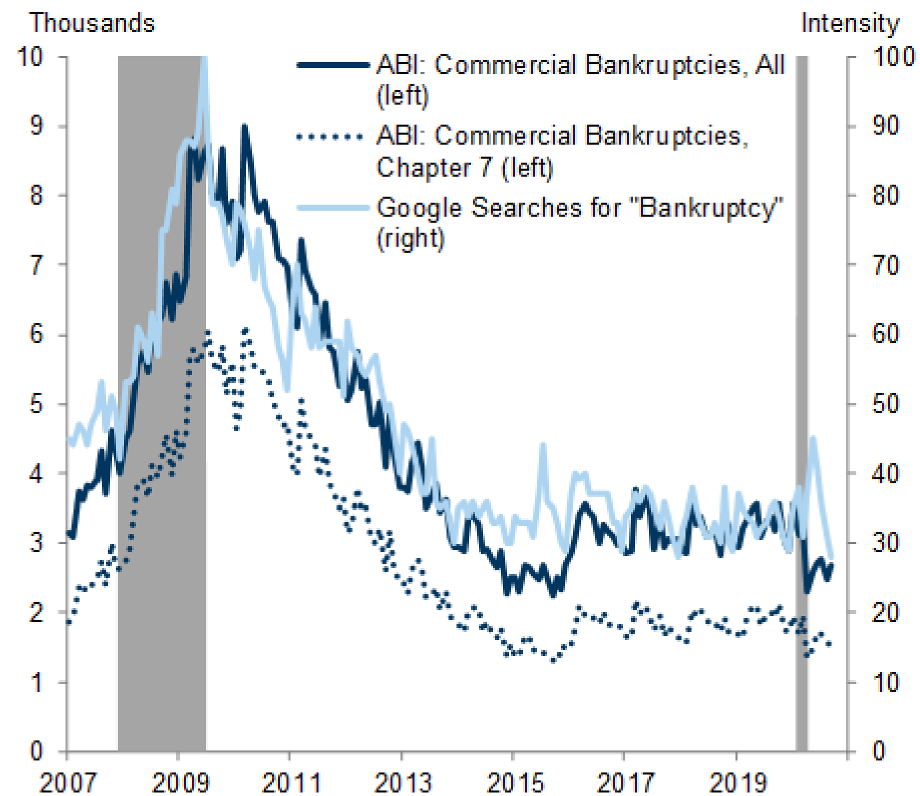


Recovery Thus Far

- Many firms that survived the lockdown by taking out loans have accumulated debt to the point where they may go bankrupt, leading to more unemployment. Many firms are realizing that they may not survive. Even if they do not go bankrupt, they are likely to be short of funds and sharply cut on investment. Many workers are realizing that they may not get their old job back…
- [This is sometimes called the scarring effect]

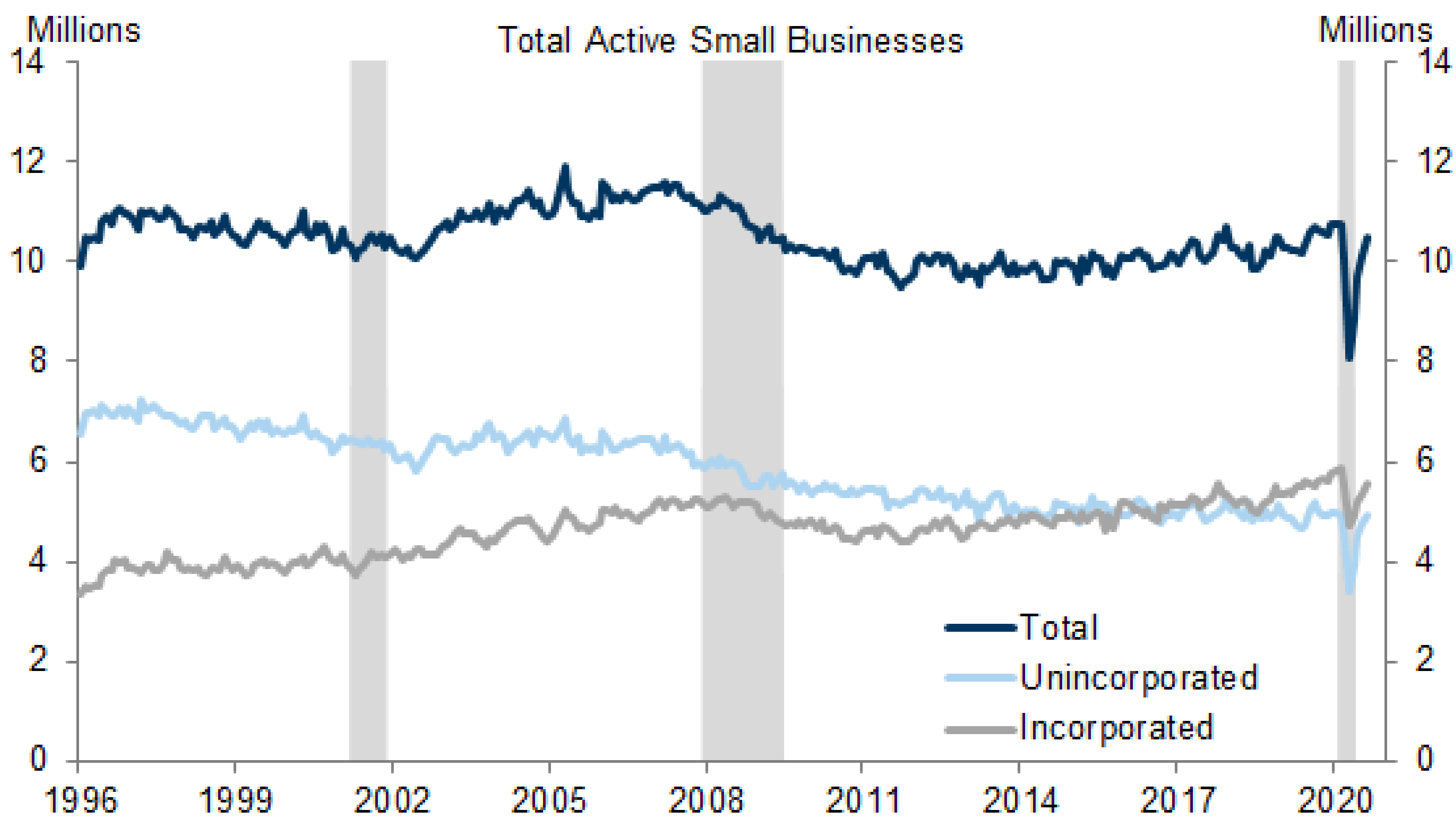
Bankruptcies



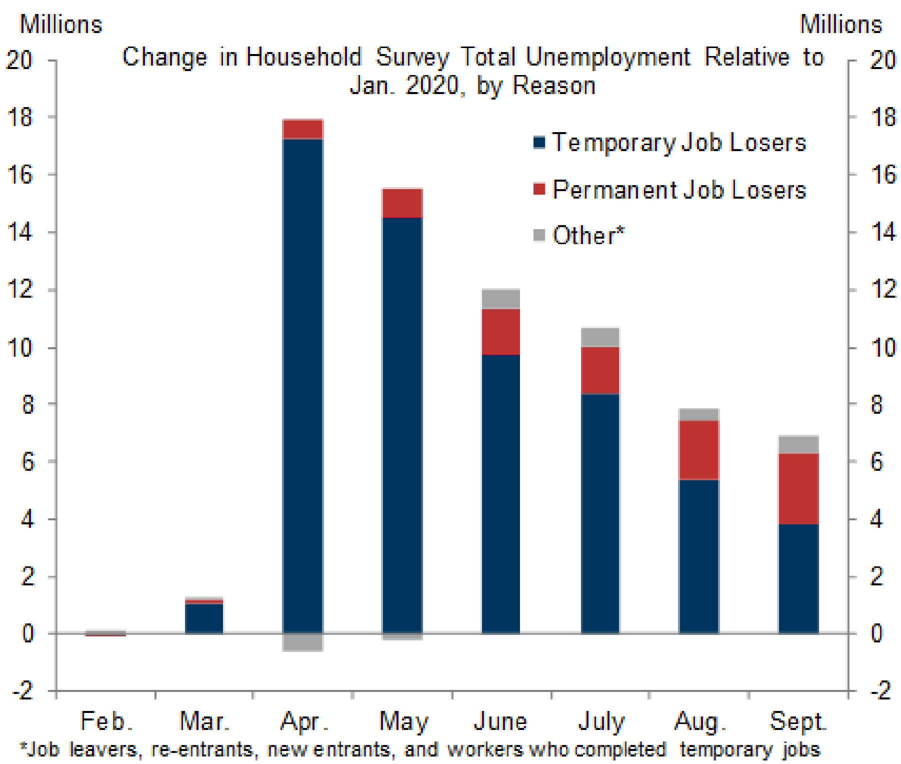


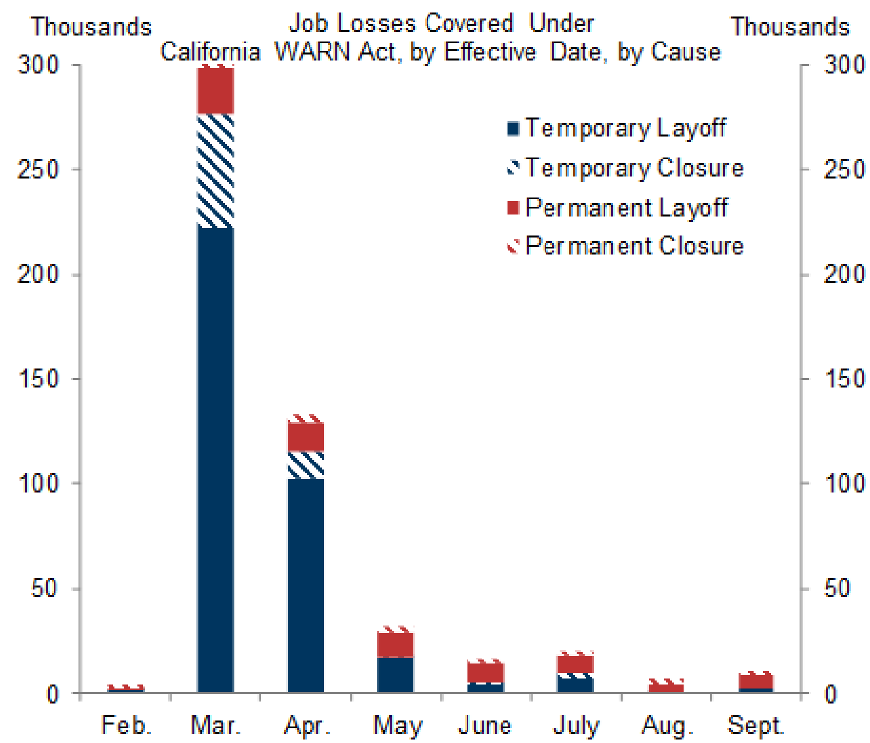
But Paycheck Protection Program staved off bankruptcies; funds now exhausted

Businesses Closing

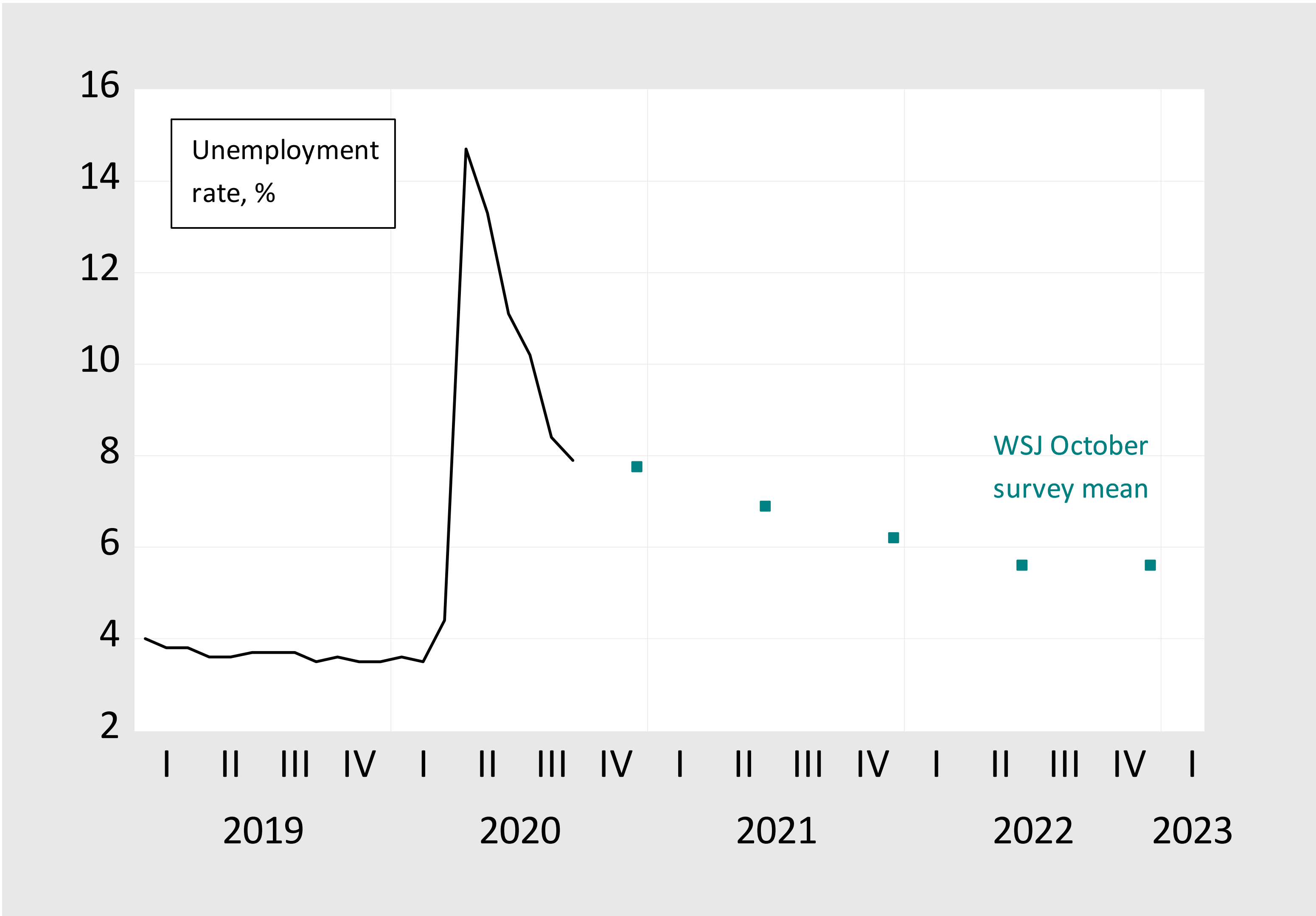


Job Losses Becoming Permanent





Unemployment Slow to Fall



Post-[Effective]Vaccine

- Reallocation of activity (telework)
- Increased government debt
- Increased central bank balance sheets