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Statement: M2/HMT/2
Exhibits: SB/001 – SB/136
Dated: 23/08/2023

THE UK COVID-19 INQUIRY

MODULE 2 CORPORATE WITNESS STATEMENT OF HIS MAJESTY'S TREASURY

FIRST WITNESS STATEMENT OF SAM BECKETT

1. I, Sam Beckett, make this statement on behalf of His Majesty's Treasury ("HM Treasury" or "the department"). My address and date of birth are known to the Inquiry.

2. I am providing this statement in response to the Inquiry's draft Rule 9 request dated 24 May 2023 ("the Rule 9 request") on behalf of the department.

3. As the Chief Economic Adviser ("CEA"), Head of the Government Economic Service and Second Permanent Secretary since May 2023, I have a variety of responsibilities within HM Treasury. I oversee the delivery of HM Treasury's work programme and support the government's objectives of promoting macroeconomic stability, as well as aiding the Permanent Secretary in the overall running of the department. Prior to this, I was Second Permanent Secretary at the Office for National Statistics ("ONS") and Deputy Chief Executive at the UK Statistics Authority from September 2020. I have also previously held roles in HM Treasury, Cabinet Office and department for Business, Energy and Industrial Strategy ("BEIS").

4. Whilst I am currently responsible for the work of the economic and fiscal groups in the Treasury, I was not working in the organisation during the pandemic. The role of the CEA during the pandemic was filled by Clare Lombardelli, who left HM Treasury in March 2023 to become the Chief Economist at the Organisation for Economic Co-operation and Development ("OECD"). I have therefore co-ordinated and liaised with a number of colleagues with the relevant knowledge and experience across the department. Their contributions have been used to respond to the questions in the Rule 9 request. My statement therefore relies upon those contributions and the document archive searches conducted by colleagues.

5. My statement should be read subject to the caveats above. I have done my best to assist the Inquiry on behalf of the department against these limitations. If further material is made available to me, I would be happy to add to or clarify this statement to take it into account.

Background to statement

6. This statement provides HM Treasury's response to the UK Covid-19 Inquiry's Rule 9 request of 24 May 2023 with respect to Module 2. This statement has been compiled in good faith and with the best efforts of HM Treasury in the time available.

7. This corporate statement covers HM Treasury's approach to economic analysis and modelling during the pandemic. This statement is intended to complement the corporate statements from Dan York-Smith ("Volume 1") and Kate Joseph ("Volume 2"), which collectively cover HM Treasury's role in response to the pandemic between January 2020 and February 2022.

Approach to discovery and disclosure

8. This statement is informed and supported by a selection of relevant materials, which are exhibited to this draft statement. Given the breadth of issues covered in this statement and the timescales for responding to the Rule 9, HM Treasury has taken the decision to exhibit the most relevant documents to assist the Inquiry's understanding of the topic.

Section 1. Introduction

1.1 Overarching summary of HM Treasury's approach to economic analysis and modelling during Covid

9. There was an extraordinarily high degree of uncertainty in all economic analysis conducted during the pandemic – whether by HM Treasury, elsewhere in government, or externally. There was limited historical precedent to draw on to assess the economic impacts of Non-Pharmaceutical Interventions ("NPIs"). The impacts of the NPIs changed over time and were dependent on the path of the virus, and how individuals and businesses adapted to the NPIs.

10. Given this high level of uncertainty, HM Treasury utilised a wide range of analytical techniques and data sources to try to understand the economic impact of the virus and support the development and calibration of health restrictions. This included making the best use of existing data from both internal and external sources, as well as working to develop new or improved sources of data.

11. In order to meet the unprecedented challenge presented by the pandemic, HM Treasury was required to adapt existing techniques and devise new approaches to inform advice to ministers. This ranged from developing a labour supply model to understand the potential economic impact of the different forms of societal restrictions, to procuring a firm-level model to assess how policy interventions might affect businesses' employment levels and the likelihood of insolvency. To support its understanding of the economic impact of the pandemic and restrictions, the department consulted experts to incorporate the latest research and methodologies; for instance, building on the Office for Budget Responsibility's ("OBR") scenario analysis to gain an understanding of how different restrictions might affect headline macroeconomic variables and the fiscal position.

12. Throughout the pandemic, HM Treasury monitored and considered the public health picture and advice, and how these interacted with decisions over the economy. The department did this in a range of ways, including building capability to model interrelated epidemiological and economic impacts (known as epi-macro modelling), and exploring the health implications in advice to ministers.

13. As is the approach generally across government, decisions on what information and analysis was shared outside the department were based on steers from ministers. However, given the unprecedented circumstances, and the demands on the department, HM Treasury officials increased the sharing of analysis and were central in helping other departments understand the economic outlook and the economic impact of government policies. For instance, the department routinely shared an economic monitor with all

government departments each week and contributed heavily to a number of cross-government reviews, as referenced later in this statement.

1.2 HM Treasury's role in providing economic policy and analysis beyond the pandemic

How HM Treasury advises the Chancellor on the direction of economic policy

14. HM Treasury's Executive Management Board ("EMB") are responsible for leading, motivating, and challenging the department, and ensuring that high quality advice is given to ministers and that the department responds to ministerial priorities. EMB are also responsible for risk management; ensuring sound internal controls; and allocating and managing resource.

15. The CEA is the primary adviser to the Chancellor on economic and fiscal issues and works to deliver the government's macroeconomic objectives, promoting sustainable economic growth and setting and implementing fiscal policy. The CEA leads HM Treasury's relationships with the Bank of England ("BoE") on monetary policy and markets, the International Monetary Fund ("IMF") and OECD on surveillance of the UK economy, the gilt investment community and the wider economics community. The CEA has oversight of analysis across HM Treasury and also manages the Economics and Fiscal Groups in HM Treasury, sits on EMB, and is head of the Government Economic Service.

16. The Economics and Fiscal Groups in HM Treasury together consist of over 150 people working to support HM Treasury's macroeconomic objectives. The Economics Group undertakes analysis that provides a timely and comprehensive view of the economy to best inform policy development. The Fiscal Group is responsible for the sustainability of public finances over the short, medium and long term and, operationally, ensures that financing needs are met. Together, these groups support the department's objectives for economic stability and growth, alongside other objectives such as increasing employment and productivity across the UK. In addition, analysts are embedded across other groups in HMT, for example sectoral analysis teams in the Enterprise and Growth Unit ("EGU") and labour market analysis teams in the Personal Tax, Welfare and Pensions Group ("PTWP").

17. Together these groups continuously assess the state of the UK economy, covering both the near-term outlook and cyclical or structural trends that might be pertinent to macroeconomic strategy and fiscal policy making. HM Treasury officials provide regular updates to the Chancellor with this assessment, which continued throughout the pandemic [SB001/INQ000236575, SB002/INQ000236576]. In advance of major fiscal events, such

as Budgets, Autumn Statements and Spending Reviews, HM Treasury combines this macroeconomic assessment with an assessment of the outlook for monetary policy. This provides a broad recommendation on the overall fiscal stance (e.g. the overall level of borrowing and debt) in order to meet the government's economic and fiscal objectives, including the fiscal rules. As the fiscal event draws closer, HM Treasury officials update this advice to the Chancellor as necessary, incorporating updated rounds of forecasts from the OBR as well as new data and analysis [SB003/INQ000236574].

18. In addition to developing and delivering the government's economic policy, the department assesses potential risks to the economic and fiscal outlook. Economic risk management forms an integral part of HM Treasury's governance, leadership, and activities. In the run-up to the pandemic, HM Treasury's risk management framework, in relation to risks to the economy, was led by the Economic Risk Group ("ERG") and the Fiscal Risk Group ("FRG"). The Risk Groups contribute to HM Treasury's risk management framework by identifying, tracking indicators, horizon-scanning, and assessing the likelihood, probable impact and potential mitigation of risks, enabling EMB and senior managers to take action where appropriate.

19. Risks from across the department are brought together in the Quarterly Performance and Risk Report ("QPRR"), by both EMB and the Treasury Board Sub-Committee ("TB(SC)"). The aim of the QPRR is to review the risks to the department's performance and delivery against its priority outcomes, by bringing the full set of HM Treasury's risks into one place for senior leadership to consider and carefully scrutinise plans that fall outside of agreed risk appetite.

20. HM Treasury also jointly chairs the Global Economic Analysis and Risk Group ("GEARG") with the Foreign, Commonwealth and Development Office ("FCDO"). The GEARG aims to improve coordination on country and cross-cutting international macro-economic analysis among key departments, helping to develop a shared view on risks and opportunities. Prior to and during the pandemic, the core members of this Group were HM Treasury, the BoE, FCDO, Cabinet Office, Department for International Trade ("DIT"), and Department for Business, Energy, and Industrial Strategy ("BEIS"), with other departments invited as needed.

21. As with all policy, HM Treasury officials' role is to advise ministers, who take decisions on behalf of the department. The positions taken by HM Treasury officials, for example, when engaging in cross-departmental negotiations, are determined by ministers. When bringing together advice and analysis for ministers, civil servants operate within the civil service

code, ensuring that all information and material is provided with integrity, and is impartial, honest and objective [SB004/INQ000226498].

How HMT shapes macroeconomic understanding internally and across government

22. As was the case during the pandemic, HM Treasury draws on a wide variety of processes and methodologies to assess the economic outlook, the impact of potential government policy, and the effects of shocks to the economy This ranges from in-depth assessments of economic theory and the latest external analysis to the department undertaking its own economic modelling.

23. In terms of modelling, one such example was HM Treasury's "nowcasting" framework. As official data on GDP is published with around a 45-day lag, the department has for several years produced internal estimates of GDP growth in closer to real time, in a process is known as "nowcasting." It involves using statistical models that exploit the past relationship between GDP and a range of faster indicators (indicators that are available closer to real-time) to produce a numerical estimate for quarterly or monthly GDP growth. This includes, but is not limited to, things like business and consumer surveys, tax receipts, retail sales, electricity and gas consumption, and temperature. The HM Treasury's nowcast framework prior to the pandemic used two models. The first was the "Industry Model," which used sector specific data to predict output for individual industries then weighted them together to produce a "bottom-up" estimate for total GDP growth. The second was the "MIDAS (Mixed Data Sampling) model", which used data at mixed frequencies to directly predict a "top-down" estimate of GDP growth for the next 6 months, making use of data on current and expected future output [SB005/INQ000236578].

24. Monitoring official statistics is typically the best way to understand the economy as they provide quality assured data of a high standard. HM Treasury relies on a wide range of data sources for the purposes of monitoring and analysing the outlook for the UK economy. The data used by HM Treasury is largely derived from the ONS and BoE but is complemented by other sources of survey data where necessary. HM Treasury has long been an important user of ONS statistics and has maintained a close stakeholder relationship with them. This has helped the ONS to better understand user priorities.

25. HM Treasury officials use their professional judgement and expertise to assess incoming data to best communicate their implications. As part of this, officials analyse the impact that these trends could have and their interactions with policy decisions. Even outside of the pandemic, this often involves analysing a significant amount of data, while operating under high levels of uncertainty. The department's collective analytical understanding is then brought together in regular conjunctural assessments for the Chancellor and EMB on

the state of the economy. These assessments elaborate on data releases by including HM Treasury analysis and interpretation of the data. Similar assessments are provided to the Prime Minister, but less frequently [SB006/INQ000236530].

26. ERG and FRG work closely together through regular meetings to ensure there is consistency across relevant policy work. The standing memberships of ERG and FRG include common attendees to ensure economic and fiscal risks are sufficiently assessed by both groups. When scanning the horizon for risks in the near to medium-term, policy leads work together to identify the biggest economic and fiscal risks to the economy and public finances and consider any compounding impacts.

How HMT works with other institutions

27. HM Treasury is a core part of a set of institutions – within and outside government – that produce economic analysis and develop and deliver economic policy. HM Treasury works closely with other departments who deliver parts of the government's overarching economic strategy, as well as with all government departments to ensure that spending plans support high quality public services and value for money for the taxpayer. HM Treasury has specific teams which lead on overseeing spending policy and advising ministers on funding decisions for each department.

28. Prior to the Covid-19 pandemic, HM Treasury engaged widely in sharing analysis. One such product produced included a weekly 'macro-monitor' [SB007/INQ000184607], which was shared across HM Treasury and with other government departments, for example BEIS. This contained a list of macroeconomic indicators with the most recent available data, accompanied by a factual summary of the data sourced from the ONS, the BoE, and other published data sources. However, it should be noted that much of HM Treasury's analysis is highly market sensitive, which can limit the degree to which HM Treasury can share across departments.

29. The OBR is the government's official independent economic and fiscal forecaster. As set out in the Budget Responsibility and National Audit Act 2011, the OBR must, on at least two occasions for each financial year, prepare economic and fiscal forecasts. The OBR's forecasts are essential inputs to the government's ongoing policymaking. In order to facilitate the production of the economic forecast, the OBR uses a large-scale macroeconomic model. The model was originally designed and developed by HM Treasury but is now jointly maintained and developed by HM Treasury and the OBR.

30. HM Treasury does not maintain or produce a regular economic forecast and has not done so since the creation of the OBR. HM Treasury does, however, collect, assess, and publish

a survey of independent forecasts for the UK economy monthly [SB008/INQ000226499]; work closely with other forecasters; undertake Nowcasting activities; and maintain its capability to produce scenario analysis. Scenario analysis is distinct from forecasts as it does not attempt to predict the most likely outcome of key macroeconomic variables. It instead provides a view of what could happen under different conditions. This type of analysis does not attempt to capture all possible ways in which the economy might evolve, nor does it attach probabilities to the scenarios considered. It instead provides a means to explore the effects of varying key assumptions within a model framework.

31. The BoE has specific statutory responsibilities for setting monetary policy, protecting and enhancing financial stability, and, subject to those, for supporting the economic policy of the government, including its objectives for growth and employment. On monetary policy, it is operationally independent from HM Treasury. The BoE publishes a quarterly Monetary Policy Report that sets out the economic analysis and inflation projections that the Monetary Policy Committee uses to make its interest rate decisions. The CEA sits on the Monetary Policy Committee as the non-voting HM Treasury representative, HM Treasury has a number of ways that it interacts with the BoE, including as a sole shareholder of the Bank and as a departmental sponsor. Both HM Treasury and the BoE have a responsibility to share information with each other, particularly on financial crisis management, for which the BoE has primary operational responsibility.

32. Internationally, HM Treasury engages with various organisations, for example, the OECD and IMF. The OECD and IMF are both organisations that aim to work with governments and policy makers on establishing evidence-based international standards and support economic policies that promote financial stability and monetary cooperation. HM Treasury's CEA leads the department's relationship with the IMF and OECD on the UK economy; specifically, this includes, for example, engaging on the UK Economy Surveillance activities (IMF Article IV and OECD Economic Survey).

1.3 HM Treasury's role in decision-making during the pandemic

33. HM Treasury contributes to Cabinet-level decision-making through the Chancellor of the Exchequer and the Chief Secretary to the Treasury. Throughout the Covid-19 pandemic, decisions on NPIs were initiated outside of HM Treasury. The Chancellor's role in relation to such decisions was to represent economic and fiscal considerations, consistent with the objectives above, and to inform and contribute to collective decision-making. The Chancellor and his officials represented these views as and when appropriate, and in the context of the public health advice and recommendations presented by the Secretary of State for Health and Social Care ("SoS DHSC") and public health advisers to support the

formulation and delivery of the government's strategy. It was ultimately the role of the Prime Minister to balance the range of objectives across the whole of the government to reach collective decisions.

34. Throughout the period addressed in this statement, HM Treasury officials provided analysis and policy advice on the Covid-19 pandemic to inform and advise the Chancellor and other HM Treasury ministers ahead of their participation in Cabinet-level decision-making fora.

35. Given the often fast-paced nature of decision-making throughout this period and because HM Treasury participated in but did not own the decision-making process for NPIs, the audit trail is imperfect and HM Treasury's actions are therefore often less thoroughly or formally documented than might usually be the case. The Chancellor and Treasury ministers would frequently request information and give steers verbally, via ministerial meetings and/or through the relevant Private Secretaries. As set out in Section 2.3, this included steers received by HM Treasury officials from the Chancellor's Office on analysis undertaken to better understand the impact of restrictions.

36. These steers also informed how HM Treasury officials represented the Chancellor's and departmental ministers' positions in formal and informal meetings. In the context of Cabinet-level decision making on Covid-19, a ministerial meeting would typically be preceded by a preparatory meeting of senior officials on the same topic. HM Treasury officials would typically be invited to attend these by the Cabinet Office secretariat. Over the course of the pandemic, official-level structures also evolved to bring together input from across government and support Cabinet-level decision-making. This is set out in further detail in HM Treasury's previous Module 2 corporate statements.

Section 2. HMT's approach to and use of analysis during the pandemic

Summary

37. Throughout the Covid-19 pandemic, HM Treasury utilised a wide range of economic techniques to inform its understanding of the impact of the pandemic and to support the development and calibration of health restrictions and used this to inform advice to ministers. As set out above, in all economic analysis conducted during this period – whether by HM Treasury, elsewhere in government, or externally – there was an extraordinarily high degree of uncertainty.

38. The Covid-19 pandemic was at its core a public health emergency, and therefore understanding the interaction between the health and economic impacts was a key priority for the department, and one that involved the use of different analytical techniques as the pandemic evolved. HM Treasury considered closely the interaction between health and the economy, using techniques that included, but were not limited to, the department's rapid development in understanding epidemiology, building its capability to model complex epidemiological and economic interactions, and focusing on the health implications of various strategies. To support its understanding the department conducted an unprecedented level of engagement with external experts.

39. The section below covers HMT's approach to economic analysis and developing its understanding of epidemiological modelling.

2.1 HM Treasury's approach to economic analysis

40. As the government's economics ministry, HM Treasury has deep knowledge of, experience in and capability to analyse the economic outlook, to ascertain how shocks might affect the economy, and to assess the impact of policy decisions taken by government. Underpinning this is officials' understanding and use of a range of analytical techniques, including modelling. However, the pandemic was an unprecedented shock, affecting the economy in ways we had not seen before in modern times, and this required the department to adapt existing techniques or to devise new approaches to inform ministers and the centre of government [SB009/INQ000184607] [SB010/INQ000184604]. As set out in Section 1, the OBR is the government's independent official economic and fiscal forecaster. Alongside the OBR's forecasts, HM Treasury undertook a wide range of economic analysis and modelling: key examples of the economic analysis HM Treasury undertook to advise ministers are set out below.

41. One such technique HM Treasury officials routinely used to assist understanding of the near-term outlook for economic growth was its 'Nowcasting' framework

[SB011/INQ000184628, SB012/INQ000184626]. This uses a range of data from bodies external to HM Treasury and a set of equations to assess changes in Gross Domestic Product in current and (a limited number of) future months. Given that the unprecedented circumstances reduced the reliability of established data sources, this framework was rapidly updated to incorporate new data sources and real time indicators after the onset of the pandemic. The results from this framework were used extensively and regularly in economic monitoring products shared with ministers. For instance, HM Treasury officials provided the then Chancellor with Nowcasts in April 2020. This real-time assessment of what was going on in the economy ensured ministers could make policy decisions with the best available information [SB013/INQ000184621].

42. Another technique HM Treasury used was the well-developed National Institute's Global Econometric Model (NiGEM). This model can be used for a number of purposes, including to assess how shocks to the economy – both internal and external – affect key macroeconomic variables. HM Treasury used the model early in the pandemic - for instance, in April 2020 HM Treasury officials used NiGEM to assess the impacts on the UK of other countries' adoption of NPIs. The results were shared with HM Treasury's then CEA on 7 May 2020 [SB014/INQ000184605]. These suggested that around a third of the economic impact of Covid-19 in the UK would be accounted for by global spillovers, predominantly through reductions in global demand in 2020. Beyond 2020, this analysis showed that global supply effects would put a persistent drag on UK activity, more than outweighing the positive impacts on the UK of the positive rebound in global demand. A summary of the results was then shared with the Chancellor and referenced in the Chancellor's 'Plan for Jobs' economic aid package, which was published on 8 July 2020 [SB015/INQ000088027].

43. Beyond modelling, HM Treasury produced scenario analysis that sought to map out how differing paths of the virus and subsequent restrictions might affect headline macroeconomic variables and the fiscal position. Such analysis built on the OBR's reference scenario analysis published on 14 April 2020. One such example of this scenario analysis, produced in May 2020, detailed how a "V-shaped" recession might differ from more protracted "U shaped" or "L-shaped" recession, and how this might affect tax receipts with subsequent pressures on public spending [SB016/INQ000184606]. This allowed the Chancellor to understand the outlook against which he might make further decisions on economic support and what medium-term challenges he might face at future fiscal events. As detailed in Section 1, this scenario analysis is different from a forecast, which the OBR are responsible for; instead, it was a stylised projection to analyse different impacts on the fiscal position.

44. In addition to its standard economic tools, HM Treasury used further techniques to analyse the economic impacts of the unprecedented policy choices faced by ministers. One such technique was a labour supply model developed rapidly in March 2020. The purpose of this model was to understand the potential economic impacts of different forms of societal restrictions that ministers were considering, including isolating individuals with suspected cases of Covid-19, enforcing household quarantines and mandating school closures. This analysis was conducted at pace ahead of the first national lockdown. The analysis drew on assessments of the direct impact of workforce absences under different NPI scenarios by the DHSC and Scientific Advisory Group for Emergencies ("SAGE") [SB017/INQ000184562]. This body of analysis supported briefing products and was incorporated into speaking notes for ministers [SB018/INQ000184563].

45. The department's economic assessments went beyond impacts at the macroeconomic level. In July 2020, the department procured a firm-level model that takes illustrative macro assumptions and converts them to micro-outputs looking at the effects on firms' solvency and employment levels [SB019/INQ000236558, SB020/INQ000236545]. The objective of using this model was to add a further dimension to HM Treasury's analysis by giving a firm-level view, and to assess how policy interventions interacted with trading conditions. For example, in September 2020, this informed a briefing to the Chancellor on the economic impacts of a potential 'circuit breaker' in relation to firms [SB021/INQ000184589].

46. Such economic modelling provided a core framework for the department to systematically consider the key economic issues associated with the pandemic, by defining and documenting assumptions to better understand interactions. The development of this capability, and its initial outputs, allowed HM Treasury to understand what parameters, such as voluntary behaviour, compliance, and immunity from infection, were particularly important to monitor and to advise on potential economic policy responses. However, economic modelling (and broader highly technical approaches) is not always suited for rapid policy design, in this case owing to us learning rapidly about the virus and how individuals behaved in response to restrictions. This was a particular issue in the department's epi-macro modelling, which is covered in more detail in the next section, where there was no established evidence to rely on to estimate the relationship between all factors. This contrasted with standard economic modelling, where the relationship between two variables (such as output and unemployment) is often well evidenced using historical data. Within the context of the pandemic, evidence did not exist for such modelling, and the relationships constantly changed, for example as firms adapted to the pandemic.

47. While modelling outputs informed HM Treasury's judgements, it was just one aspect of the department's overall economic assessment. In June 2022, the then CEA made a speech on the pandemic and economy, intended for a non-economist audience. While every speech is necessarily tailored to the individual delivering it, and to the intended audience, this speech was delivered in the then CEA's official capacity, with support from HM Treasury officials, and as such aligns with HM Treasury's approach to analysis during the pandemic. The then CEA stated, "we could have constructed and estimated economic models all day long, and they would have been wrong. What we did do was think hard and look very carefully at all the data and evidence available and we used this to form our understanding and design the policy response." This was to emphasise that it would have been misguided to rely much more heavily, or indeed entirely, on economic models, and HM Treasury's approach went beyond this in assessing all the data and evidence available [SB022/INQ00088016]. The department routinely took such an approach, for example, undertaking qualitative analysis on the outlook for the economy or the impact of policy decisions, which either complemented quantitative assessments or sought to explain impacts that could not be readily quantified [SB023/INQ000236548, SB024/INQ000236546, SB025/INQ000236547]. Such analysis drew from reviewing the available academic literature, considering evidence provided by business groups, and the latest external forecasts. These informed HM Treasury's departmental view on the potential speed of economic recovery [SB0160/INQ000184606], impacts from scarring [SB026/INQ000184611, SB027/INQ000184594], and the effect of seasonality on macroeconomic variables [SB028/INQ000236544].

48. HM Treasury adopted a responsive approach to analysis, closely influenced by what evidence officials understood could best inform decisions that ministers were considering at the time. The department considered how other developed countries were affected by the virus, monitored their policy responses to control the virus against the economic costs, and fed all these assessments into advice to the Chancellor. As the then CEA summarised in her speech on Covid and the UK Economy in June 2022, looking at the approaches that other countries were taking to manage the pandemic, enabled HM Treasury "to better compare how economic activity responded to the virus and guidance, and how economic activity responded to restrictions" [SB022/INQ000088016]. For instance, ahead of a Covid(S) meeting on 21 September 2020 regarding the continued rise of cases across England, HM Treasury's officials' briefing to the Chancellor highlighted international comparisons, including evidence of where other major advanced economics were looking to limit national economic restrictions and focus on more targeted measures [SB021/INQ000184589, SB029/INQ000184589].

2.2 Assessment of the economic and health impacts

49. The Covid pandemic was at its core a health emergency. As the then CEA outlined in her June 2022 speech, “the best thing for the economy was to control the virus.” This meant considering the health consequences of decisions taken by government alongside the economic impacts. Throughout the pandemic, HM Treasury closely considered the view of public health experts and studied the relationship between public health and the economy (and vice versa), incorporating this evidence base into policy advice to ministers.

50. The government’s knowledge of the virus and its implications for public health, much like its understanding of the impacts of restrictions on the economy, evolved over the course of the pandemic. At the start of the pandemic little was known about the virus and estimates of the potential economic impacts were extremely uncertain and very sensitive to assumptions about the severity of the outbreak. When outlining the health and epidemiological outlook HM Treasury drew from the information it had at the time: specifically, the guidance and decisions made by the Chief Medical Officer (“CMO”) and SAGE [SB030/INQ000088103].

51. As the spring continued, HM Treasury officials continued to draw from the evidence it had, from the CMO and SAGE. However, by this point it understood more about the actual impact that NPIs were having on the economy and undertook more analysis to inform the discussion about the future NPIs strategy [SB031/INQ000088052].

52. Much of the debate early in the pandemic in government was around whether the use of NPIs should be run hot versus run cold (in practice this meant understanding the impacts of incurring higher or lower levels of the virus in the population). To support this, HM Treasury officials conducted analysis in May 2020 that considered a range of scenarios that saw the virus run "hot" (with fewer restrictions) or "cold" (with more restrictions), with either strategy ending successfully or unsuccessfully. This analysis drew on the labour supply model but was complemented with consumption modelling and international comparisons on NPI stringency. As one might expect, an economy run with fewer restrictions resulted in a lower GDP impact [SB032/INQ000236555]. However, should such a strategy be unsuccessful, the analysis suggests a lockdown would need to be reimposed, thereby incurring very high economic costs. From this very initial analysis, it was clear that government needed to build its understanding of the relationship between the economy and the virus. And importantly, the best thing for the economy was to control the virus. One aspect of this was understanding epi-macro techniques.

2.3 Epi macro modelling

53. As the then CEA set out in her June 2022 speech [SB022/INQ000088016], the department developed its understanding of epi-macro techniques and its own modelling capability in order to better understand external analysis and to support ministerial decision making. This type of modelling combines epidemiological and economic relationships to estimate how characteristics of the virus and of control policies affect both transmission and economic activity. While epi-macro analysis had long been undertaken by health economists, it understandably gained prominence as the pandemic emerged and internationally renowned researchers combined macroeconomic modelling with analytical tools from epidemiology.

54. Work on developing the department's understanding and capability in epi-macro techniques began at official-level in summer 2020, led by a small unit of technical economists in the Economics Group with support from policy officials (who focussed on digesting SAGE's outputs) in the Strategy, Planning, and Budget Group. The first analytical outputs were presented to the then CEA in July 2020 [SB033/INQ000236556], consisting of emerging epi-macro literature and preliminary epi-macro modelling. The literature pointed to the interactions between health and economic outcomes, as well as the potential merits of 'smart', or increasingly targeted, NPIs. The modelling used a Susceptible-Infected-Recovered/Removed (SIR) model combined with a NiGEM model, and considered a range of potential NPI strategies.

55. The department continued its work in the summer and developed further analysis to support planning for the autumn and winter. In early August 2020, HM Treasury officials further developed their understanding of recent external research on voluntary social distancing and illustrative scenarios in its NiGEM-SIR modelling framework. Among others, this included studies conducted by Chernozhukov et al. (2020) [SB034/INQ000226500] and Goolsbee and Syverson (2020) [SB035/INQ000226501] on the impact of restrictions in the US. Overall, the outputs highlighted the sensitivity of health and economic estimates to assumptions inputted on voluntary behaviours [SB036/INQ000236560]. The empirical evidence from the US suggested that voluntary social distancing made a large contribution to the overall reduction in mobility, consumer spending and employment during the first wave of the Covid-19 pandemic in spring 2020, with estimates ranging from about 50% up to 90%. Applied to the UK context going forward, this implied a wide range of possible paths for infections and the macroeconomy.

56. Alongside this, as planning for the autumn and winter increased across government, HM Treasury officials presented analysis to the Chancellor on 18 August 2020 which sought

to illustrate the potential epidemiological and economic impacts of different strategies for managing the virus. This analysis was presented as being highly assumption-driven, with it not being possible to draw firm conclusions from its outputs. This preliminary modelling suggested that there may be a "sweet spot" achieved through an 'Advise' strategy, but that this would need to be accompanied by effective and sustained communication strategies [SB037/INQ000236542]. This strategy involved advising measures, rather than mandating them or having minimalist interventions. The modelling sought to illustrate just how sensitive health and economic outcomes were to different parameters, including the degree of voluntary social distancing, the effectiveness of and compliance with NPIs, and assumptions around immunity from infection. While results were still work in-progress, meaning that firm conclusions could not be drawn [SB038/INQ000236543], the aim was to highlight which parameters to monitor and address through policy.

57. Based upon the modelling and advice put to the Chancellor earlier in the month, HM Treasury officials also received steers from the Chancellor's office to test a series of underlying assumptions [SB038/INQ000236543]: these included different base case assumptions on R (the average number of people that one infected person would pass on the virus to); the fatality rate; and immunity. At the end of August 2020 [SB039/INQ000236557], the Chancellor received further modelling outputs based on these steers. HM Treasury officials included preliminary estimates of total excess deaths, and sensitivity analysis on each of the key health assumptions, to assist the Chancellor in understanding how the health outcomes of different options were quantified.

58. Consistent with the earlier modelling conclusions, these results set out that by keeping the effective R rate close to 1, the 'Advise' strategy was particularly sensitive to key health assumptions. Sensitivity analysis showed that the risk of a materially worse health outcome is much greater in 'Advise' than 'Mandate'. Small changes in assumptions did not always lead to a sharp spike in infections, and preliminary results also suggested that in the absence of an effective vaccine or significant improvements in treatment, the pandemic was unlikely to end in the foreseeable future, meaning that mandated or voluntary mitigation measures would need to remain in place for an extended period. Under any strategy, non-Covid-19 excess deaths were also found to be a significant driver of total deaths, though direct Covid-19 related deaths remained the most important single driver.

59. In Autumn 2020, as vaccines were approved, it was clear that mass vaccination would shift the relationship between the epidemiological and economic impacts (as confirmed by the OBR in their November 2020 forecast [SB040/INQ000114451]). To support internal understanding, the department adapted the previous epi-macro model to explore how the

vaccine rollout would interact with NPI policy to shape the path of the virus, as well as the resulting economic consequences. Early results and preliminary conclusions from this model were shared with the Chancellor on 18 December 2020 [SB041/INQ000116404]. This considered a wide range of scenarios covering different assumptions of vaccine effectiveness and considered both complete and partial lifting of restrictions once the Joint Committee on Vaccination and Immunisations ("JCVI") priority cohorts had been vaccinated. Preliminary conclusions from these early results were that vaccines would allow at least the partial removal of NPIs, but that a further wave of infections was possible as vaccine-induced immunity might not be sufficient to bring R below 1 (indicative of the virus shrinking). Results also showed that the path of the virus was highly dependent on the extent to which vaccines prevented transmission from person to person. These conclusions were supported by the publication of early vaccine modelling by the Scientific Pandemic Influenza Group on Modelling ("SPI-M"), one of the various sub-groups that made up SAGE, on 9 December [SB042/INQ000114467].

60. Given the significance of the speed of vaccine deployment, and their effectiveness in preventing hospitalisations and severe disease, the Chancellor asked HM Treasury officials to use the modelling capacity to consider different scenarios for the speed of NPI easing and how that would interact with potential changes to economic support programmes. HM Treasury officials sent the Chancellor updated modelling results on 15 January, which also considered modelling from Imperial College and the University of Warwick [SB043/INQ000113711, SB044/INQ000114448, SB045/INQ000114449].

61. HMT officials worked with the Covid-19 Taskforce ("the Taskforce") to develop what became the February 2021 Roadmap for exiting lockdown and provided input on the Taskforce's commission to SPI-M for modelling of infections and hospitalisations under different scenarios. In advice and briefing to the Chancellor on the Roadmap, officials presented a range of evidence including SPI-M modelling, alongside the economic impact of closing different sectors, incorporating sectoral Gross Value Added ("GVA") analysis to show those most adversely affected by restrictions.

62. Following the emergence of both the Kent variant (later known as Alpha) and the South African variant (later known as Beta) in late 2020, it was clear that new variants posed a major risk to the delivery of the Roadmap, with one of the four tests within the Roadmap against which progress to the next "step" of easing restrictions was considered being that *"our assessment of the risks is not fundamentally changed by new Variants of Concern"*. Following the publication of the Roadmap, the Joint Biosecurity Centre ("JBC"), which was tasked with providing real time analysis and assessment of infection outbreaks at a

community level, developed a simple Variant of Concern ("VoC") model to help understand emerging variants and their interaction with vaccination and NPIs. This was not designed to replace SPI-M modelling, which continued to be used to advise ministers, but to allow officials across government to understand how the characteristics of new variants (including transmissibility and severity) could change the path of the virus. Officials across government (including from HM Treasury) provided some analytical input to quality assure the model, and feedback on which features would be most useful for policy makers. HM Treasury officials, amongst others, had the ability to use this model following the quality assurance process.

63. In the course of spring 2021, this JBC model was used to produce illustrative scenarios (sent by HM Treasury officials to the Chancellor on 6 May 2021), to demonstrate how modelling could help officials across government to understand how the characteristics of new variants could change the path of the virus, and to show how the risk posed by variants was highly sensitive to assumptions on vaccine efficacy and transmissibility. It was not used to advise on any policy decisions [SB046/**INQ000113735**; SB047/**INQ000113736**] The modelling focused on Beta (then known as the South African variant), as this had been widely assessed to be a risk, and there was more data available on vaccine effectiveness. The slides also flagged the risk posed by the Delta variant (then known as the Indian variant).

64. In December 2021, as the Omicron variant emerged, HM Treasury officials again used the JBC model to understand the range of potential outcomes for infections, hospitalisations and deaths. Provisional conclusions were sent to the Chancellor to support assessment of what policy action may be needed to avoid overwhelming the NHS. [SB048/INQ000116431]. As set out in the briefing, there was huge uncertainty around the characteristics of Omicron and the analysis was therefore very preliminary. Subsequent briefings for the Chancellor used SPI-M modelling, as soon as this was available.

65. Overall, the epi-macro work, including HM Treasury's own modelling, helped to reinforce useful broad insights. These included that there would be a significant economic cost arising from an uncontrolled virus, and that targeted NPIs, subject to their design, would be the most effective approach in minimising economic impacts. However, epi-macro modelling, because of the high uncertainties, could not be used for more granular decisions – such as which specific NPIs should be implemented, and in what geographies, as the virus spread. It therefore could not replace the very challenging judgements that ministers needed to make – for example, how to balance different factors in deciding on a lockdown; within a lockdown, what to do about schools; and within schools. To overcome

this, HM Treasury worked to make sure that ministers had the analysis and data needed to support their decision making. As the pandemic progressed, the department was also able to use backward looking information, such as what the impact was the last time that restriction had been used [SB023/INQ000236548]. This approach was deliberately flexible because the questions ministers faced were fluid and varied, with the evidence to base them on continually changing.

2.4 How HM Treasury sought views on analysis from outside the department

66. In developing its analytical tools for economic and epi-macro analysis, the department sought a wide range of views from credible and trusted institutions and academics from the outset and throughout the pandemic (as set out in more detail in Section 4). The level of engagement outside the department was above that which HM Treasury had typically undertaken prior to the pandemic. However, in some instances, the department was limited in what it could share due to the sensitivities of policy under consideration.

67. HM Treasury engaged widely with other departments to leverage expertise from across government and make best use of the available data. This included the cross-government assessments coordinated by Cabinet Office, including the May 2020 and February 2021 "Roadmaps" [SB049/INQ000181691, SB050/INQ000114431], as well as the November 2020 Covid-19 Winter Plan [SB051/INQ000114433] and the Autumn and Winter Plan 2021 [SB052/INQ000137065]. HM Treasury also used the analytical community across government to inform and strengthen its assessment of the economic outlook and to ensure Cabinet Office colleagues were able to draw on the latest economic analysis when synthesising information drawn from across government. For example, HM Treasury officials were an integral part of the Heads of Analysis group which was set up November 2020. This group, chaired by the Taskforce and also containing representatives from the JBC, DHSC, ONS and Government Office for Science, met on a weekly basis to align the analytical efforts across government and produce integrated analysis which took into account the health, economic and social impacts of the virus and interventions [SB053/INQ000236549, SB054/INQ000236549, SB055/INQ000236550]. An example of a product that resulted from these meetings was the development of the JBC's VoC model which is explained in more detail in para 62. HM Treasury officials also routinely worked with the Department for Transport ("DfT"), Department for Education ("DfE"), Department for Work and Pension ("DWP") and BEIS, for example synthesising the latest data available across government into regular ministerial products shared with the Chancellor [SB056/INQ000184619, SB057/INQ000184624, SB058/INQ000184627, SB059/INQ000184631].

68. As is standard practice, HM Treasury officials routinely engaged with key institutions in the macroeconomic framework, such as the OBR, to share ideas and test thinking. Open discussion took place between the department and the OBR, with the latter offering its expertise and views on the outlook for the economy beyond what it normally would do (i.e. supporting HM Treasury in the run up to a fiscal event). The department supported the OBR in engaging with wider government, by sharing official-level analysis with the OBR to support their forecasting process. For instance, in October 2020 HM Treasury officials shared a wide-ranging analysis including, but not limited to, the impact of various lockdown scenarios, HM Treasury's approach to using novel data sources, potential scarring impacts and sectoral analysis [SB060/INQ000236561, SB061/INQ000236562].

69. HM Treasury also discussed economic analysis widely with the BoE. This took the form of sessions across July and October 2020; for example, on 13 October 2020 where HM Treasury's Covid-19 Response and Economics Group presented to the Bank's Financial Policy and Monetary Policy Committees on the Covid-19 response [SB062/INQ000236559]. Another example of this was a BoE organised research away-day for the Monetary Policy Committee on epi-macro modelling on 14 July 2020, which was attended by HMT officials [SB063/INQ000236539].

70. HM Treasury continued its practice of engaging proactively with international institutions (for instance the IMF and OECD). The OECD in particular had conducted extensive work on governments' policy responses to Covid-19, including a report which evaluated the impact of Covid-19 containment measures on activity and spending [SB064/INQ000226503], and HM Treasury officials closely monitored OECD's Economic Outlook and engaged with OECD staff regarding the Economic Survey [SB065/INQ000236537].

71. HM Treasury closely engaged with work undertaken by think tanks and academics to a degree that was unprecedented. For example, HM Treasury officials, including the then CEA, met regularly with think tanks including the Resolution Foundation and Institute for Fiscal Studies (IFS)[SB066/INQ000236532]. A key part of the departments' engagement was with academics, which was facilitated by the Royal Economic Society. These involved a combination of established contacts such as Lord Stern [SB067/INQ000236538], and those at the frontier of developing novel analytical techniques, including on epi-macro analysis and strategy. This included discussions with the IFS on the inequality impacts of Covid-19 (5 May 2020), covering age, income and ethnic disparities [SB068/INQ000236568, SB069/INQ000236571]. Other topics ranged from the implications for future healthcare provision (9 April 2020) and restarting the economy (28

April 2020), to sectoral re-opening (3 June 2020) and epi-macro strategy (21 July 2020) [SB070/INQ000236570, SB071/INQ000236567].

72. For the epi-macro strategy session in July 2020, HM Treasury invited past and current directors from the Royal Economic Society, alongside academics from Imperial College London and London School of Economics to present on their latest epi-macro research. As part of this, HM Treasury officials presented their own analysis to test findings, with discussion focused on the most effective epi-macro strategies, how voluntary social distancing changed epi-macro trade-offs and the optimal epi-macro strategy under uncertainty. Academics highlighted the challenges with generalised restrictions and those NPIs that could be expected to perform well on health and economic outcomes, as well as the implications for uncertainty on NPI strategy [SB072/INQ000236540].

73. Following this initial session on epi-macro, on 25 November 2020 HMT invited academics from the University of Cambridge, the University of Chicago and Birmingham University to discuss the advances in epi-macro modelling and its possible application to policy analysis. The objective of the session was to focus more closely on modelling approaches and take stock of the latest technical thinking after the rapid increase in epi-macro research since spring 2020. Experts outlined key insights from the epi-macro modelling framework, including that voluntary social distancing could slow virus transmissions but would reduce economic activity. The discussion also highlighted the effectiveness of smarter lockdowns over harder lockdowns or 'do nothing' approaches, and the role of uncertainty in the balance between health and economic outcomes. These discussions broadly aligned with conclusions reached by HM Treasury officials.

74. HM Treasury provided advice to the Chancellor on 21 January 2021 in relation to re-establishing a Council of Economic Advisers (external expert economists), including how the Chancellor could structure this Council and a list of potential members [SB073/INQ000236554]. Whilst Council members would not be asked to produce their own papers, analysis or policy recommendations, the objectives of such a forum would be to provide the Chancellor with an independent, objective, and original perspective on economic questions, and create a forum for the discussion of the best and most cutting-edge economic research, evidence and thinking [SB074/INQ000236569]. When this forum was proposed, the Covid vaccine rollout was in its early stages and the dominant economic policy issue of the moment was how the economy could best emerge from the pandemic. Had the Council been established, in all likelihood it would have considered this issue among many others. The Chancellor agreed with the structure proposed by HM Treasury officials, however, while No.10 initially communicated the Prime Minister's interest in the

forum, their engagement on the proposals ceased in May 2021 and as such the Council was not established [SB075/INQ000236566]. The initial development of this forum came at a particularly intense time for No.10 and departments, during which the Roadmap was announced and Budget 2021 was delivered.

75. As detailed above, the Covid pandemic was at its core a health emergency. As such, it was a priority for HM Treasury officials to have a detailed understanding of the health picture and the likely path of the virus, particularly given the speed with which the public health position evolved and the interaction between that, NPIs, and the need for economic policy to evolve alongside the government's public health strategy. To support this, HM Treasury senior officials attended SAGE meetings in an observer capacity (noted in the published minutes) from March 2020 and received papers from the various sub-groups that made up SAGE such as the SPI-M, the Scientific Pandemic Influenza Group on Behaviour ("SPI-B"), and the New and Emerging Respiratory Virus Threats Advisory Group ("NERVTAG").

76. SAGE advice was used consistently to inform HM Treasury's advice to ministers throughout the pandemic; for example, HM Treasury's advice to the Chancellor in February 2020 was based on SAGE's Reasonable Worst-case Scenario, alongside DHSC health data, and identified the need to be guided by the CMO and SAGE on the trigger points for making decisions [SB007/ INQ000184607]. Similarly, SPI-M modelling was heavily relied upon when it came to HM Treasury's work on developing the February 2021 Roadmap and later as the Roadmap progressed [SB077/INQ000116407, SB078/INQ000113750]. SPI-M modelling continued to be used towards the end of 2021 to advise ministers on the implications for cases and on hospitalisations as a result of new variants [SB079/INQ000113786].

2.5 SAGE for Economics

77. One proposal that has been put forward in light of the pandemic is whether steps should have been taken to form an equivalent body to SAGE to advise government independently on economic policy [SB080/**INQ000235261**] There was public commentary at the time about the lack of an economic equivalent to SAGE, which led to some informal discussions within Whitehall [SB081/INQQ000236536], but as far as we are aware, this was never formally proposed to HM Treasury, and no advice was commissioned or sent to the Chancellor on this.

78. Whilst it would have been within HM Treasury ministerial capacity to set up an equivalent body to SAGE, HM Treasury was already liaising with a range of economic experts (as set

out throughout this statement, and below), and this additional public SAGE equivalent could also have potentially presented an additional economic risk given market sensitivities of economic data and projections. Publishing downside risks to the economy could have been self-fulfilling by creating instability in financial markets and having the effect of reducing jobs and investment.

79. In addition, when it comes to the provision of economic advice, HM Treasury already sits within a set of institutions that perform a very similar function to SAGE. SAGE exists to provide scientific and technical advice to support government decision-makers during emergencies. During the pandemic, SAGE's various sub-groups, including SPI-M, SPI-B, JBC and NERVTAG, as outlined above, also played a role in explaining public health data and producing associated modelling. This was achieved by drawing on expertise which does not exist extensively within government, with SAGE meetings attended by experts from across the scientific spectrum, including those within academia and industry.

80. To inform government decision making, HM Treasury already brings together economic data published by the ONS, the forecasts and projections prepared by the OBR, the BoE and others [SB082/INQ000226505]. Like SAGE, both the OBR and the BoE routinely engage with experts from outside of government, such as academics, to inform the delivery of its responsibilities.

81. As detailed in this statement, throughout the pandemic, HM Treasury worked closely with these institutions to inform decision-makers on the actual and potential economic impact of the pandemic. The OBR for instance published various scenarios in order to guide decision-making and HM Treasury routinely used modelling produced by other institutions to inform advice to ministers. For instance, ahead of a bilateral meeting with the Prime Minister in March 2020, the Chancellor's speaking note included extensive references to the OBR's modelling, in particular regarding the sizeable, predicted impact of NPIs on the economy [SB083/INQ000088050].

82. HM Treasury officials used the information shared at scientific committees and cross-government analytical groups (as set out in Section 2.4) to inform briefing or advice for the Chancellor and other HM Treasury ministers ahead of the cross-government ministerial decision-making meetings, as described above, and to inform internal policy development. For example, ahead of a forthcoming Roadmap review point in May 2021 the Chancellor received briefing from HM Treasury officials which included an assessment of the latest SAGE advice and briefing on prior SAGE modelling and the latest data [SB084/INQ000088057, SB085/INQ000088056].

83. HM Treasury's engagement with the scientific and economic academic community paid dividends not only in terms of influencing the analysis the department did and the policy it developed, but also in understanding the economic impact of the pandemic (and the response to it) as it progressed. That said, the department was limited during the pandemic on the extent to which it could engage externally, for example by the rapid pace of policy development and re-prioritisation, as well as the sensitivity of policy issues under discussion. However, in retrospect, HM Treasury could have benefited from a more systematic approach to external engagement. In October 2022, the Chancellor established the Economic Advisory Council, a group of leading and respected experts who meet regularly to advise the government in an independent capacity on UK and international economies and financial markets [SB086/INQ000226506]. However, unlike SAGE, members are not asked to produce papers or policy recommendations, with this group intended to be private space – without published minutes - for the free and frank exchange of views on economic policy.

Section 3. How HMT used data and analysis to support decision-making across government

Summary

84. Throughout the pandemic HM Treasury interrogated a vast amount of data to inform ministerial decisions across government. Data produced during this period – whether by statistical bodies or by private firms – was often challenging to collect or subject to an extraordinary level of uncertainty. To overcome this, HM Treasury was central in widening the scope of data sources and adopting novel approaches to best inform ministerial decisions, while working closely with other departments and external bodies. The department stepped up its sharing of analysis to other departments, including with Cabinet Office, who would then incorporate this into ministerial advice. As part of its engagement with other departments, HM Treasury contributed analysis to a wide body of publications. However, in line with the overarching government approach, it was for ministers to decide how the department shared analysis and data with other departments, as well as the publication of such analysis to a wider audience. Further, it should be noted much of HM Treasury's analysis is highly market sensitive, requiring the careful sharing of outputs.

3.1 HM Treasury's sourcing and use of data

85. Reliable, timely and relevant data is of key importance to the production of economic analysis. Wherever it could, HM Treasury made extensive use of existing official statistics being produced by the ONS. As under usual circumstances, HM Treasury continued to provide the Chancellor and Prime Minister with regular economic updates that encompassed a wide range of the ONS's latest data [SB056/INQ000184619]. This included GDP and the components of expenditure, output by industry and sector, consumer and produce price inflation, retail sales, business investment, trade, house prices, public sector finances and employment-related data (including wage growth and labour participation).

86. HM Treasury also made use of economic statistics produced by other government departments and credible external bodies. This included HMRC's flash estimates of payrolled employee numbers from April 2020, which were highly impactful within HM Treasury in providing more timely estimates of UK employment [SB087/INQ000252719].

Alongside the non-economic statistics produced by the ONS, such as the Covid-19 Infection Survey which was commissioned in April 2020 to discover the rate of Covid-19 infections in private households, these data sources were central to the analysis used to inform decision-making. For instance, the advice provided to the Chancellor on the roadmap to reopening the economy in 2021 [SB088/INQ000116418]. This was in addition to the work being undertaken by the ONS and HM Treasury to develop new and improved data sources as outlined below.

87. However, the pandemic and subsequent government response was an incredibly fast-moving event, which affected economic activity in an unprecedented manner in both speed and severity. Official statistics could not always be produced in the time required to inform decisions, because normal data collection was disrupted on account of the pandemic and associated restrictions [SB089/INQ000184621]. This required the department to seek more frequent and new sources of data [SB090/INQ000184619, SB091/INQ000184624, SB092/INQ000184627, SB093/INQ000184631].

88. HM Treasury officials worked with others across government to widen the scope of the review of data from both internal and external sources [SB094/INQ000184564, SB095/INQ000184574, SB096/INQ000184599, SB097/INQ000184609]. For instance, officials made use of data that had not previously been used to consider economic impacts, such as DfT's transport data and DfE's education data to understand levels of mobility across the UK and school attendance and absences. HM Treasury officials also drew from public source data collected by the private sector, for example, mobility data from Google on transport usage and time spent in different locations.

89. However, some impacts could not be fully assessed from existing sources. To address this, HM Treasury officials worked closely with the ONS and BoE to develop new or improved sources of data. The ONS developed a wide range of faster indicators, which were brought together alongside social indicators in regular publications on economic activity and social change real-time indicators [SB098/INQ000271314]. These included card spending data, shipping indicators, traffic activity, online job advert data, company incorporations, VAT returns data, the Options and Lifestyle survey which was adapted to cover NPI compliance, business impacts, retail footfall, restaurant reservations, and online weekly price change for selected food and drink products. In terms of business impacts, to better understand how firms were faring with the pandemic and NPIs, the ONS rapidly developed the Business Impacts of Covid-19 Survey, with government departments able to propose questions to be included in the survey [SB099/INQ000181687]. In addition, the ONS, along with HM Treasury, sourced data from private sector companies, such as card

data to support its understanding of the impact of the pandemic on consumption [SB057/INQ000184624 and SB059/INQ000184631]. Changes were also made to the Decision Maker Panel (a joint effort between the BoE, Stanford University, and the University of Nottingham) to provide insight into business expectations and uncertainty [SB100/INQ000181690].

90. Throughout the pandemic it was also a priority for HM Treasury officials to have a detailed understanding of the health picture and the likely path of the virus, particularly given the speed with which the public health position evolved and the interaction between that, NPIs, and the need for economic policy to evolve alongside the government's public health strategy. In spring 2020, the JBC was created and tasked with providing real time analysis and assessment of infection outbreaks at a community level. This supported rapid intervention before outbreaks grew. Senior HM Treasury officials routinely attended JBC meetings chaired by SoS DHSC, where the latest health data was discussed. Across government, epidemiological modelling was also a vital tool to understand the range of possible outcomes for the path of the virus.

3.2 HM Treasury's interpretation and sharing of data

91. As done prior to the pandemic, officials across HM Treasury used their professional judgement and expertise to extensively interrogate incoming data and communicate its implications. HM Treasury officials considered the impacts that the trends across data sources had, interactions with policy decisions, and what this meant for the economy, including for different sectors, households and firms. However, during the pandemic, the scale of this expanded. HM Treasury shared much of this material across government and supported other departments from the very start of the pandemic in their understanding of economic data.

92. As detailed in HM Treasury's Module 2 Volume 2 statement, senior officials routinely attended meetings with the Cabinet Office to draw together information on the progress of the virus and the impact of restrictions and behavioural changes on the economy. For example, there was a standing weekly bilateral meeting which switched to a daily rhythm in advance of major announcements taking place at senior and working levels [SB083/INQ000088050]. This was in addition to frequent ad hoc consultation, and to the range of official level meetings in support of Covid(O)s, Small Ministerial Groups ("SMGs"), etc.

93. From early on in the pandemic, HM Treasury contributed to a daily Covid-19 'sitrep' on UK preparedness which was shared across government by the Cabinet Office

[SB101/INQ000236552, SB102/INQ000232561]. These presentations were used by the Prime Minister and other ministers to inform their daily strategy meetings. For these, HM Treasury officials provided data on key economic trends each day from March 2020 through to July 2021. In addition, each week throughout the pandemic HM Treasury shared an economic monitor with other government departments and key external contacts. The purpose of these were to provide departments with a comprehensive view of the latest economic data releases and implications, supporting the collective understanding of the economy across government [SB103/INQ000184617, SB104/INQ000184618, SB105/INQ000184622, SB106/INQ000184629, SB107/INQ000184632, SB108/INQ000184633, SB109/INQ000184634]. These updates detailed the latest developments on the economy and public finances, covering several themes including GDP, inflation, and the labour market.

94. HM Treasury officials produced packs of analysis to inform HM Treasury ministers about the state of the economy, incorporating the impact of the pandemic and the actions taken in response (for example, please see exhibits [SB088/INQ000184619 – SB095/INQ000184609] referenced directly above). How this analysis and data were presented (for instance, in format and frequency) changed as the pandemic evolved and NPIs changed. For instance, as the virus first emerged in China, monitoring was focused on how the concern around the virus was affecting market and confidence indicators, as well as trade [SB110/INQ000184560, SB111/INQ000184561]. As the virus took hold in Europe and in the UK (with NPIs subsequently assessed / introduced) a broader range of data was available with which to gauge the impacts on the economy.

95. Given the unprecedented economic impacts of the pandemic and role of the Cabinet Office in coordinating the government response, HM Treasury seconded at least 10 policy and economist officials to the Cabinet Office, of which 4 were senior civil servants, to provide further expertise in integrating economic inputs into decision-making, as well as providing further strategic capabilities. This included officials joining the Civil Contingencies Secretariat, which was coordinating the government's overall response to the pandemic, to ensure that the latest economic data was being integrated into the central effort and communicated to ministers across government.

3.3 Sharing of HM Treasury's view on the economic outlook

96. A core part of understanding how the pandemic and government measures were affecting the economy was various institutions' judgement on the economic outlook in the future, often described as forecasting.

97. Throughout the pandemic, official forecasts were frequently published by established institutions. The OBR produced their regular Economic and Fiscal Outlook forecasts alongside additional scenarios (e.g., the Coronavirus Reference Scenario in April 2020 and scenarios in their July 2020 Fiscal Sustainability Report). The BoE produced forecasts as part of its Monetary Policy Reports. So too did the OECD and the IMF. Furthermore, a wide range of private sector forecasters also produced forecasts. Many of these were compiled every month by HM Treasury as part of its long-standing, monthly publication "Forecasts for the UK economy" [SB008/INQ000226499]. All of this information, when available, was synthesised, questioned, and analysed by HM Treasury officials. Assessment and synthesis of the available forecasts was shared with Cabinet Office and other departments, including through weekly monitoring products [SB112/INQ000236535].

98. While HM Treasury does not maintain or produce a regular economic forecast and has not done so since the creation of the OBR, this assessment of external bodies' forecasts was accompanied by the OBR's official economic and fiscal forecasts and regular interrogation of the latest data and outlook. At the ministerial level, HM Treasury and Cabinet Office jointly ran the Prime Minister's weekly economy update meetings (the frequency of which changed through the pandemic) [SB113/INQ000184623, SB114/INQ000184625] SB115/INQ000184630, SB116/INQ000184635]. This provided senior ministers and the wider government with a clear picture of how the economy was being affected by the virus and measures taken in response to it in as close to real time as possible.

3.4 Sharing analysis to support policy decisions

99. As part of this government-wide effort and compared to pre-pandemic, HM Treasury officials stepped up the sharing of analysis and were central in developing economic understanding with other departments. However, as always, it was important that HM Treasury carefully considered and controlled the distribution of highly market sensitive analysis across other departments.

100. How HM Treasury shared analysis changed as the relationships and structures at the centre of government changed. For instance, as the pandemic progressed, the collating and sharing of data within government improved, with HM Treasury's relationship with Cabinet Office and the UK Health Security Agency ("UKHSA") becoming increasingly collaborative, as demonstrated by the close work undertaken with the UKHSA on the Universal Testing Offer in 2021 [SB117/INQ000113764]. HM Treasury wishes to build on this and ensure that the improvements seen in collaborative working across government during the pandemic continue.

101. At the onset of the pandemic, HM Treasury fed directly (as detailed in Section 1) into meetings set up through the Cabinet Office's COBR structure. In the run up to the Prime Minister's announcement of the first social distancing measures on 16 March, HM Treasury ministers' and officials' main contributions to cross-government decision-making on public health measures were through analysis of the possible economic impacts and in particular the potential supply disruption to the UK economy of proposed health restriction measures. For example, the Cabinet Secretary requested advice from HM Treasury on the likely impact of Covid-19 on the economy and financial stability, which was submitted on 14 February 2020 [SB118/INQ000088044].

102. HM Treasury provided information rapidly to support policymakers in decision making. This often involved sharing analysis with Cabinet Office who would then incorporate this into briefing and advice. For example, HM Treasury officials contributed to Cabinet Office-coordinated work examining the societal and economic impact of a potential package of NPIs on 5 March 2020 [SB119/INQ000088046]. Alongside this, the department developed cross-government assessments for ministers on the economic impacts of the virus and restrictions, and worked closely with No.10, the Cabinet Office and economic departments (for instance, BEIS and the Department for Culture Media and Sport ("DCMS")) to formulate policy responses, some of which was included as part of published analysis as in Section 3.5.

103. Much of the economic material being drawn together for the Prime Minister and Chancellor came from a small set of officials in the Cabinet Office, No10, and HM Treasury. HM Treasury officials regularly contributed to cross-government papers requested by No.10 on the likely economic impacts, for example ahead of a discussion on further social distancing measures [SB120/INQ000184565].

104. By early June 2020, the Taskforce had been established, having grown out of the initial Cabinet Office coordination function, which allowed for more formalised sharing of analysis. HM Treasury officials continued to have close and frequent contact with the Cabinet Office through the Taskforce. They worked with the Taskforce to synthesise analysis and economic evidence and ensure that economic and fiscal considerations were included in decision-making. For example, following the 10 May 2020 announcement of a conditional, phased plan for lifting lockdown restrictions in England, HM Treasury officials contributed to Cabinet Office advice to the Prime Minister on the re-opening of non-essential retail [SB121/INQ000184571, SB122/INQ000184570].

105. Alongside this, the Taskforce was responsible for collating public health advice and recommendations from DHSC and public health authorities, as well as views and input

from other departments. For example, to inform decision making on the February 2021 Roadmap, HM Treasury officials worked with the Taskforce on a data commission to Public Health England, NHS England, the Vaccines Taskforce, ONS, CMO and GSCA. The Taskforce then used this input to produce the options that informed Cabinet-level decisions. For example, the Taskforce circulated an initial proposal to senior officials in DHSC, No10, HM Treasury and the JBC on 4 September 2020 setting out an ambition to agree a system of tiering [SB083/INQ000088050].

106. HM Treasury was also central to various Cabinet Office and No.10 reviews. This included the review of two metre social distancing guidance in June 2020, which was chaired by the No.10 Permanent Secretary and included the CSA, CMO and HM Treasury's then CEA [SB123/INQ000181693]. Further reviews announced in early 2021 covered Social Distancing, Global Travel, Covid-Status Certification and Mass Events, and were the forums for bringing together scientific and international evidence, along with consideration of the social and economic impacts. HM Treasury was particularly closely involved in the Social Distancing Review, given the widespread impact on the economy from social distancing measures [SB124/INQ000182182].

107. HM Treasury also worked closely with other government departments, beyond CO, to share economic analysis and data. Beginning in early April 2020, Charles Roxburgh – the then Second Permanent Secretary at HM Treasury – chaired a regular cross-government meeting of Permanent Secretaries and Directors-General from economic departments including BEIS, HM Revenue & Customs ("HMRC"), the Ministry for Housing, Communities and Local Government ("MHCLG"), DCMS, DIT, the Department for Environment, Food and Rural Affairs ("DEFRA"), DWP and DfE. These meetings were convened by the CO, effectively shadowing the ministerial Economic and Business Response Implementation Group that had been convened in mid-March. The formal record of the inaugural Permanent Secretaries' meeting on 8 April 2020 indicates that attendees agreed that the most productive role for meetings of this type covered four themes, including "consideration of how to deliver the best evidence base to ensure this could inform overall decisions, including getting closer to real time data and the realities of impacts on different cohorts and places" [SB125/INQ000236533].

108. Over subsequent meetings taking place through the summer, discussions considered issues including long-term economic objectives as the UK recovered from the pandemic and impacts on different sectors as they reopened, and HM Treasury-provided updates on the economic outlook [SB126/INQ000236541]. Over time, the agendas for these discussions more closely aligned with weekly meetings that the Prime Minister was taking

on the state of the UK economy. Discussions at the meetings of Permanent Secretaries received supporting papers, including analysis conducted across government where HM Treasury often produced joint papers with BEIS and Cabinet Office [SB127/INQ000236534, SB128/INQ000236577], with an aim of the meetings being to support a common view at senior official level of challenges facing the UK economy.

109. HM Treasury also regularly shared labour market data with HMRC (and vice versa) as part of its work on the Coronavirus Job Retention Scheme ("CJRS"). For example, HMRC shared management information on the characteristics of those using the scheme and HM Treasury shared analysis on the economic performance of different sectors to identify which could be most impacted by future NPIs [SB129/INQ000236572, SB130/INQ000236573]. The department also used analysis of Universal Credit declarations from DWP to inform the unemployment outlook during the pandemic.[1]

110. HM Treasury officials also worked with BEIS and UK Government Investments ("UKGI") to monitor the impact of the pandemic on the UK corporate sector and to assess individual company circumstances as required. The monitoring made extensive use of data from ONS, BoE and Companies House, feeding into a weekly dashboard produced by BEIS to track the financial health of sectors. A team within HM Treasury also created a bespoke firm-level model that used financial accounts for publicly listed and private UK companies, and modelled different pandemic scenarios and policy interventions, to understand the potential scale and path of corporate distress [SB019/INQ000236558]. Selected outputs from this model were shared with BEIS, for example when evaluating the impact of an end to the rent moratorium on company distress [SB131/INQ000236579].

111. HM Treasury was also involved in cross-Whitehall epidemiology focussed work, for example contributing to thinking on the JBC's development of a 'simple model' that supported policy work on vaccines, testing, and VoCs [SB132/INQ000236565 , SB133/INQ000236564].

3.5 HM Treasury's approach to publishing analysis

112. The government published a significant amount of analysis of the health, economic and social impacts of Covid-19 and public health measures throughout the pandemic. The

[1] Work undertaken in relation to the Coronavirus Job Retention Scheme will be covered in detail in future modules.

ultimate decision in ministerial departments on whether to publish analysis was – and continues to be - for ministers.

113. A notable early publication was the report on a review of two metre social distancing guidance on 23 June 2020 [SB121/INQ000181693]. HM Treasury officials provided detailed analysis on the economic impact of social distancing to the panel as part of this review, with this analysis later included in the final published report.

114. Further analysis followed, with HM Treasury, Cabinet Office and DHSC publishing analysis on the economic, sectoral and health impacts of tiering restrictions [SB134/INQ000236563], which was published in November 2020 [SB135/ **SB/135**

115. Additional analysis on the socio-economic impact of measures – with support from HM Treasury officials – was published in February 2021 to underpin the steps announced as part of the government's Roadmap out of lockdown [SB050/INQ000114431]. For the economy, this included the impacts on GVA and jobs in those sectors affected by restrictions over the last year, as well as information about the distribution of those impacts.

116. This analysis also underpinned much of HM Treasury's approach to the Social Distancing Review, which was established in March 2021 by the Permanent Secretary of the Covid-19 Taskforce. HM Treasury worked closely with the Taskforce on the drafting and development of economic analysis for the final Social Distancing report, which was published in July 2021 [SB122/INQ000184570].

117. The March 2021 Budget document provided detailed analysis conducted by the department on the impact that the tiering system of restrictions and lockdowns had on the economy [SB136/INQ000114447]. Alongside this, the OBR's Budget forecast provided their own assessment of how the economy would evolve under the Roadmap. In its central forecast, the OBR forecast that GDP would grow by 4.0% in 2021 and assumed some long-term scarring in the economy of around 3% of GDP.

118. All the analysis published by the government was subject to significant uncertainty as any analysis of this sort is inevitably only partial, dependent on the circumstances at the time, and imprecise, given the unprecedented and evolving nature of the situation.

119. As set out in Section 2, HM Treasury's published analysis was also supplemented by a wide range of external forecasts, most prominently from the OBR, who published a range of forecasts and scenarios which the government used to guide decision-making.

3.6 HM Treasury's continued development of analytical capabilities

120. Different health and economic contexts demand different policy responses, with the uncertain nature and transmission of economic shocks making the development of very specific response plans, for every possible contingency ahead of time, impossible. Such plans would need continuous updates as circumstances evolve and may not in practice be directly applicable when risks crystallise. This was seen during the pandemic, where the nature of the economic response depended both on the health interventions that were required, which were not known in advance and evolved continuously over time, and the evolution of the economy, which depended both on that changing health response and a wide range of other circumstances including the situation in other countries and behavioural responses.

121. Over recent years, HM Treasury has continued to develop its extensive analytical capabilities further. The range of modelling capabilities has expanded. For instance, HM Treasury has developed capability to engage with the Computable General Equilibrium ("CGE") modelling, a form of macroeconomic modelling of policy changes. CGE modelling capability began to be developed within HM Treasury before 2015, with the department part of a cross-government consortium, leading trade CGE modelling. More recently, CGE modellers in HM Treasury have supported policy advice on the transition to Net Zero.

122. To complement more traditional economic techniques, HM Treasury has also significantly expanded its data science capabilities. Data Science techniques were being used before the introduction of the central data architecture, with a number of analysts from across different groups using a range of statistical programming software to underpin their analysis. In 2019 these analysts formalised a Community of Interest on programming and data science, sharing best practice and approaches, and it was that community which led the development of the data platform. The purpose was to provide consistent access to tools, standards and best practice which would remove the barrier for more analysts to introduce these techniques into their work. That platform was live at the end of 2020, at which point it was promoted to more analysts to underpin their work. The launch of the platform represented a point where a broader set of tools were available more widely in a specialised environment. Recognising the skills needed to tackle future crisis, HM Treasury has increasingly focused on its data capabilities and in 2022 established a data science team to support this effort more systematically. HM Treasury will continue to consider how economic analysis and the use of data can be improved to support policy decision-making and enhance resilience to future shocks.

Statement of Truth

I believe that the facts stated in this witness statement are true. I understand that proceedings may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief of its truth.

Signed: Personal Data

Dated: 11 September 2023