

Economic, Energy and Carbon Footprint Impact of Australia's National Broadband Network

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Abstract

This study attempts to quantify the economic and environmental impact of the National Broadband Network (NBN) being deployed in Australia. Three key features underpin the results presented in this paper. First, the economic situation in Australia in the long run without the NBN was compared with the economic situation in Australia with the NBN. Second, nowhere in the analysis was it assumed that there is a benefit in providing broadband access *per se*. Instead, a range of new services that have well-attested economic benefits were included. Third, the study relies on a well-founded comparative static computable general equilibrium (CGE) economic model of the Australian economy to assess the effects of the NBN in the short and long run. We find that in a typical short-run year during the construction of the NBN, economic activities increase predominantly in the construction and related industries. The results suggest no net increase in domestic greenhouse gas (GHG) emissions in the short run. In a typical long-run year post NBN deployment, the continued increase in economic activity results in GHG emissions going up more significantly than during NBN deployment. Achieving a reduction in domestic GHG emissions will require appropriate policy implementation specifically targeting GHG emissions to complement the introduction of ubiquitous broadband in the form of the NBN in Australia. Subject to the cost of domestic abatement policies and purchasing overseas permits, the environmental impact of the NBN in monetary terms can be compensated by economic welfare gains if the expected bandwidth requirements of services included in this study are sufficiently large.

1 Introduction

The Australian Federal government is in the process of deploying a National Broadband Network (NBN) that will provide ubiquitous high-speed broadband to all Australians. A recent cost-benefit analysis (CBA) conducted by Robson (2014) on behalf of the Australian government focused on the economic costs and potential benefits of the NBN and found that the economic costs outweigh the economic benefits by at least 4 billion U.S. dollars¹. The benefits identified in the Robson study were based on estimates of the consumer and total surplus derived from the private “willingness to pay” for higher internet access speeds. As an enabler for new and existing services, however, the NBN is also likely to stimulate additional economic activities which were not captured by the partial equilibrium analysis conducted in the Robson study.

An important contribution to the literature on the environmental impact of information and communication technology (ICT), including broadband, was made by the authors of the Global e-Sustainability Initiative (GeSI) SMARTer 2020 report. The GeSI study investigated the environmental impact of ICT globally and identified potential changes in productivity due to the greater and more innovative use of ICT in the power, transportation, agriculture and land use, buildings, manufacturing and the consumer and service sector. The ICT abatement potential as a result of these changes is equivalent to seven times ICT direct GHG emissions. However, the SMARTer 2020 report ignored any changes in relative prices and economic activities resulting from changes of productivity. These additional activities also impact total GHG emissions.

We have estimated that the NBN’s power consumption including user equipment is approximately 1.3 Tera Watts per hour (TWh) which equates to approximately 0.32% of domestic GHG emissions.² While the NBN’s power consumption and consequential GHG emissions appears to be relatively small in the overall scheme of things, ubiquitous broadband in the form of a NBN could have a much greater impact on Australia’s economy.

Using general equilibrium analysis to take changes in relative prices into account, the study presented in this paper attempts to quantify both the economic and environmental impact of the NBN. We have looked at the current state of broadband and those services having greatest impact arising from the availability and use of high-speed broadband. Based on our assessment of the potential adoption of these services over the next decade in Australia, the resulting impact on the overall economy is then quantified through the use of computable general equilibrium (CGE) modelling. For this purpose, we have adopted The Enormous Multiregional Model (TERM) for Australia developed at the Centre of Policy Studies (CoPS).

The inputs to the policy simulation in TERM are based on key service categories that are seen as the most significant services, in terms of productivity improvements, labour force participation and changes to private household consumption, that will benefit from the availability of ubiquitous broadband. In addition to the costs and benefits derived from the case studies, we have attempted to model the incremental impact of deploying the NBN across the nation using a detailed analysis of geospatial datasets to determine network coverage and the bandwidth available with the NBN relative to the no-NBN Business As Usual (BAU). Other key inputs were the expected bandwidth

¹ Australian dollar converted to U.S. dollar using 2013 Purchasing Power Parities for GDP and related indicators (1.52) published by the Organisation for Economic Co-operation and Development (OECD).

² Inputs to the power consumption modelling of the NBN were provided by CEET and derived from publically available information.

requirements of the services and assumptions about debt-servicing repayment arising from foreign investment in the NBN. Real consumption was used as a measure of welfare and simulated changes to the activity levels of all economic sectors were used as a proxy for changes to Australia's GHG emissions relative to the BAU.

The remaining part of the paper is structured as follows. The next section presents an overview of the NBN, its key features and stated benefits. An overview of the TERM model and its database are provided in section 3. In section 4, we provide an overview of the inputs and closures developed for the short and long run policy simulations. Section 5 introduces the scenarios that the results presented in section 6 are based on. The results and possible policy implications are briefly discussed in section 7.

2 Background

The National Broadband Network was announced on 7 April 2009 by the Government at the time with the objective to create a wholesale-only, open-access communications network. Its aim is to deliver high-speed broadband and telephony services nationwide. A revised Government Corporate Plan from 6 August 2012 set out peak funding of 44 billion dollars providing 93 percent of premises with fibre-to-the-premises (FTTP) and the remaining 7 percent of premises with fixed wireless and satellite connections by 2021. However, following the Australian federal election and a change of Government in 2013, an independent assessment was undertaken as part of a strategic review (NBN Co Limited, 2013). The independent assessment found that the existing NBN plan is forecast to miss its completion date by three years and would cost 73 billion dollars to complete instead of 44 billion dollars originally proposed. Consequently, the original model was considered unfeasible and an alternative model was proposed subject to other reviews, including an independent cost-benefit analysis and review of regulation related to the availability of high-speed broadband in Australia. The December 2013 Strategic Review identified, among a number of scenarios, a potential technology mix which minimises peak funding. The so called Multi-Technology-Mix (MTM) scenario delivers 90 percent of premises with 50 Megabits per second (Mbps) data rate for transferring data from the service providers' network to the end user (download) and 25 Mbps download data rate to the remaining 10 percent of premises by 2019. With a revised statement of expectations (SoE)³ from April 2014, the Government endorsed the building of a cost-effective NBN, utilising the access technology most appropriate in each area of Australia. The access technologies that may be considered comprise the following domains:

- Gigabit Passive Optical Network (GPON) Access;
- Point to Point Fibre Access;
- Very-high-bit-rate Digital Subscriber Line (VDSL) Access;
- Hybrid fibre-coaxial (HFC) Access;
- TD-LTE Wireless Access; and
- Satellite Access.

The peak information rate (PIR) NBN wholesale services deliver is the theoretical speed that an end user was able to receive if he or she was the only active user at that time.⁴ Typically, NBN wholesale

³ The April 2014 Statement of Expectations can be retrieved from the following link (last accessed 18 February 2015): http://www.communications.gov.au/_data/assets/pdf_file/0014/221162/SOE_Shareholder_Minister_letter.pdf

⁴ NBN Co Limited, Corporate Plan 2011-2013, 17 December 2010, page 157

services provide multiple configurations with asymmetric PIRs that differ for data sent from a network service provider to an end user (download or downstream) and vice versa (upload or upstream). According to an NBN Co discussion paper, the configurations and asymmetric PIRs that are likely to be made available to retail service providers (RSPs) in the VDSL Access Domain, for example, are 50Mbps or 100Mbps downstream and 5Mbps, 10Mbps, 20Mbps, or 40Mbps upstream.⁵ Table 2.1 lists the configurations of the asymmetric PIRs provided to RSPs in the remaining NBN access domains.⁶

Table 2.1: PIR configurations of the NBN wholesale services available to RSPs

Access Domain	Downstream (PIR Mbps)	Upstream (PIR Mbps)
GPON ⁷	12	1
	25	5
	25	10
	50	20
	100	40
	250	100
	500	200
	1,000	400
HFC ⁸	12	1
	25	5
	25	10
	50	20
	100	40
TD-LTE Wireless ⁹	25	5
Satellite ¹⁰	12	1

Source: NBN Co Limited

The potential of the effective use of the NBN was described previously by the former Australian Government Department of Broadband, Communications and Digital Economy to:

- assist in overcoming the challenges posed by the physical distances people have to travel in regional Australia;
- contribute to an improvement in Australia’s productivity by giving businesses a new way of conducting business and accessing markets;
- allow for better and more efficient use of infrastructure by enabling greater opportunities for tele-working and video conferencing, thereby reducing pressure on transport infrastructure;

⁵ Grahame Lynch, Revealed: NBN Co develops proposed product set for FTTN, with diluted speed guarantees, 15 April 2014, article can be accessed under the following link (last accessed on 2 February 2015): <http://www.commsday.com/commsday-australasia/revealed-nbn-co-develops-proposed-product-set-for-fttn-with-diluted-speed-guarantees>

⁶ A previous study undertaken by the Department of Communications (2013) identified the quality of services of the broadband infrastructure available in most areas of Australia to be a national issue. The Department of Communications found that, as of December 2013, less than one-third of premises have access to peak download speeds of between 25 Mbps and 110 Mbps. Almost two-thirds of premises are in areas that have access to peak median download speeds of less than 24 Mbps, about one-third of premises have access to less than 9 Mbps, and almost than one-twelfth of premises have access to less than 4.8 Mbps over the copper network.

⁷ Peak Information rates in Megabits per second (Mbps) for best effort services available on the Fibre Access Circuit, NBN Co Limited, Corporate Plan 2011-2013, 17 December 2010, Exhibit 8.4, page 94

⁸ NBN Co Limited, NBN Co HFC Access, Draft UNI-HFC Customer Interface Specification, Draft v1.1, 17 October 2014, page 4

⁹ NBN Co Limited, Fixed Wireless Fact Sheet, page 1

¹⁰ NBN Co Limited, Fact Sheet: Satellite Support Scheme, 30 July 2014, page 3

- support alternative healthcare models which allow patients and the elderly to stay longer at home and reduce pressure on health care budgets associated with an aging population;
- support enhanced access to education and skills development opportunities; and
- allow governments to enhance service delivery models providing more convenient and more efficient services to clients.”¹¹

The NBN is deemed essential for Australia’s digital evolution to support future economic and social growth by the following:

- saving time consuming and costly travel via video conferencing;
- realising the benefits of cloud based services, providing access to customers, suppliers, staff and information at home as well as in the office, on any connected device;
- improving the online experience for customers, removing geographic barriers and growing the potential local market;
- allowing more flexible working, opening up new employment opportunities and boosting the productivity of existing staff;
- selling new products and services, exploiting new channels to market, offering services globally and improving operational efficiency; and
- working and collaborating in teams regardless of location.¹²

Furthermore, speeds available over the NBN enable households to do the following:

- achieve greater work-life balance by working from home;
- connect with people via smoother video conferencing;
- more efficient online shopping and banking;
- video streaming, entertainment on demand, online games, music and photos, access to international TV, news and sport;
- improving the education landscape by extending learning opportunities beyond the classroom; and
- make use of e-health and telehealth via quick transfer of medical images and documents, video consultations, secure sharing of records, payments and systems.¹³

3 The TERM model

The CGE model adopted for the study presented in this paper is a version of the comparative static ‘bottom-up’ CGE model TERM for Australia.¹⁴ The TERM master database includes a high degree of regional detail which assists in examining the regional impacts of policy changes that may be region-specific. Each region is treated in the model as a separate economy. The database adopted for the present study captures 24 industries, 3 primary factors and 13 regions. The aggregation of the

¹¹ Department of Broadband, Communications and the Digital Economy (DBCDE), superseded by the Department of Communications in 2013, The Role and Potential of the- National Broadband Network, 23 March 2011, page 6

¹² NBN Co. Limited website under the following link (last accessed on 25 July 2014): <http://www.nbnco.com.au/connect-home-or-business/information-for-business.html>

¹³ NBN Co. Limited website under the following link (last accessed on 25 July 2014): <http://www.nbnco.com.au/connect-home-or-business/information-for-home.html>

¹⁴ Documentation of TERM including example applications are available from the CoPS website under the following link (last accessed 15 April 2015): <http://www.copsmodels.com/term.htm#Documentation>

regions was intended to distinguish metropolitan and urban areas from regional and remote areas in Australia. Each industry is assumed to produce only one commodity.

The TERM model's equation system is similar to the equation system of other CGE models.¹⁵ Producers choose a cost-minimising combination of intermediate and primary factor inputs. The combination is subject to a production function involving primary factors (labour, land and capital) and intermediate inputs of goods and services. Intermediate inputs comprise imported and domestically-produced versions of the same good. Regional investors construct capital goods by combining investment-related goods and services (construction services and equipment). Households are assumed to maximise a utility function subject to a budget constraint. In each region, a single representative household receives and spends all income. Households receive wage income generated in a particular region. Capital income is shared between regional households and tax revenues are distributed between regions. The composition of investment and government demands is exogenous. Household demand and its composition follow the linear expenditure system.

Prices are determined via market-clearing conditions that require supply to equal demand, i.e. the amount sold to final users, such as households, government and foreign users (international exports), and intermediate users, such as firms and investors. For traded goods, the Armington¹⁶ assumption is applied resulting in the same goods produced in different countries or regions to be treated as imperfect substitutes. Import prices are assumed to be fixed. Foreign demand, i.e. exports, respond to the foreign currency price of domestic commodities. Other miscellaneous equations define summary variables such as the consumer price index, GDP and the balance of trade.

Model computations typically start from an initial solution and generate deviations away from that solution. Deviations from an initial solution are generally referred to as policy simulations. Input-output tables give a snapshot of the country's economic structure in a particular year and provide an initial solution. The initial solution and base year adopted for the present study is the financial year 2010/2011.¹⁷ It was chosen on the grounds that it would reflect the state of the economy at the beginning of the roll-out of the NBN and therefore be appropriate to investigate the economic impact of the NBN.

The base year of the database provided by the Centre of Policy Studies (CoPS) for this study refers to the financial year 2005/06. In using an input-output updating technique referred to as historical simulation, however, the macro variables including real GDP, aggregate consumption, investment, government expenditure and exports as of financial year 2010/11 were adopted. The base year in the CGE model is therefore the financial year 2010/2011. It was chosen on the grounds that it would reflect the state of the economy at the beginning of the roll-out of the NBN and therefore be appropriate to investigate the economic impact of the NBN in the short and long term.

¹⁵ A technical description of the TERM model's equation system can be found in Mark Horridge, The TERM model and its data base, General Paper No. G-219, July 2011.

¹⁶ Paul S. Armington, A Theory of Demand for Products Distinguished by Place of Production, Staff Papers - International Monetary Fund, Vol. 16, No. 1 (Mar., 1969), pp. 159-178

¹⁷ The base year of the database provided by the Centre of Policy Studies (CoPS) for this study refers to the financial year 2005/06. In using an input-output updating technique referred to as historical simulation, the macro variables including real GDP, aggregate consumption, investment, government expenditure and exports as of financial year 2010/11 were adopted.

4 Simulation design

The incremental impact of the NBN is assessed by comparing two outlooks for Australia and its regions. The first is based on the BAU in which broadband availability and quality is assumed in the mid to long term without the build of an NBN. The second scenario deviates from the first due to the construction and operation of the NBN.

The BAU scenario assumes some growth in broadband service, albeit the growth in availability and quality is much lower than that expected under the NBN. The BAU or reference scenario rests upon the following two key assumptions:

- Current ADSL-enabled exchanges and distribution areas will be upgraded to deliver ADSL2+; and
- HFC cable networks will be upgraded over time to match the capability of the HFC cable footprint area under the NBN.

We have also assumed that the number of premises served by HFC under the BAU will stay unchanged, whereas the NBN provides access to HFC for about 0.9 million additional premises, as identified in the Strategic Review¹⁸.

For estimating residential and commercial access to appropriate bandwidth we have utilised open source geographic information system (GIS) software, geospatial datasets, 2011 census data by Mesh Block¹⁹ level, counts of Australian Businesses by Statistical Area 2 level, Telstra exchange service areas, exchange building locations, and details of Telstra Wholesale's TopHat IP DSLAM Rollout. Since the different technologies proposed in the Strategic Review will cover different geographical regions across the nation (e.g. HFC is primarily deployed in urban areas), we derived different percentage coverage of each technology in different geographical regions. More importantly, we have derived the percentage coverage of bandwidth available under each technology in these geographical regions. Depending on what the required bandwidth of new services is, we were able to estimate the net effect of the NBN in every single geographical region.

Rather than assuming that there is a benefit in providing broadband access *per se*, we undertook an international literature review and identified a range of new services and new ways of working that are enabled by broadband. Only new services that have well-attested economic benefits were included. These services can be summarised as follows:

- Cloud Computing;
- Electronic Commerce;
- Online Higher Education;
- Telehealth Practice;
- Telework; and
- Entertainment.

¹⁸ NBN Co Limited, Strategic Review, 12 December 2013, exhibit 3-2, page 89

¹⁹ In the Australian Statistical Geography Standard (ASGS), the Australian Bureau of Statistics' current geographical framework, Mesh Blocks are the smallest geographic region and the smallest geographical unit for which Census data are available. For the purpose of the 2011 Census, approximately 347,000 Mesh Blocks are covering the whole of Australia without gaps or overlaps. Mesh Blocks that are overlapping Telstra exchange service areas (ESAs) boundaries were broken up increasing the number of Mesh Blocks well over 400,000. The 2011 census data was divided up in proportion to the area overlapping ESAs in square metres.

The costs and benefits associated with these services detailed in the literature review were used to derive the percentage change values (referred to as “shocks” hereafter) of selected variables in the TERM model. Table 4.1 summarises the type of benefit found in selected studies and the variables in the TERM model chosen to be shocked.

Table 4.1 Benefits of broadband enabled services and chosen shock variables

Service group	Stated benefit (Reference)	Selected (“shocked”) variable in the TERM model
Cloud Computing	Companies using public cloud services reduce ICT capital expenditure by 50% and operating expenditures by 25% (KPMG, 2008)	Technical change of all ICT related commodities used by industry and region
Electronic Commerce	Company using e-banking and e-government and the internet to receive and provide after-sales services improving firm productivity between 5% and 20% (Atrostic and Nguyen, 2006; Rincón-Aznar et al., 2006; Fornefeld et al., 2008)	Technical change of labour used by industry and region
Online Higher Education	Courses relying on machine-guided mode of instruction combined with one face-to-face meeting each week requires 67% to 75% less classroom use than traditional courses (Bowen et al., 2012)	Technical change of capital used by the Education industry by region
Telehealth Practice	Reduced health system expenditure (hospitals, medical services, pharmaceuticals, informal and formal carer costs) and intervention costs (care coordinator, equipment and data transmission) for aged care due to tele-monitoring (Access Economics, 2010) resulting in total financial benefits of 9,781 million AUD (2011 prices) annually; Annual net cost savings estimated for the United States economy due to provider-to-provider tele-consulting (Cusack et al., 2007) resulting in equivalent annual cost savings for the Australian economy of 503 million AUD (2011 prices); Benefits of patient self-management including secure, private patient communications with clinicians (Bartlett et al., 2010) resulting in benefits of estimated 465 million AUD (2011 prices) per annum; A high-tech office (micro-clinic) with two doctors, no pharmacy, no radiology, and a hi-definition video conferencing add-on to link patients to a nearby hospital for a quick consultation with a specialist if need be reducing patient cost by 50% (Capps, 2009)	Technical change of all inputs used by the Health industry by region

Service group	Stated benefit (Reference)	Selected (“shocked”) variable in the TERM model
Transport	Travel cost savings based on the estimated number of avoided car trips to health professionals worth potentially 278 million AUD (2011 prices) per annum	Subsistence demand shifter variable for Transport used by all households by region
Telework	Difference in Telework productivity, productivity (general) and performance for teleworkers and non-teleworkers between around 7% and 11% (Bentley et al., 2013); Sample costs and benefits to employers when introducing telework within the organisation (England, 2012) resulting in estimated labour productivity improvements of between 0.2% and 0.4%; More than 122,000 additional full time equivalents are willing to participate in the labour force if telework was available (Deloitte Access Economics and colmar brunton, 2012)	Technical change of labour used by industry and region; Number of people employed (aggregate employment)
Entertainment	Increase of household expenditure on online services to 1,460 AUD (2011 prices) in 2020 (Deloitte Access Economics, 2013)	Subsistence demand shifter variable for Entertainment used by all households by region

In addition to including the impact of the NBN on firms and households by region in the long run, in this study we have also taken into account the expenditure required for the NBN deployment which is detailed in this section further below. The deviations away from the initial solution in form of the TERM model database of the base year can be illustrated by the following equation:

$$\text{New solution} = (1 + \text{shock}) \times \text{Initial solution}.$$

The comparative static version of the TERM model enabled us to study the impact of the NBN in the short run during the construction phase and in the long run during the mature phase.

A typical short-run closure²⁰ is used for studying the economic impact during the construction phase of the NBN. On the expenditure side of the GDP, with private consumption, investment and government spending demand largely unaffected in the short run by definition, sudden changes to the economy will affect the balance of trade, that is, the value of exports less the value of imports. On the income side of the GDP, with capital stock and the average real wage fixed in the short term, by definition, aggregate employment and the rate of return on capital might change as a result of a policy change, or, as in this case, the relatively large investment for the construction of the NBN. Other key assumptions include regional consumption follows regional wage income and real government spending demand follows real household demand. The distribution of investment between industries can change. Investment in industry NBN Co. Services (“NBNCoSrvcs”), however, is assumed to be fixed and “shocked” in accordance with the investment in a typical year during the construction phase of the NBN. For all other industries investment is endogenous and linked to

²⁰ A closure defines, amongst other things, the variables in a CGE model that are being calculated by the equations in the model and therefore endogenous, and the variables that are fixed or constant and therefore exogenous. Which variable is exogenous and which is endogenous is partly driven by the state of the respective economy, such as labour shortage for example. The type of closure also determines what part of the economy will adjust, which enables trend analysis of policy changes in the short run versus the long run.

profits. In order to avoid the redistribution of investment from all other industries to the NBN wholesale service industry, aggregate real investment, which is assumed to be fixed in the short-run closure, is shocked by the percentage of the investment amount divided by the total investment for all industries.

A typical long-run closure is used to study the incremental benefits due to NBN enabled services. Under the selected long-run closure, GDP is assumed to be determined by changes to private and government consumption and changes to investment. Aggregate employment and the rate of return on capital are exogenous while the real wage and capital stock are explained by model equations. We also assumed in the long run that regional consumption follows regional wage income and real government spending demand follows real household demand.

Table 4.2 summarises the differences between the short and long-run closures. A complete list of variables in TERM that are assumed to be exogenous in the short run and the long run closure is provided in appendix C and D respectively.

Table 4.2 Differences between the short and long-run closures

Variable	Short-run closure	Long-run closure
Real wage	Exogenous	Endogenous
Employment	Endogenous	Exogenous
Rate of return	Endogenous	Exogenous
Capital	Exogenous	Endogenous
Private consumption	Exogenous	Endogenous
Government consumption	Exogenous	Endogenous
Aggregate investment	Exogenous	Endogenous
Industry investment (<i>NBNCoSrvcs</i>)	Exogenous	Endogenous
Trade balance	Endogenous	Exogenous

The remainder of this section describes in more detail the shocks we have derived from various sources including the ones listed in Table 4.1.

Investment and NBN deployment

For an estimate of the expenditure in the construction phase, we have assumed 8.6 billion AUD²¹ (2010 prices) is required in a typical short-run year. The region-specific shock values to investment (\$m, constant prices) were derived using the following equation.

$$\text{Shock}(x_{invitot}{}^{NBNCoSrvcs},r) = \$\text{NBN expenditure in FY2016} \times \frac{\#\text{Premises passed in FY2016}_d}{\#\text{All Premises passed in FY2016}}$$

where

$x_{invitot}{}^{NBNCoSrvcs},r$ is the investment in 'industry' "NBNCoSrvcs" providing NBN Co. wholesale goods and services in region r;

\$NBN expenditure in FY2016 is the total expenditure on NBN construction in the financial year 2016 in AUD;

#Premises passed in FY 2016_d is the number of premises passed in the financial year 2016 in region d; and

²¹ NBN Co Limited, Corporate Plan 2011-2013, 17 December 2010, page 135

#Premises passed in FY 2016 is the total number of premises passed in the financial year 2016.

The investment in the financial year 2016 is the sum of the capital and operating expenditure allocated to regions in accordance with the forecasted number of premises passed in the same year. We have assumed that foreign investors will cover the additional investment in full. To avoid the crowding out effect of investment in the remaining industries, aggregate investment needs to increase by the same amount as the total of the investment in the NBNCoSrvcs 'industry'. Aggregated investment was assumed to be fixed in the long run and the shock value for real investment was derived as follows:

$$\text{Shock}[\text{NatMacro}(\text{"RealInv"})] = \frac{\text{\$NBN expenditure in FY2016}}{\text{\$Real investment}}$$

where

NatMacro("RealInv") is real investment;

\\$NBN expenditure in FY2016 is total expenditure in the financial year ending 2016 in AUD;
and

\\$Real investment is estimated real investment in the financial year ending 2011 in AUD.

Debt-servicing repayments

In the long run, we have assumed that with the NBN in place it is necessary for Australia to have a balance of trade surplus of 4.2 billion AUD (2010 prices) more than otherwise would have been required.²² This 4.2 billion AUD can be thought of as a payment arising from foreign investment in the NBN. The payment for a fixed-rate mortgage was derived based on the long term interest rate paid on debt of 6.9% as suggested by the December 2013 Strategic Review.²³ The monthly amortized loan or mortgage payments were calculated using the following formula adopted from Kohn (1990):

$$c = \frac{rP}{1-(1+r)^{-N}} = \frac{Pr(1+r)^N}{(1+r)^N - 1}$$

where

c is the fixed monthly payment;

P is the Principal of 40.4 billion AUD;

r is the monthly interest rate equals (6.9/12)/100; and

N is number of monthly payments over 16 years equals 192 (16×12).

The calculated fixed monthly payment *c* is approximately 348 million AUD, which is about 4.2 billion AUD per annum. The appropriate shock to the balance of trade was derived using the following equation:

²² We are assuming foreign participation in the NBN is not affecting foreign ownership or loans in some other project. Alternatively, we could assume the government adopts fiscal and monetary policy consistent with a given target for external liabilities. In this case, the government adjusts its macro policies so that expenditure on NBN construction crowds out private and/or public consumption. However, this alternative assumption of zero effect on the balance of trade implies that foreign participation in the NBN has crowded out foreign participation in some other project.

²³ NBN Co Limited, Strategic Review, 12 December 2013, exhibit 2-29, page 67

$$\text{Shock}(shrBOT) = \left(\frac{X-I+12c}{GDP} - \frac{X-I}{GDP} \right) \times 100$$

where

X is exports;

I is imports;

c is the fixed monthly debt-servicing payment; and

GDP is gross domestic product.

Cloud Computing

The adoption of public cloud services in all economic sectors except the residential sector results in ICT capital savings of 50% and operating savings of 25% according to KPMG (2008). We have applied the shocks in the long-run policy simulation as technical change of all ICT related commodities used by applicable industries and region. The shock values were derived as follows:

$$\text{Shock}(bint_{S_c,i,r}) = \left(\frac{\Delta(\text{savings})\text{Cloud}_i}{\$USE_i} \times \frac{\$ICT \text{ Activity}_c}{\$All \text{ ICT}} \times \frac{\#Businesses(NBN_{hs} \& BB_{ls})_{i,r}}{\#Businesses_i} \right) \times 100$$

where

$\frac{\text{Sqm agricultural,commercial or industrial MB}(NBN_{hs} \& BB_{ls})_r}{\text{Sqm agricultural,commercial or industrial MB}_r} \times \frac{\$Revenue_{i,r}}{\$Revenue_i}$ is used as an

approximation for the term $\frac{\#Businesses(NBN_{hs} \& BB_{ls})_{i,r}}{\#Businesses_i}$;

$bint_{S_c,i,r}$ is intermediate (production) inputs augmenting technical change by commodity c , industry i and region r ;

$\Delta\$(\text{savings})\text{Cloud}_i$ is reduction in operational and capital expenditure in AUD by industry i ;

$\$USE_i$ is sum of all expenditure on intermediate (production) inputs in AUD by industry i ;

$\$ICT \text{ Activity}_c$ is ICT related output in AUD by commodity c ;

$\$All \text{ ICT}$ is sum of ICT related output in AUD;

$\#Businesses(NBN_{hs} \& BB_{ls})_{i,r}$ is number of businesses that are within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by industry i and region r ;

$\#Businesses_i$ is number of businesses by industry i ;

$\text{Sqm agricultural, commercial or industrial MB}(NBN_{hs} \& BB_{ls})_r$ is area in square metres of Mesh Blocks that are categorised as agricultural, commercial or industrial within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r ;

Sqm agricultural, commercial or industrial MB_r is area in square metres of Mesh Blocks that are categorises as agricultural, commercial or industrial by region r ;

$\$Revenue_{i,r}$ is revenue in AUD by industry i and region r ; and

$\$Revenue_i$ is revenue in AUD by industry i .

Electronic Commerce

According to Atrostic and Nguyen (2006), Rincón-Aznar et al. (2006), and Fornefeld et al. (2008), companies using e-banking, e-government and the internet to receive and provide after-sales services improve firm productivity between 5% and 20%. We have applied the shocks in the long-run policy simulation as technical change of labour used by applicable industries and region. The shock values were derived as follows:

$$\text{Shock}(\text{alab}_{o,i,r}) = \left(\frac{\Delta\$(\text{savings})eCommerce_i}{\$All\ Labour_i} \times \frac{\#Businesses(NBN_{hs} \& BB_{ls})_{i,r}}{\#Businesses_i} \right) \times 100$$

where

$\frac{\text{Sq m agricultural,commercial or industrial } MB(NBN_{hs} \& BB_{ls})_r}{\text{Sq m agricultural,commercial or industrial } MB_r} \times \frac{\$Revenue_{i,r}}{\$Revenue_i}$ is used as an approximation for the term $\frac{\#Businesses(NBN_{hs} \& BB_{ls})_{i,r}}{\text{All Businesses}}$,

$\text{alab}_{o,i,r}$ is labour-augmenting technical change by industry i and region r ;

$\Delta\$(\text{savings})eCommerce_i$ is reduction in return to labour in AUD by industry i ;

$\$All\ Labour_i$ is sum of return to labour in AUD by industry i ;

$\#Businesses(NBN_{hs} \& BB_{ls})_{i,r}$ is number of businesses within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by industry i and region r ;

$\#Businesses_i$ is number of businesses by industry i ;

Sqm agricultural, commercial or industrial $MB(NBN_{hs} \& BB_{ls})_r$ is area in square metres of Mesh Blocks that are categorises as agricultural, commercial or industrial within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r ;

Sqm agricultural, commercial or industrial MB_r is area in square metres of Mesh Blocks that are categorises as agricultural, commercial or industrial by region r ;

$\$Revenue_{i,r}$ is revenue in AUD by industry i and region r ; and

$\$Revenue_i$ is revenue in AUD by industry i .

Online Higher Education

According to Bowen et al. (2012), a hybrid course using a prototype machine-guided mode of instruction developed at Carnegie Mellon University accompanied by one face-to-face meeting each week requires 67% to 75% less classroom use than the traditional classroom-based course. We have applied the shocks in the long-run policy simulation as technical change of capital used by the Education industry by region. The shock values were derived as follows:

$$\text{Shock}(acap_{Education,r}) = \left(\frac{\Delta\$(savings)\text{Classroom}}{\$\text{Classroom}} \times \frac{\$\text{Tertiary Education}_r}{\$\text{Education}_r} \times \frac{\#\text{Students}(\text{NBN}_{hs} \& \text{BB}_{ls})_r}{\#\text{Students}_r} \right) \times$$

100

where

$$\frac{\#\text{Residents}(\text{NBN}_{hs} \& \text{BB}_{ls})_r}{\#\text{Residents}_r} \text{ is used as an approximation for the term } \frac{\#\text{Students}(\text{NBN}_{hs} \& \text{BB}_{ls})_r}{\#\text{Students}_r};$$

$acap_{Education,r}$ is capital-augmenting technical change in the Education industry by region r ;

$\Delta\$(savings)\text{Classroom}$ is reduction in expenditure on lecture space in AUD;

$\$\text{Classroom}$ is expenditure on lecture space in AUD;

$\$\text{Tertiary Education}_r$ is total state and local government operating expenses on tertiary education in AUD by region r ;

$\$\text{Education}_r$ is total state and local government operating expenses on education in AUD by region r ;

$\#\text{Students}(\text{NBN}_{hs} \& \text{BB}_{ls})_r$ is number of student within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r ;

$\#\text{Students}_r$ is number of student by region r ;

$\#\text{Residents}(\text{NBN}_{hs} \& \text{BB}_{ls})_r$ is number of persons usually resident within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r ; and

$\#\text{Residents}_r$ is number of residents by region r .

Telehealth Practice

Reduced health system and intervention costs due to telehealth for aged care were previously identified by Access Economics (2010) that might result in total financial benefits of 9,781 million AUD (2011 prices) annually. We have applied the shocks in the long-run policy simulation as technical change of all inputs used by the Community industry by region. The shock values were derived as follows:

$$\text{Shock}(\text{atot}_{\text{Community},r}) = \left(\Delta\$(\text{savings})\text{Aged Care} \times \frac{\#\text{Elderly Residents}_r}{\#\text{All Elderly Residents}} \times \frac{1}{\$\text{Community}_r} \times \frac{\#\text{Elderly Residents}(\text{NBN}_{\text{hs}} \& \text{BB}_{\text{ls}})_r}{\#\text{Elderly Residents}_r} \right) \times 100$$

where

$\text{atot}_{\text{Community},r}$ is all-input augmenting technical change in the aggregated industry group Community by region r ;

$\Delta\$(\text{savings})\text{Aged Care}$ is reduction in health system expenditure for aged care due to telehealth in AUD;

$\$\text{Community}_r$ is total sales of commodities produced by the industry group aggregate Community in AUD by region r ;

$\#\text{Elderly Residents}_r$ is number of residents of age 65 and above by region r ;

$\#\text{All Elderly Residents}$ is the sum of residents of age 65 and above; and

$\#\text{Elderly Residents}(\text{NBN}_{\text{hs}} \& \text{BB}_{\text{ls}})_r$ is number of persons of age 65 and above usually resident within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r .

Results from a study conducted by Cusack et al. (2007) suggest that nationwide adoption of provider-to-provider tele-consulting in the United States might lead to annual net cost savings that are equivalent to 503 million AUD (2011 prices) for the Australian economy. We have applied the shocks in the long-run policy simulation as technical change of all inputs used by the Community industry by region. The shock values were derived as follows:

$$\text{Shock}(\text{atot}_{\text{Community},r}) = \left(\Delta\$(\text{savings})\text{Physicians to Specialists} \times \frac{\#\text{GP Services}_r}{\#\text{All GP Services}} \times \frac{1}{\$\text{Community}_r} \times \frac{\#\text{GP Services}(\text{NBN}_{\text{hs}} \& \text{BB}_{\text{ls}})_r}{\#\text{GP Services}_r} \right) \times 100$$

where

$\text{atot}_{\text{Community},r}$ is all-input augmenting technical change in the aggregated industry group Community by region r ;

$\Delta\$(\text{savings})\text{Physicians to Specialists}$ is reduction in health system expenditure due to provider to provider tele-consulting in AUD;

$\$\text{Community}_r$ is total sales of commodities produced by the industry group aggregate Community in AUD by region r ;

$\#\text{GP Services}_r$ is number of health services provided by general practitioner (GP) by region r ;

$\#\text{All GP Services}$ is the sum of health services provided by GP; and

#GP Services(NBN_{hs} & BB_{ls}) $_r$ is number of health services provided by GP within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r .

According to estimates by Bartlett et al. (2010), benefits of patient self-management including secure, private patient communications with clinicians are approximately 900 million AUD (2010 prices) per annum. We have assumed that around half or 465 million AUD (2011 prices) of the total benefits are due to secure, private patient communications with clinicians. We have applied the shocks in the long-run policy simulation as technical change of all inputs used by the Community industry by region. The shock values were derived as follows:

$$Shock(atot_{Community,r}) = \left(\Delta\$ (\text{savings}) \text{Teleconsultation} \times \frac{\#Residents_r}{\#All\ Residents} \times \frac{1}{\$Community_r} \times \frac{\#Residents(NBN_{hs} \& BB_{ls})_r}{\#Residents_r} \right) \times 100$$

where

$atot_{Community,r}$ is all-input augmenting technical change in the aggregated industry group Community by region r ;

$\Delta\$ (\text{savings}) \text{Teleconsultation}$ is reduction in health system expenditure due to secure, private patient communications with clinicians in AUD;

$\$Community_r$ is total sales of commodities produced by the industry group aggregate Community in AUD by region r ;

$\#Residents_r$ is number of residents by region r ;

$\#All\ Residents$ is the sum of residents; and

$\#Residents(NBN_{hs} \& BB_{ls})_r$ is number of persons usually resident within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r .

Capps (2009) states that the per-member cost at a micro-clinic is roughly half that of a full Kaiser Permanente hospital in the United States. We have assumed that the availability of specialists varies across regions and that the benefits apply mainly to outer regional, remote and very remote Australia. We have applied the shocks in the long-run policy simulation as technical change of all inputs used by the Community industry by region. The shock values were derived as follows:

$$Shock(atot_{Community,r}) = \left(\frac{\Delta\$ (\text{savings per patient}) \text{micro-clinic}}{\$Remote\ health\ expenditure\ per\ patient} \times \frac{\$Acute\ care\ institutions_r}{\$Community_r} \times \frac{\#Residents(NBN_{hs} \& BB_{ls})_{Remote\ r}}{\#Residents_r} \right) \times 100$$

where

$atot_{Community,r}$ is all-input augmenting technical change in the aggregated industry group Community by region r ;

$\Delta\$(\text{savings per patient})_{\text{micro}} - \text{clinic}$ is reduction in health system expenditure per patient due to microclinics in AUD;

$\$R_{\text{rural}}$ health expenditure per patient is health system expenditure per patient in remote areas in AUD;

$\$A_{\text{acute}}$ care institutions_r is expenditure on acute care institutions in AUD by region r;

$\$C_{\text{community}}$ _r is total sales of commodities produced by the industry group aggregate Community in AUD by region r;

$\#R_{\text{residents}}(\text{NBN}_{\text{hs}} \& \text{BB}_{\text{ls}})_{\text{remote } r}$ is number of persons usually resident in remote areas within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r; and

$\#R_{\text{residents}}$ _r is number of residents by region r.

Transport

We have estimated annual travel cost savings of based on the estimated number of avoided car trips to health professionals worth potentially 215 million AUD. This was based on findings in terms of the average number of telehealth visits per patient, the percentage of patients whose health conditions were resolved during the telehealth visit and who would have done nothing without telehealth services available from Yamamoto (2014), and estimated out-of-pocket costs per car trip by remote area from Deloitte Access Economics (2013). We have applied the shocks in the long-run policy simulation as changes to the final use of transport by all applicable households. The shock values were derived as follows:

$$\text{Shock} (f_{\text{sub}}^{\text{Transport},r,h}) = \left(\frac{\Delta\$S_{\text{savings}}(\text{Transport})_r}{\$T_{\text{transport}_r}} \times \frac{\#R_{\text{residents}}(\text{NBN}_{\text{hs}} \& \text{BB}_{\text{ls}})_r}{\#R_{\text{residents}_r}} \right) \times 100$$

where

$f_{\text{sub}}^{\text{Transport},r,h}$ is the taste change, subsistence demands shifter for the commodity Transport by region r and household h;

$\Delta\$S_{\text{savings}}(\text{Transport})_r$ is the estimated savings in travel costs in AUD by region r due to more people tele-consult physicians;

$\$T_{\text{transport}_r}$ is total sales of commodities produced by the industry group aggregate Transport by region r;

$\#R_{\text{residents}}(\text{NBN}_{\text{hs}} \& \text{BB}_{\text{ls}})_r$ is number of persons usually resident within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r; and

$\#R_{\text{residents}}$ _r is number of residents by region r.

Telework

Based on findings from Bentley et al. (2013) in terms of productivity improvements of telework compared to non-teleworkers and other costs and benefits to businesses due to the introduction of telework, we have estimated the equivalent labour productivity improvements. We have assumed that the policy goal of an increase of teleworkers in Australia from 6% to 12% by 2020 will be achieved in economic sectors equi-proportionate to the numbers of persons who worked any hours at home in their main or second job based on data from the Australian Bureau of Statistics (2009). We have applied the shocks in the long-run policy simulation as technical change of labour used by applicable industries by region. The shock values were derived as follows:

$$\text{Shock}(alab_{o_{i,r}}) = \left(\frac{\Delta\$(savings)TW_i}{\$Labour_i} \times \frac{\#Teleworkers(NBN_{hs} \& BB_{ls})_r}{\#Teleworkers_r} \right) \times 100$$

where

$$\frac{\#Residents(NBN_{hs} \& BB_{ls})_r}{\#Residents_r} \text{ is used as an approximation for the term } \frac{\#Teleworkers(NBN_{hs} \& BB_{ls})_r}{\#Teleworkers_r},$$

$alab_{o_{i,r}}$ is labour-augmenting technical change by industry and region r ;

$\Delta\$(savings)TW_i$ is reduction in return to labour due to reworking in AUD by industry i ;

$\$Labour_i$ is return to labour in AUD by industry i ;

$\#Teleworkers(NBN_{hs} \& BB_{ls})_r$ is number of teleworkers usually resident within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r ;

$\#Teleworkers_r$ is number of teleworkers by region r ;

$\#Residents(NBN_{hs} \& BB_{ls})_r$ is number of persons usually resident within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r ; and

$\#Residents_r$ is number of residents by region r .

Furthermore, results from a survey conducted by Deloitte Access Economics and Colmar Brunton (2012) suggest that more than 122,000 additional full time equivalents are willing to participate in the labour force if telework was available. We have applied the shock in the long-run policy simulation as changes to aggregate employment. The shock values were derived as follows:

$$\text{Shock}(\text{NatMacro}(\text{"AggEmploy"})) = \left(\sum_{r=1}^r \left(\frac{\Delta\#Teleworkers(FTE)}{\#All\ Employees} \times \sum_{i=1}^i \left(\frac{\#Teleworkers(Today)_i}{\#All\ Teleworkers(Today)} \times \frac{\$Labour_{i,r}}{\$Labour_i} \times \frac{\#Teleworkers(NBN_{hs} \& BB_{ls})_r}{\#Teleworkers_r} \right) \right) \times 100$$

where

$\frac{\#Residents(NBN_{hs} \& BB_{ls})_r}{\#Residents_r}$ is used as an approximation for the term $\frac{\#Teleworkers(NBN_{hs} \& BB_{ls})_r}{\#Teleworkers_r}$,

$NatMacro("AggEmploy")$ is aggregate labour;

$\Delta\#Teleworkers(FTE)$ is estimated number of additional full time equivalent teleworkers;

$\#All\ Employees$ is the sum of estimated number of employees in year 2020;

$\#Teleworkers(Today)_i$ is number of persons who worked any hours at home in main or second job by industry i ;

$\#All\ Teleworkers(Today)$ is the sum of persons who worked any hours at home in main or second job;

$\$Labour_{i,r}$ is return to labour in AUD by industry and region r ;

$\$Labour_i$ is return to labour in AUD by industry i ;

$\#Teleworkers(NBN_{hs} \& BB_{ls})_r$ is number of teleworkers usually resident within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed broadband platforms that may not be capable of fulfilling the service requirements by region r ;

$\#Teleworkers_r$ is number of teleworkers by region r ;

$\#Residents(NBN_{hs} \& BB_{ls})_r$ is number of persons usually resident within the coverage area of high-speed NBN platforms and other low-speed broadband platforms by region r ; and

$\#Residents_r$ is number of residents by region r .

Entertainment

The average annual household expenditure on entertainment and online services was forecasted to increase to 1,460 AUD (2011 prices) in 2020 according to Deloitte Access Economics (2013). We have applied the shocks in the long-run policy simulation as changes to the final use of recreation and personal services by all applicable households. The shock values were derived as follows:

$$\text{Shock} (fsub^{RecPersSrvc",r,h}) = \left(\frac{\Delta\$Expenditure("Entertainment")_r}{\$"RecPersSrvc"_r} \times \frac{\#Residents(NBN_{hs} \& BB_{ls})_r}{\#Residents_r} \right) \times 100$$

where

$fsub^{RecPersSrvc",r,h}$ is the taste change, subsistence demands shifter for recreation and personal services by region r and household h ;

$\Delta\$Expenditure("Entertainment")_r$ is the estimated spending on entertainment in AUD by region r due to more people being able to access online services;

$\$"RecPersSrvc"_r$ is total sales of commodities produced by the recreation and personal services sector by region r ;

$\#Residents(NBN_{hs} \& BB_{ls})_r$ is number of persons usually resident within the coverage area of high-speed NBN platforms that may fulfil the service requirements and other low-speed

broadband platforms that may not be capable of fulfilling the service requirements by region r ; and

$\#Residents_r$ is number of residents by region r .

5 Scenarios

For each broadband service included in this study, we specified the minimum required internet speed in terms of download and upload speed. The expected internet speeds requirements are used to determine the portion of residents and businesses that will rely on the high-speed NBN platforms in order to have access to the broadband services and related benefits. Based on a literature review and consultations with researchers from the University of Melbourne, two scenarios have emerged. The low service requirements scenario is used as a more conservative approach. Assumptions for the conservative scenario in terms of the applicable (minimum) bandwidth for download and upload data traffic for each service group are shown in Table 5.1.

Table 5.1 Download and upload bandwidth assuming services require modest access speeds

Service group	Min. download (Mbps)	Min. upload (Mbps)
Cloud Computing	2.5	2.5
Electronic Commerce	2.5	0.256
Online Higher Education	0.256	0.256
Telehealth Practice	0.256	0.256
Telehealth Practice (Micro-clinics)	0.256	2.498
Telework	1.5	0.256
Entertainment	12	5

The service requirements for high-definition video links used in remote Micro-clinics were informed by Cisco (2012). Assumptions for Cloud Computing and Telework were informed by documented discussions during a workshop organised by the European Commission (2013) and the Australian Government Department of Communications (2013b) respectively. Assumptions about the service requirements for the remaining broadband services were derived based on discussions among researchers from the Centre of Energy-Efficient Telecommunications (CEET) and the Melbourne Networked Society Institute (MNSI), formerly Institute for a Broadband Enabled Society (IBES), at a workshop on 14 November 2013. Researchers were given categories of download and upload speeds such as ‘very low’ (256 Kbps to <2.5 Mbps), ‘low’ (2.5 Mbps to <10 Mbps) ‘medium’ (10 Mbps to <24 Mbps), high (24 Mbps to <100 Mbps) and ‘very high’ (≥ 100 Mbps). The minimum speed within the speed range which would apply to each broadband service was then used to analyse the coverage of various broadband platforms.

The low service requirements scenario described above assumed the lower bound of the appropriate speed range categories, thereby suggesting that modest access speeds, supplied to many households through the broadband platforms in the BAU scenario, are sufficient to obtain most of the benefits from the broadband enabled services.

An alternative scenario considered the higher bound of the relevant speed ranges categories based on findings from the workshop and the literature review. Assumptions for remote Micro-clinics and Telework were informed by Cisco (2012) and the Australian Government Department of Communications (2013b) respectively. Service requirements for the remaining broadband services were subject to the speed range categories discussed during the workshop with researches from

CEET and MNSI. Table 5.2 shows the minimum download and upload speeds we have considered for the high services requirements scenario. The high services requirements scenario suggests that high access speeds are required to obtain most of the benefits from broadband, and such access speeds are only likely to be widely available with the implementation of the NBN.

Table 5.2 Download and upload bandwidth assuming services require high access speeds

Service group	Min. download (Mbps)	Min. upload (Mbps)
Cloud Computing	10	10
Electronic Commerce	10	2.5
Online Higher Education	2.5	2.5
Telehealth Practice	2.5	2.5
Telehealth Practice (Micro-clinics)	2.5	6.406
Telework	20	4
Entertainment	25	5

Residential and commercial²⁴ access to the services and related benefits under each scenario with and without the NBN was estimated for more than 400,000 regions based on geospatial data analysis. The incremental impact of the NBN varies according to the expected access speeds requirements of each service group; and the availability of various broadband platforms and their capabilities in terms of download and upload bandwidth relative to the BAU in each region. The incremental impact of the NBN was aggregated to the same number of sub-national regions as in the TERM model database, i.e. 13 regions. The regional benefits of the services through their greater availability made possible through the NBN were derived from the incremental impact in each sub-national region and the total benefits of each service.

The derived shocks indicate the incremental impact of the NBN for most service groups are higher assuming services require higher access speeds (e.g., see Telehealth Practice shocks in Table 5.3) subject to the capabilities of the high-speed platforms. For Cloud Computing and Entertainment, however, not all of the high-speed NBN platforms have the required capabilities which explains why the incremental impact of the NBN with high access speeds may be smaller than with modest access speeds (e.g., see Entertainment shocks in rest of regions outside of city centres in Table 5.3). It was agreed by all workshop participants, however, that satellite broadband and cellular networks would not meet the minimum level of capacity and reliability required by the broadband services considered in the present study.

Table 5.3 Shocks[†] for Entertainment and Telehealth Practice under high and modest access speeds by region

Region	Entertainment		Telehealth Practice	
	Modest	High	Modest	high
Greater Sydney	1.45	1.45	-0.47	-14.9
Rest of New South Wales	2.5	2.47	-3.03	-19.6
Greater Melbourne	1.86	1.85	-1.01	-15.5
Rest of Victoria	2.57	2.37	-3.31	-17.7
Greater Brisbane	1.31	1.31	-0.43	-10.2

²⁴ Commercial access to the services and related benefits was assumed to be sufficient without an NBN under both the modest and high access speeds scenarios for Australian Businesses with a turnover of two million Australian dollars or more as of June 2011 based on data from the Australian Bureau of Statistics (2013).

Region	Entertainment		Telehealth Practice	
	Modest	High	Modest	high
Rest of Queensland	3.89	3.83	-5.8	-26.1
Greater Adelaide	3.17	3.17	-0.14	-17.6
Rest of South Australia	2.06	1.97	-13.18	-17.6
Greater Perth	3.33	3.33	-0.05	-16
Rest of Western Australia	2.13	2.08	-0.62	-12.9
Tasmania (TAS)	2.59	2.46	-7.09	-19.9
Northern Territory (NT)	2.08	2.06	-15.57	-13.0
Australian Capital Territory (ACT)	0.3	0.3	-0.0003	-0.63

† Shocks for Entertainment relate to subsistence demand shifter variable for Entertainment used by all households by region ($fsub_{RecPersSrvr,r,h}$); shocks for Telehealth Practice relate to technical change of all inputs used by the Health industry by region ($atot_{Community,r}$).

Source: Authors' calculations

A complete list of the shocks for all services and regions is provided in Appendix E.

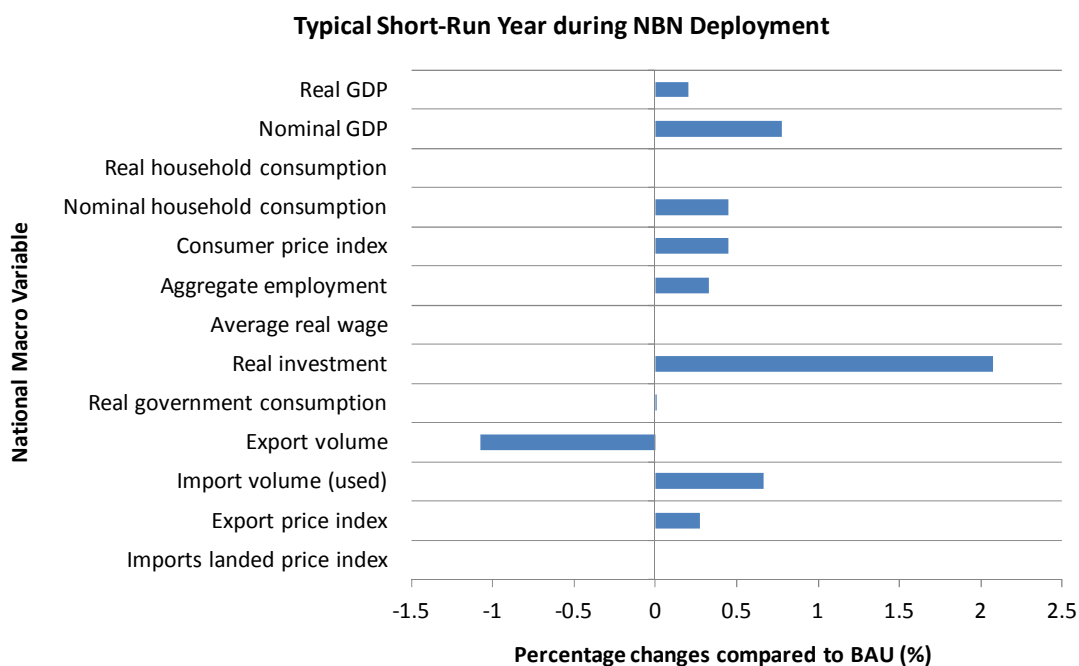
6 Results

The comparative static version of the TERM model was used to estimate the changes to the economic outcome without an NBN under the BAU for a typical short-run and long-run year respectively based on the closures discussed in section 4. The short-run results represent the economic outcome for every year during the construction phase of the NBN. The long-run results show the economic outcome for every year when NBN deployment is completed and all the services are being exploited.

TERM short run policy simulation results (construction phase)

A summary of the macroeconomic results for a typical short-run year in the construction phase of the NBN is shown in the Figure 6.1. The percentage changes indicate the differences of selected national macro variables from what they otherwise would have been without the NBN.

Figure 6.1 Economic outcomes of the NBN during the construction phase



According to our assumptions about foreign investment in the NBN, the resources needed in NBN construction become available mainly from reductions in activity in the traded-goods sectors. With the additional investment in the NBN and the assumption that real household and government consumption are exogenous in the short run closure, gross national expenditure increases more than GDP pushing the trade balance towards deficit. The comparatively large appreciation of the real exchange rate reduces exports and increases imports (see Figure 6.1). Aggregate employment increases reflecting the terms of trade²⁵ improvement (see export and import price indices in Figure 6.1). Given that we have assumed the real wage and capital stock are exogenous in the short run closure, real GDP increases due to the increase in aggregate employment (see Figure 6.1). The construction and construction-related industries are the main winners from NBN construction while trade exposed industries are the main losers.

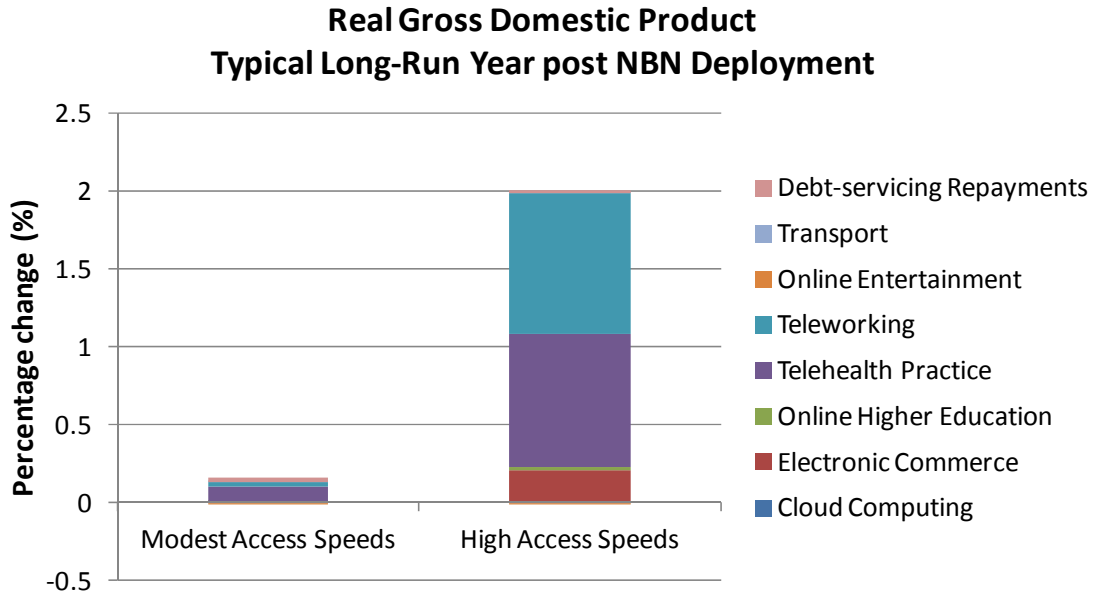
TERM long run policy simulation results (mature phase)

As discussed in section 5, with the exception of Cloud Computing and Entertainment, the derived shocks indicating the incremental impact of the NBN for most service groups are higher assuming services require higher access speeds. If we assume that Telehealth Practice and Telework require modest access speeds, for example, our estimates show that about 2 percent of the population rely on the access speeds available with the NBN for accessing these services. With high access speeds requirements, 70 percent of the population is estimated to rely on the access speeds available with the NBN for accessing the services. In other words, the benefits of Telehealth Practice and teleworking through their greater availability made possible through the NBN only apply to 2 percent of the population with modest access speeds, and 70 percent of the population with high access speeds requirements; hence the large differences in the telehealth productivity shocks in

²⁵ Terms of trade refers to the price of exports relative to the price of imports and is defined as the ratio of export prices to import prices.

Table 5.3 and the large difference in the shock to aggregate employment between the low (0.02 percent) and high (0.67 percent) service requirements scenarios (see Table E.33 in the Appendix E). The different incremental impact of the NBN can be illustrated on the example of percentage changes to real GDP when services are expected to require either modest or high access speeds as shown in the Figure 6.2.

Figure 6.2 Changes to real GDP with the NBN when services require modest or high access speeds



The Figure 6.3 and Figure 6.4 show the results for selected macroeconomic variables for a typical long-run year in the mature phase of the NBN when services require modest and high access speeds respectively. The zero point on the charts is the economic outcome in the long-term under the business as usual without the NBN. The bars show the effects of the debt-servicing requirements and each service group through their greater availability made possible through the NBN.

Figure 6.3 Economic outcomes of the NBN when services require modest access speeds

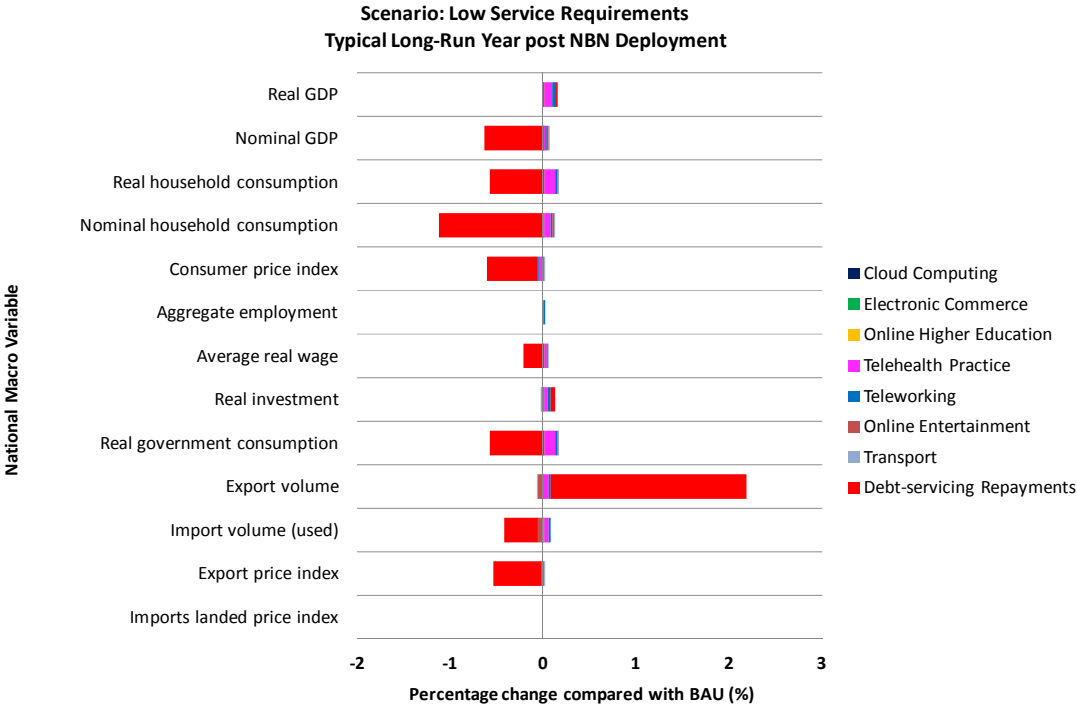
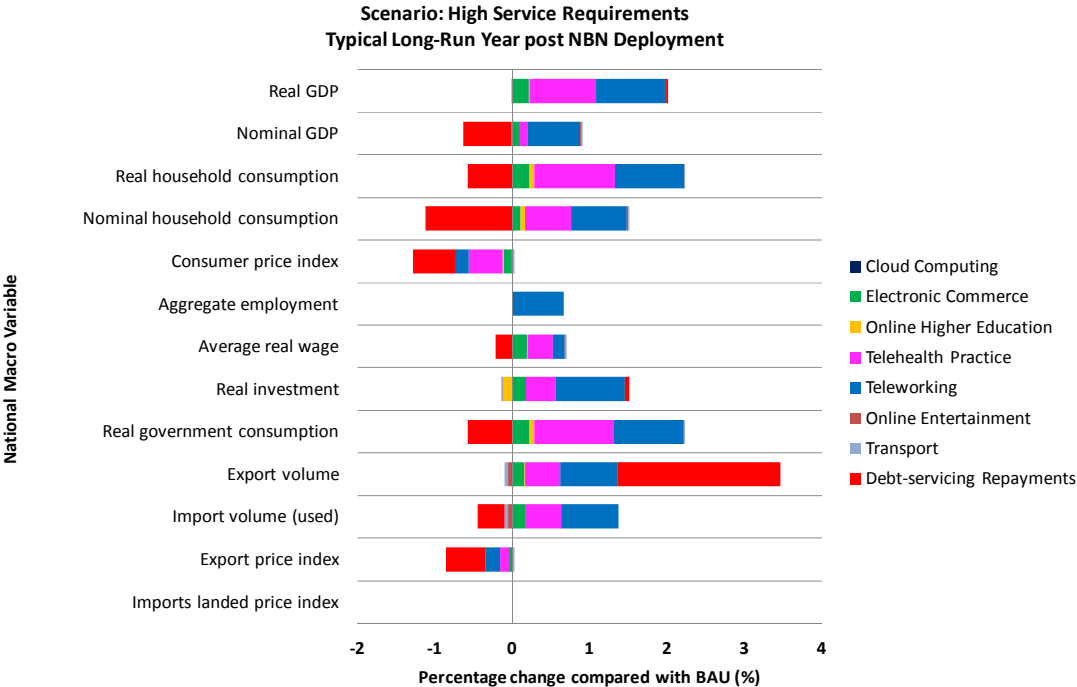


Figure 6.4 shows the results for a typical long-run year in the mature phase of the NBN when services require high access speeds.

Figure 6.4 Economic outcomes of the NBN when services require high access speeds



Our assumption about the required balance of trade surplus due to the debt-servicing requirements has only little effect on GDP resulting in greater domestic absorption. The comparatively large

depreciation of the real exchange rate increases exports and reduces imports. The capital stock is increased reflecting terms of trade decline. Aggregate employment is exogenous. The marginal productivity of labour improves due to the increased capital causing the real wage to increase. Trade exposed industries are the main winners. The capital share in primary factor payments for mining is comparatively high and the expansion of mining increases the demand for capital and investment. The increased capital stock has a positive secondary round effect on GDP which is increased marginally.

Our assumption of more technologically efficient industries generates a higher level of GDP, allowing higher domestic absorption. This is mainly due to more people Telework and rely on Telehealth Practice, and more businesses adopting Electronic Commerce with the NBN. GDP is increased not only as a direct consequence of technological changes in various industries but also by an increase in both capital and labour, which is assumed to increase due to more people telework with the NBN. The real wage rate is higher reflecting an increase in the marginal product of labour associated with technological improvement.

The marginal increase of GDP is a direct consequence of our assumed capital saving in education. The comparatively small expansion in education is not sufficient to offset the initial capital savings. The capital stock and investment are therefore decreased. A decline in capital has a weaker negative second-round effect on GDP. The real wage is higher also reflecting an increase in the marginal product of labour associated with technological improvement.

The assumed changes in household preferences for Transport and Entertainment or online services have comparatively small effects on macroeconomic variables. Commodity prices of sectors that were favoured by household preference change are increased resulting in a real appreciation. Exports are decreased due to the terms of trade increase. The trade balance is exogenous in the long run. Therefore, imports are also decreased. Trade exposed industries such as mining lose. Since the capital share in primary factor payments for mining is comparatively high, demand for capital and investment is reduced. Real wage rate is higher reflecting an increase in the terms of trade. Although hours of employment are fixed, wage-weighted employment rises slightly. This is due to a greater expansion of high wage sectors compared to low wage sectors. The increase in the wage-weighted employment outweighs the decrease in capital stock and account for the rises in GDP.

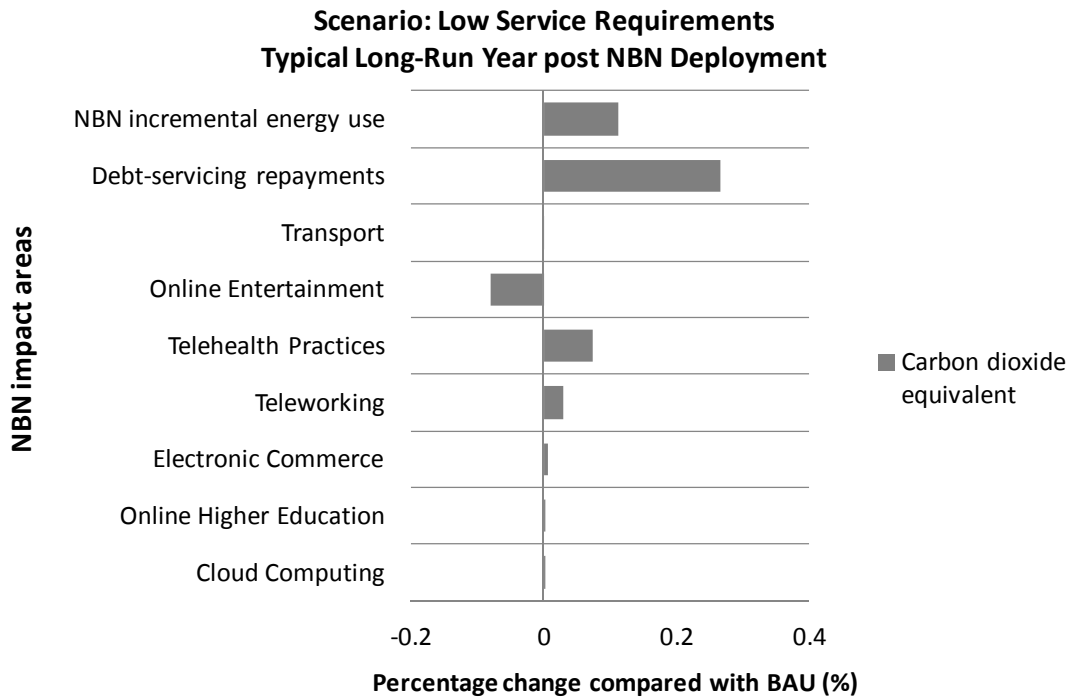
Energy and Carbon emissions

Industry output was used as a proxy for changes to Australia's GHG emissions relative to business as usual. In a typical short-run year during NBN deployment, construction and related industries expand while trade exposed industries shrink. Changes in domestic GHG emissions are therefore negligible. In a typical long-run year post NBN deployment, the continued increase in economic activity results in GHG emissions to increase more significantly than during the construction phase.

In addition to estimating the energy demand and carbon emissions derived from the change in economic activity simulated in the CGEM, a model has been developed for estimating the incremental energy demand and carbon emissions related to the NBN itself. The model includes estimates of the energy demand of the available infrastructure under the Business As Usual which is partly going to be replaced or overbuilt by the NBN. Inputs to the power consumption modelling of the NBN were provided by CEET and derived from publically available information.

A summary of the estimated carbon dioxide equivalents based on results of the long run policy simulation under the low and high service requirements scenario is shown in the Figure 6.5 and Figure 6.6 respectively. The bars show the effects of the debt-servicing requirements, the NBN's incremental power consumption and each service group through their greater availability made possible through the NBN.

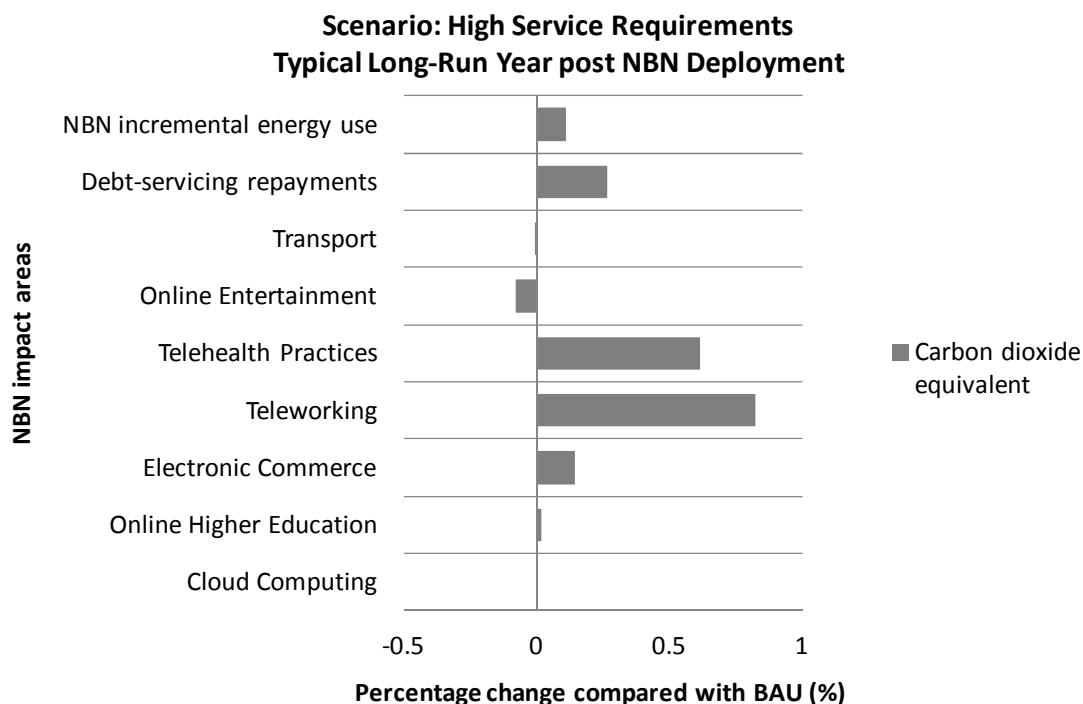
Figure 6.5 Environmental outcomes of the NBN when services require modest access speeds



The incremental energy use of the NBN itself increases GHG emissions. Debt-servicing repayments and the assumed trade balance surplus increase activity levels and GHG emissions of export oriented industries with a comparatively large carbon footprint. An assumed reduction in the use of Transport due to the greater availability of Telehealth Practice made possible through the NBN decreases GHG emissions slightly. An assumed increase in the use of Entertainment by households has the effect of a real appreciation and reduced activity level of trade oriented industries with a comparatively large carbon footprint. Our assumption of more technologically efficient industries due to the greater availability of Telehealth Practice, Telework²⁶, Electronic Commerce, Online Higher Education and Cloud Computing made possible through the NBN yield in an expansion of the economy and increased GHG emissions.

²⁶ We have not assumed that more telework will result in a reduction in the use of transport for three reasons. First, greater availability of telework might also be taken up by people who were previously not in the labour force and therefore not commuting to work. Second, and perhaps more importantly, “[...] those not using the road will create temporary congestion relief that again induces a surge in demands that were previously latent.” (Clarke, 2010). As a result, peak-hour traffic congestion on commuter expressways rises to meet maximum capacity also referred to as Down’s Law of Peak-Hour Traffic Congestion. Evidence supporting this law for cities in the United States was provided previously by Duranton and Turner (2009). Third, Zhu (2010)’s study of the effect of telecommuting on personal travel patterns over the 2001-2009 period based on data from the National Household Travel Survey (NHTS) in the U.S. found that telecommuting has a complementary effect on not just workers’ one-way commute trips, but also their daily total work trips, and total non-work trips.

Figure 6.6 Environmental outcomes of the NBN when services require high access speeds



7 Discussion

The NBN will enable a range of new services that will have a variety of effects on the national economy. While neither of the scenarios described in the study presented in this paper might occur in its entirety, they provide insights in terms of the potential range of outcomes from the NBN project. The results suggest, however, that the benefits of one or two services alone made widely available through the NBN may be sufficient to achieve a net improvement to the Australian economy over and above the cost of deploying the NBN itself.

Carbon dioxide equivalent are likely to increase in accordance with the growth of the Australian economy in the long run. It is therefore advisable to introduce carbon abatement policies that complement the introduction of ubiquitous broadband. For example, incentives in form of price signals or new standards could be used to encourage the shift away from comparatively high carbon intensive economic activities to lower carbon intensive economic activities. The effect of achieving a net improvement to a low carbon economy in terms of GHG emissions is smaller than achieving the same net improvement to a high carbon economy.

Subject to the cost of domestic abatement policies or purchasing overseas permits, the results indicate that the environmental impact of the NBN in monetary terms could be compensated by economic welfare gains. The net outcome is subject to the required access speed of services and the extent to which their availability might be restricted in the BAU but ensured through the deployment of a NBN.

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Appendix A

This section includes lists of the factors, commodities, industries and regions that are included in the TERM model. The TERM database used in this study was derived from the TERM master database and follows the same structure. The structure of the database and level of detail, however, can be modified as required by the policy question under investigation using TERM database programs specifically developed for this task.²⁷ In addition to the sets shown in the lists below are 51 aggregated occupations and one aggregated household in the version of the TERM model database which we have used in this study.

Table A.1 List of factors in the TERM model database

No.	Name
1	Land
2	Labour
3	Capital

Table A.2 List of aggregated commodities and industries in the TERM database

No.	Name	Description
1	AgriForFish	Agriculture, forestry & fishing
2	Mining	Mining
3	FoodDrinkTob	Food, beverages & tobacco
4	TCFs	Textiles, clothing & footwear
5	MiscManuf	Miscellaneous manufacturing
6	WoodProds	Wood & wood products
7	PaperPrint	Paper and printing
8	ChemCoalPrds	Chemicals & coal products
9	NonMetMinPrd	Non-metallic mineral products
10	MetalPrds	Metal products
11	TransEqp	Transport equipment
12	OthMachEqp	Other machinery & equipment
13	EGW	Electricity, gas & water

²⁷ More information about the TERM master database and the TERM model in general is available from the CoPS website under the following link (last accessed 15 April 2015): <http://www.copsmodels.com/term.htm>

No.	Name	Description
14	Construction	Construction
15	WholesalTrad	Wholesale trade
16	RetailTrade	Retail trade
17	RecPersSrvc	Recreation & personal services
18	Transport	Transport & storage
19	PostalSrvcs	Postal services
20	Telecomms	Telecommunication services
21	NBNRetailSrv	NBN retail services
22	NBNCoSrvcs	NBN wholesale services
23	FinBusSrvces	Finance & business services
24	PubAdmDef	Public admin. & defence
25	Education	Education
26	Community	Health, welfare & community services

Table A.3 List of aggregated regions of use, origin and production in the TERM database

No.	Name	Description
1	SydneyNSW	Sydney, New South Wales
2	RoNSW	Rest of New South Wales
3	MelbourneVic	Melbourne, Victoria
4	RoVic	Rest of Victoria
5	BrisbaneQld	Brisbane, Queensland
6	RoQld	Rest of Queensland
7	AdelaideSA	Adelaide, South Australia
8	RoSA	Rest of South Australia
9	PerthWA	Perth, Western Australia
10	RoWA	Rest of Western Australia
11	Tas	Tasmania
12	NT	Northern Territory
13	ACT	Australian Capital Territory

Table A.4 List of aggregated margin services in the TERM database

No.	Name	Description
1	EGW	Electricity, gas & water
2	WholesalTrad	Wholesale trade
3	RetailTrade	Retail trade
4	RecPersSrvc	Recreation & personal services
5	Transport	Transport & storage
6	FinBusSrvces	Finance & business services

Appendix B

This section includes three sets of TERM model variables that have directly matching equations, more than one matching equations, and no matching equations. COM stands for commodity, IND for industry, REG for subset of regions of margin production, DST for regions of use, ORG for regions of

origin, HOU for household, SRC for source (domestic and import), OCC for labour skill categories, CONTINC for contributors to real income GDP change, MAINMACROS for Convenient macros for reporting, GDPEXPCAT for GDP expenditure categories, GDPINCCAT for GDP income categories, STATEX for aggregated regions or states, COMMACROS for MAINMACROS with commodity components, MAR for margin commodities, e.g. transport, wholesale and retail trade services, FINDEM for final demanders, and TRADDIR for subset of imported commodities used for exports. Shifter or shift variables are initially equal to zero. They are used to turn an equation off in which shift variables are used if the user does not wish to use the equation. The reason for not using the equation could be that the user decides to make the dependent variable exogenous.

Table B.1 List of TERM model variables that have directly matching equations

Variable	Description	Dimensions (Size)
aint_s	Intermediate technical change	COM*IND*DST
alux	Taste change, supernumerary demands	COM*DST*HOU
asub	Taste change, subsistence demands	COM*DST*HOU
averealwage	Average real wage	DST
avewage	Average nominal wage	DST
contCPI	Contributions by commodity to % regional CPI	COM*DST*HOU
contincagg	Combined contribution terms to national real income GDP	DST*CONTINC
contincagg_d	Contribution terms to national real income GDP	CONTINC
continccom	COMTAX contribution terms to national real income GDP	COM*SRC*DST
contincind	Industry contribution terms to national real income GDP	IND*DST*CONTINC
contincind_d	Industry contribution terms to national real income GDP	IND*CONTINC
contMainMacro	Regional contributions to national macro results	MAINMACROS*REG
contnatxtot	Regional contributions to national industry output	IND*DST
contxgdpexp	Contributions to % regional real GDP expenditure	GDPEXPCAT*REG
contxprim_i	Sector contributions to regional GDP at factor cost	IND*DST
delPRIM	change in cost of primary factors	IND*DST
delPTX	Ordinary change in production tax revenue	IND*DST
delTAXexp	change in export commodity tax revenue	COM*SRC*DST
delTAXgov	change in government commodity tax revenue	COM*SRC*DST
delTAXhou	change in household commodity tax revenue	COM*SRC*DST
delTAXint	change in intermediate commodity tax revenue	COM*SRC*IND*DST
delTAXinv	change in investment commodity tax revenue	COM*SRC*DST
fgovtot2	Government demand shifter	REG
fhou	Regional propensity to consume from labour income	DST*HOU
flabsup	Labour migration shifter	DST
ggro	Gross growth rate of capital = Investment/capital	IND*DST
gret	Gross rate of return = Rental/[Price of new capital]	IND*DST
NatComMacro	Sum of contComMacro(c,m)	COMMACROS
NatComMacroX	Sum of contComMacro(c,m)	COMMACROS

Variable	Description	Dimensions (Size)
natfhou	National ratio, nominal household consumption to GDP	1
NatMacro	National macros for reporting	MAINMACROS
natphouhtot	National CPI by household	HOU
natxhouhtot	National real consumption by household	HOU
natximp	National imports	COM
natxtot	National industry output -- value added weights	IND
nhouh	Number of households	DST*HOU
pbas2r		COM*SRC*STATEX
pcap	Rental price of capital	IND*DST
pcapSHO	Rental price of capital	IND*DST
pcst	Ex-tax cost of production	IND*DST
pdelivrd	All-user delivered price of good c, sources from regions of origin to regions of use	COM*SRC*ORG*DST
pdomstq	Statewide produced average p	MAR*STATEX
pfin	Final user price indices	FINDEM*DST
pgdpexp	Price index expenditure GDP	DST
phou	Household price of composites	COM*DST
phouhtot	CPI	DST*HOU
pimp	Import prices, local currency	COM*ORG
pimplanded	Price index, imports landed in regions of use	ORG
pimpused	Price index, imports used in regions of use	DST
pint	Intermediate effective price indices	IND*DST
pinvest	Purchaser's price of good c for investment in regions of use	COM*DST
pinvitot	Investment price index by industry	IND*DST
plab	Wage rates	IND*OCC*DST
plab_o	Price of labour composite	IND*DST
plnd	Rental price of land	IND*DST
pmake	Price received by industries	COM*IND*REG
pprim	Effective price of primary factor composite	IND*DST
ppur	User (purchasers) prices, inc margins and taxes	COM*SRC*USR*DST
ppur_s	User prices, average over sources	COM*USR*DST
pREGm	Regional import price index	REG
pRegMst	State import price index	STATEX
pREGx	Regional export price index	REG
pRegXst	State export price index	STATEX
psuppmar_p	Price of composite margin m on goods from regions of origin	MAR*ORG*DST
ptoft	Terms of trade for DST	REG
ptoftSt	Terms of trade for DST	STATEX
ptot	Industry output prices	IND*DST
puse	Delivered price of regional composite good c, sources to regions of use	COM*SRC*DST
pvar	Short-run variable cost of production	IND*DST

Variable	Description	Dimensions (Size)
shrBoT	National real balance of trade as % of real GDP	1
StateMacro	State macros for reporting	MAINMACROS*STATEX
statextot	State industry output -- value added weights	IND*STATEX
totdem	Total direct demands for goods produced(domestic) or landed(imported) in regions of origin	COM*SRC*ORG
wcap_i	Total rentals to capital	DST
wfin	Final user expenditures	FINDEM*DST
wgdpdiff	nominal (income - expend) GDP	DST
wgdpexp	Nominal expenditure GDP	DST
wgdpinc	Nominal income GDP	DST
whouhtot	Total nominal household consumption	DST*HOU
wlab_i	Total wage bill	OCC*DST
wlab_io	Total wage bill	DST
wlab_o	Wage bills	IND*DST
wlnd_i	Total rentals to land	DST
wlux	Total nominal supernumerary household expenditure	DST*HOU
wprim	Primary factor payments	IND*DST
wprim_i	Total factor payments	DST
xcapSHO	Capital usage	IND*DST
xcap_i	Aggregate capital, rental-weighted	DST
xdomexp	Amount good c made in regions of origin sent to other domestic regions (non-margin)	COM*REG
xdomexp_c	Amount goods made in regions of origin sent to other domestic regions (non-margin)	REG
xdomimp	Amount domestic good c used in regions of use made in other domestic regions (non-margin)	COM*REG
xdomimp_c	Amount domestic goods used in regions of use made in other domestic regions (non-margin)	REG
xdomloc	Amount good c made in r and used in regions of origin	COM*REG
xexp	Export of all-region composite leaving port at regions of use	COM*SRC*DST
xexpSHO	Export demands for domestic all-region composite leaving port at regions of use	COM*DST
xexp_s	Export demands, domestic+imported	COM*DST
xgdpexp	Real expenditure GDP	DST
xgov	Government demands for all-region composite	COM*SRC*DST
xgov_s	Government demands, domestic+imported	COM*DST
xhou	Household demands for all-region composite	COM*SRC*DST
xhouh_s	Household demands	COM*DST*HOU
xhoutot	Total real household consumption	DST
xhou_s	Household demands for domestic/imported composite	COM*DST
ximplanded	Volume of imports landed in regions of use	ORG
ximps	Volume of imports used in regions of use	COM*DST

Variable	Description	Dimensions (Size)
ximpused	Volume of imports used in regions of use	DST
xint	Intermediate demands for all-region composite	COM*SRC*IND*DST
xint_i	Total intermediate demand for regional composite commodities, sources in regions of use	COM*SRC*DST
xint_s	Industry demands for domestic/imported composite	COM*IND*DST
xinv	Investment demands for all-region composite	COM*SRC*DST
xinvi	Amount of good c for investment, industry i in	COM*IND*DST
xinviot	Investment by industry	IND*DST
xinviotSHO	Investment by industry	IND*DST
xinv_s	Investment demands for domestic/imported composite	COM*DST
xlab	Labour demands	IND*OCC*DST
xlab_i	Aggregate labour, wage-weighted	OCC*DST
xlab_io	Aggregate labour, wage-weighted	DST
xlab_o	Effective labour input	IND*DST
xlab_oSHO	Effective labour input	IND*DST
xlnd_i	Aggregate land, rental-weighted	DST
xlocuse_sd	National non-export demand for good c	COM
xlux	Household - supernumerary demands	COM*DST*HOU
xmake	Output of good c by industry i in regions of use	COM*IND*REG
xprim	Primary factor composite	IND*DST
xprim_i	Regional GDP at factor cost (% change)	DST
xrowdem	Eventually exported goods	COM*ORG*DST
xrowdem_d	Eventually exported goods made in regions of origin	COM*ORG
xstocks	Inventories	IND*DST
xsub	Household - subsistence demands	COM*DST*HOU
xsuppmar	Demand for margin commodities m (made in regions of margin production) on goods	MAR*ORG*DST*PRD
xsuppmar_d	Total margins on goods from regions of origin, produced in regions of margin production	MAR*ORG*PRD
xsuppmar_p	Quantity of composite margin m on goods from regions of origin	MAR*ORG*DST
xsuppmar_rd	Total demand for margins produced in regions of margin production	MAR*PRD
xtrad	Quantity of good commodities, sources from regions of origin to regions of use	COM*SRC*ORG*DST
xtradmar	Margin commodities m on good c, sources going from regions of origin to regions of use	COM*SRC*MAR*ORG*DST
xtrad_r	Total demand for regional composite commodities, sources in regions of use	COM*SRC*DST
xtrad_rd	National direct use of goods	COM*SRC

Table B.2 List of TERM model variables that have more than one matching equation

Variable	Description	Dimensions (size)
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contTrmsTrad	Contributions to national export and import price indices	COM*REG*TRADDR
contComMacro	Commodity contributions to national macro results	COM*COMMACHOS
delXGDPEXP	Ordinary change in quantity expenditure GDP component	DST*GDPEXP
delPGDPEXP	Ordinary change in price expenditure GDP component	DST*GDPEXP
MainMacro	Convenient macros for reporting	MAINMACROS*REG
delGDPINC	Ordinary change in nominal income GDP component	DST*GDPINCCAT
pbasic	Basic prices	COM*SRC*ORG
xtot	Industry outputs	IND*DST
xfin	Final user quantity indices	FINDEM*DST
xcom	Total output of commodities	COM*DST
pdom	Output prices = basic prices of domestic goods	COM*ORG

Table B.3 List of TERM model variables that have no matching equations

Variable	Description	Dimension (Size)
acap	Capital-augmenting technical change	IND*DST
ahou_s	Taste change, household imported/domestic composite	COM*DST*HOU
alab_o	Labour-augmenting technical change	IND*DST
alnd	Land-augmenting technical change	IND*DST
aprim	Primary-factor-augmenting technical change	IND*DST
atot	All-input-augmenting technical change	IND*DST
atot_id	All-input-augmenting technical change	1
atradmar_cs	Technical change: margin m on goods going from regions of origin to regions of use	MAR*ORG*DST
bint_s	Intermediate technical change	COM*IND*DST
bint_scd	Driver: intermediate technical change	IND
delPTXRATE	Change in rate of production tax	IND*DST
fgov	Government demand shifter	COM*SRC*DST
fgovtot	Government demand shifter	DST
fgovtot_d	Government demand shifter	1
fgov_s	Government demand shifter	COM*DST
flab	Wage shifter	IND*OCC*DST
flab_io	Wage shifter	DST
flab_iod	National wage shifter	1
fpexp	Export price shift variable	COM*SRC
fqexp	Export quantity shift variable	COM*SRC
fqexp_csd	Export quantity shift variable over commodities, sources and regions of use	1
houslack	Consumption slack variable to accommodate national constraint	1
invslack	Investment slack variable for exogenising national investment	1

Variable	Description	Dimension (Size)
labslack	Slack to allow aggregate employment constraint	1
nhou	Number of households	DST
pfimp	Import prices, foreign currency	COM*ORG
phi	Exchange rate, local currency/\$world	1
tuser_ud	Tax shifter by commodity	COM*SRC
xcap	Capital usage	IND*DST
xhouhtot	Total real household consumption	DST*HOU
xlnd	Land usage	IND*DST

Appendix C

This section includes two sets of TERM model variables that are assumed to be exogenous in the short-run and long-run closure. ENDOGINV and EXOGENV stand for subsets of industries and are used in the short term closure to determine for which industries investment is either assumed to be fixed or linked to profits.

Table C.1 List of exogenous TERM model variables in the short-run closure

Variable	Description	Dimension (Size)
acap	Capital-augmenting technical change	IND*DST
ahou_s	Taste change, household imported/domestic composite	COM*DST*HOU
alab_o	Labour-augmenting technical change over occupations	IND*DST
alnd	Land-augmenting technical change	IND*DST
aprim	Primary-factor-augmenting technical change	IND*DST
atot	All-input-augmenting technical change	IND*DST
atot_id	All-input-augmenting technical change over industries and regions of use	1
atradmar_cs	Technology change: margin commodities m on goods going from regions of origin to regions of use	MAR*ORG*DST
bint_s	Intermediate technology change	COM*IND*DST
bint_scd	Driver: intermediate technical change	IND
delPTXRATE	Change in rate of production tax	IND*DST
fgov	Government demand shifter	COM*SRC*DST
fgovtot2	Government demand shifter	DST
fgovtot_d	Government demand shifter over regions of use	1
fgov_s	Government demand shifter over domestic and imported goods	COM*DST
fhou	Regional propensity to consume from labour income	DST*HOU
finv1	Investment shift variable by industry except NBN Co Services ("NBNCoSrvcs")	ENDOGENV*DST
flab	Wage shifter	IND*OCC*DST
flab_io	Wage shifter over industries and occupations	DST
fpexp	Export price shift variable	COM*SRC

Variable	Description	Dimension (Size)
fqexp	Export quantity shift variable	COM*SRC
fqexp_csd	Export quantity shift variable over commodities, domestic and imported goods, and regions of use	1
labslack	Slack to allow aggregate employment constraint	1
NatMacro("AveRealWage")	National average real wage	1
NatMacro("RealHou")	National real private household consumption	1
NatMacro("RealInv")	National real investment	1
nhou	Number of households	DST
pfimp	Import prices, foreign currency	COM*ORG
phi	Exchange rate, local currency/\$world	1
tuser_ud	Tax shifter by commodity over users and regions of use	COM*SRC
xcap	Capital usage	IND*DST
xinvitot	Investment of industry NBN Co Services ("NBNCoSrvcs")	EXOGINV*DST
xlnd	Land usage	IND*DST

Appendix D

Table D.1 List of exogenous TERM model variables in the long-run closure

Variable	Description	Dimension (Size)
acap	Capital-augmenting technical change	IND*DST
ahou_s	Taste change, household imported/domestic composite	COM*DST*HOU
alab_o	Labour-augmenting technical change	IND*DST
alnd	Land-augmenting technical change	IND*DST
aprim	Primary-factor-augmenting technical change	IND*DST
atot	All-input-augmenting technical change	IND*DST
atot_id	All-input-augmenting technical change over industry and regions of use	1
atradmar_cs	Technical change: margin m on goods going from regions of origin to regions of use	MAR*ORG*DST
bint_s	Intermediate technical change	COM*IND*DST
bint_scd	Driver: intermediate technical change	IND
delPTXRATE	Change in rate of production tax	IND*DST
fgov	Government demand shifter	COM*SRC*DST
fgovtot2	Government demand shifter	DST
fgovtot_d	Government demand shifter over regions of use	1
fgov_s	Government demand shifter over domestic and imported goods	COM*DST
fhou	Regional propensity to consume from labour income	DST*HOU
flab	Wage shifter	IND*OCC*DST
flab_iod	National wage shifter	1
flabsup	Labour migration shifter	DST

Variable	Description	Dimension (Size)
fpexp	Export price shift variable	COM*SRC
fqexp	Export quantity shift variable	COM*SRC
fqexp_csd	Export quantity shift variable	1
gret	Gross rate of return = Rental/[Price of new capital]	IND*DST
invslack	Investment slack variable for exogenising national investment	1
NatMacro("AggEmploy")	National aggregate employment	1
nhou	Number of households	DST
pfimp	Import prices, foreign currency	COM*ORG
phi	Exchange rate, local currency/\$world	1
shrBoT	National real balance of trade as % of real GDP	1
tuser_ud	Tax shifter by commodity	COM*SRC
xlnd	Land usage	IND*DST

Appendix E

The shocks shown in this section for each service and service requirements scenario were derived following the methods discussed in section 4. Table 4.1 summarises the benefits of each service enabled by broadband and the chosen shock variables.

Table E.1 Shocks for Cloud Computing with modest access speeds in Greater Sydney by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2 Mining	3 FoodDrink	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEq	12 OthMach	13 EGW	14 Constr	15 Wholesa	16 RetailTr	17 RecPers	18 Transpor	19 PostalSrv	20 telecom	21 NBNRet	22 NBNCoS	23 FinBus	24 PubAdm	25 Education	26 Commu	
1AgnrForFis	0	-4.533E-07	-0.0009415	-8.107E-06	-1.512E-06	-1.281E-06	-1.049E-07	-2.21E-06	-1.897E-08	-1.141E-07	-5.502E-08	-2.437E-07	-1.589E-07	-1.625E-06	-3.027E-05	-7.964E-05	-6.831E-05	-2.725E-06	-2.261E-07	-1.555E-06	-9.566E-07	-6.598E-07	-5.62E-05	-0.0011875	-3.192E-05	-2.593E-05	
2 Mining	0	-9.905E-05	-2.562E-05	-5.307E-07	-9.251E-07	-1.051E-06	-2.089E-07	-7.996E-05	-1.245E-05	-9.763E-05	-6.501E-07	-1.951E-06	-9.261E-05	-9.889E-06	-1.059E-05	-6.088E-05	-1.442E-05	-2.693E-06	-6.751E-06	-4.218E-05	-2.751E-05	-1.897E-05	-5.62E-05	-0.0011875	-3.192E-05	-0.0011749	
3 FoodDrinkTob	0	-4.415E-07	-0.0004798	-4.444E-07	-2.389E-06	-5.792E-08	-1.558E-07	-2.819E-06	-3.279E-08	-7.834E-08	-1.816E-07	-2.221E-07	-4.173E-07	-9.13E-07	-4.286E-05	-0.0007459	-0.0003052	-2.788E-06	-4.679E-06	-2.923E-05	-1.634E-05	-1.127E-05	-9.02E-05	-0.0004838	-0.0012398	-0.001266	
4 TCFs	0	-9.253E-07	-8.354E-06	-1.87E-05	-1.857E-06	-8.085E-06	-1.064E-06	-5.061E-07	-2.622E-07	-2.206E-06	-1.497E-06	-1.439E-06	-1.2E-06	-4.546E-05	-5.413E-05	-7.123E-05	-2.19E-05	-1.457E-05	-3.888E-06	-2.429E-05	-7.08E-06	-4.883E-06	-0.000109	-0.00051763	-0.00015244	-0.0005694	
5 MiscManuf	0	-2.565E-06	-7.831E-05	-1.573E-06	-5.443E-06	-2.002E-06	-5.999E-06	-3.814E-06	-4.124E-07	-1.596E-06	-4.275E-06	-5.665E-06	-6.389E-06	-2.646E-05	-8.557E-05	-7.398E-05	-2.717E-05	-3.714E-05	-3.773E-05	-0.0002357	-9.774E-05	-6.741E-05	-9.25E-05	-0.00110952	-0.00014958	-0.0002899	
6 WoodProds	0	-9.386E-07	-7.317E-05	-9.387E-07	-8.773E-07	-6.132E-06	-1.629E-05	-2.017E-06	-6.702E-07	-9.047E-07	-1.652E-06	-1.18E-06	-6.284E-07	-6.89E-06	-5.682E-05	-6.217E-05	-2.099E-05	-7.035E-06	-8.02E-06	-5.009E-05	-2.882E-05	-1.988E-05	-7.75E-05	-0.00088616	-0.00023037	-0.0004054	
7 PaperPrint	0	-8.597E-07	-9.346E-06	-5.022E-07	-7.096E-07	-1.094E-06	-1.163E-05	-6.74E-07	-2.527E-07	-7.525E-07	-7.271E-07	-1.888E-06	-1.565E-06	-5.311E-06	-0.0001093	-0.0003503	-4.797E-05	-1.112E-05	-4.479E-05	-0.0002798	-0.0001748	-0.0001206	-0.00041	-0.00164792	-0.00083831	-0.0002308	
8 ChemCoalPrds	0	-4.786E-05	-2.407E-05	-3.928E-06	-1.558E-05	-4.445E-06	-6.17E-06	-3.173E-05	-4.243E-06	-5.135E-06	-4.131E-06	-6.213E-06	-3.693E-05	-4.733E-05	-0.0001553	-0.0001929	-8.024E-05	-0.0003515	-6.463E-06	-0.0001815	-8.803E-05	-6.072E-05	-0.000429	-0.00094694	-0.00010323	-0.002628	
9 NonMetMinPrd	0	-1.025E-06	-1.773E-05	-4.385E-07	-4.594E-07	-2.88E-07	-7.464E-08	-5.313E-07	-1.213E-05	-1.966E-06	-1.813E-06	-1.921E-06	-5.453E-06	-7.596E-05	-3.239E-05	-2.715E-05	-5.09E-06	-5.602E-07	-7.508E-08	-4.461E-07	-2.427E-07	-1.662E-07	-9.46E-05	-8.8927E-05	-9.2242E-06	-4.338E-05	
10 MetalPrds	0	-1.795E-05	-4.189E-05	-3.213E-06	-5.238E-06	-4.301E-06	-8.185E-07	-1.971E-06	-2.089E-06	-6.13E-05	-1.936E-05	-5.012E-05	-1.288E-05	-9.838E-05	-7.941E-05	-8.412E-05	-2.439E-05	-3.624E-05	-2.224E-05	-0.0001424	-7.447E-05	-5.136E-05	-0.000247	-0.0013106	-0.00014248	-0.0001698	
11 TransEgp	0	-3.721E-06	-1.432E-06	-1.31E-07	-4.418E-07	-3.46E-07	-1.348E-07	-8.211E-08	-2.346E-07	-2.761E-07	-3.956E-05	-2.254E-06	-4.059E-07	-7.92E-06	-5.241E-05	-0.0006821	-6.32E-06	-0.000219	-1.632E-05	-0.000102	-3.569E-05	-2.462E-05	-5.61E-05	-0.0009131	-5.1992E-05	-1.375E-05	
12 OthMachEgp	0	-7.73E-06	-0.0005477	-1.324E-05	-1.167E-05	-9.988E-06	-1.716E-05	-4.058E-05	-1.101E-05	-5.493E-05	-2.417E-05	-2.548E-05	-0.000171	-0.0002199	-0.0005155	-0.0001006	-0.0002965	-0.0004079	-9.622E-05	-0.0007298	-0.0004379	-0.0002919	-0.001703	-0.00687791	-0.00123969	-0.0025114	
13 EGW	0	-9.892E-06	-2.227E-05	-9.184E-07	-9.307E-07	-1.004E-06	-8.47E-07	-1.344E-06	-1.406E-06	-5.42E-06	-1.61E-06	-3.05E-06	-0.0003534	-9.34E-06	-3.253E-05	-0.0001164	-3.714E-05	-4.82E-05	-1.55E-05	-9.687E-05	-6.186E-05	-4.266E-05	-0.000369	-0.00050567	-0.00042266	-0.0003847	
14 Construction	0	-2.6E-05	-6.112E-06	-4.995E-07	-2.62E-07	-1.26E-07	-2.77E-07	-2.632E-06	-1.107E-07	-7.34E-07	-2.988E-07	-9.829E-07	-4.914E-05	-0.0003732	-0.0001264	-8.355E-05	-2.602E-05	-5.564E-05	-6.62E-05	-0.0004136	-0.0002658	-0.0001833	-0.000525	-0.00363216	-9.7568E-06	-4.318E-05	
15 WholesalTrad	0	-0.0003583	-0.0026767	-6.473E-05	-5.703E-05	-4.882E-05	-0.0001983	-5.382E-05	-0.0002659	-0.0001181	-0.0001245	-0.000836	-0.0001748	-0.0002194	-0.00048905	-0.0014491	-0.0001937	-0.0004703	-0.0003567	-0.0021402	-0.0014268	-0.0003821	-0.00361564	-0.00605896	-0.0122745		
16 RetailTrade	0	-2.929E-06	-1.54E-05	-5.325E-07	-4.252E-07	-5.316E-07	-1.673E-07	-3.139E-07	-2.057E-07	-6.716E-07	-0.0001143	-0.0002844	-4.623E-05	-0.00017	-0.0001885	-0.0001214	-3.108E-05	-0.0001885	-0.0001214	-3.108E-05	-0.0001885	-0.0001214	-3.108E-05	-0.0001885	-0.0001214	-3.108E-05	
17 RecPersSvc	0	-6.114E-06	-5.809E-05	-9.383E-07	-7.135E-07	-7.147E-07	-4.245E-06	-2.981E-06	-7.514E-07	-1.81E-06	-2.719E-06	-2.651E-06	-4.27E-06	-9.307E-06	-0.0001133	-0.0002043	-0.0002093	-4.67E-05	-2.65E-05	-0.0002079	-0.000129	-8.9E-05	-0.000148	-0.00018696	-0.0007161	-0.0004001	
18 Transport	0	-2.735E-05	-6.101E-05	-1.83E-06	-2.403E-06	-5.246E-06	-3.631E-06	-2.143E-06	-5.862E-06	-2.628E-06	-6.248E-06	-6.427E-06	-1.959E-05	-0.0006413	-0.0001395	-3.202E-05	-0.0003225	-2.47E-05	-0.0003104	-0.000199	-0.0001372	-0.00048	-0.00025188	-0.00034825	-0.0003952		
19 PostalSvcs	0	-1.679E-07	-3.003E-06	-1.238E-07	-1.619E-07	-7.292E-08	-1.191E-06	-8.493E-08	-1.173E-07	-2.136E-07	-1.778E-07	-6.753E-07	-9.927E-07	-1.093E-06	-1.675E-05	-6.83E-05	-1.89E-05	-6.688E-06	-1.103E-05	-6.89E-05	-4.285E-05	-2.955E-05	-0.000139	-0.00040134	-0.00010325	-0.0002681	
20 Telecoms	0	-0.0013201	-0.009863	-0.0002385	-0.0002101	-0.0001799	-0.000309	-0.000983	-0.0009796	-0.0004353	-0.0004588	-0.0003803	-0.00039603	-0.000283	-0.0001898	-0.0053394	-0.0073462	-0.0017327	-0.0131433	-0.007886	-0.0052573	-0.030662	-0.12386307	-0.02323237	-0.0452276		
21 NBNRetailSrv	0	-2.801E-12	-1.109E-11	-5.544E-13	-3.109E-13	-1.832E-13	-8.05E-13	-4.588E-13	-3.772E-13	-7.999E-13	-5.224E-13	-1.831E-12	-6.606E-12	-7.103E-12	-9.45E-11	-2.108E-10	-4.493E-11	-5.751E-11	-1.913E-11	0	0	0	-4.15E-10	-1.4337E-10	-8.2773E-10	-5.909E-10	
22 NBNCoSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 FinBusSvcs	0	-0.0006278	-0.0046907	-0.0001134	-9.994E-05	-8.554E-05	-0.000147	-0.0003476	-9.432E-05	-0.0004659	-0.000207	-0.0002182	-0.0014649	-0.0018835	-0.0044149	-0.00085701	-0.0025394	-0.0034938	-0.0008241	-0.0062508	-0.0037505	-0.0025003	-0.014582	-0.05897099	-0.01061771	-0.0215908	
24 PubAdmDef	0	-2.208E-06	-4.996E-06	-1.19E-07	-1.24E-07	-2.118E-07	-4.617E-06	-6.656E-07	-3.537E-07	-6.456E-07	-2.791E-07	-1.27E-06	-6.041E-06	-1.327E-05	-3.975E-05	-4.348E-06	-6.662E-05	-2.444E-06	-9.284E-05	-5.982E-05	-1.218E-05	-4.9E-05	-0.00063176	-0.00016187	-0.0003077		
25 Education	0	-1.302E-06	-6.448E-06	-3.259E-07	-1.841E-07	-1.312E-07	-4.402E-07	-5.072E-07	-2.425E-07	-4.369E-07	-5.322E-07	-1.024E-06	-4.789E-06	-9.927E-07	-3.87E-06	-2.58E-05	-1.897E-05	-1.519E-05	-2.123E-06	-1.326E-05	-8.181E-06	-5.642E-06	-0.000341	-0.00044022	-0.00050225	-0.0001407	
26 Community	0	-1.081E-08	-2.497E-06	-1.676E-07	-1.653E-08	-2.631E-08	-4.339E-07	-4.956E-07	-5.741E-09	-1.084E-08	-3.007E-07	-3.974E-08	-9.924E-08	-1.15E-07	-1.606E-06	-4.45E-06	-3.387E-06	-4.033E-06	-6.169E-07	-2.343E-05	-1.418E-05	-9.784E-06	-9.8E-06	-0.00015991	-2.934E-05	-0.0007126	

Table E.2 Shocks for Cloud Computing with high access speeds in Greater Sydney by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2 Mining	3 FoodDrink	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEq	12 OthMach	13 EGW	14 Constr	15 Wholesa	16 RetailTr	17 RecPers	18 Transpor	19 PostalSrv	20 telecom	21 NBNRet	22 NBNCoS	23 FinBus	24 PubAdm	25 Education	26 Commu
1AgnrForFis	0	-3.827E-07	-0.0006178	-6.844E-06	-1.277E-06	-1.081E-06	-8.853E-08	-1.866E-06	-1.601E-08	-9.629E-08	-4.645E-08	-2.058E-07	-1.341E-07	-1.372E-06	-2.28E-05	-5.814E-05	-4.641E-05	-1.993E-06	-1.654E-07	-9.531E-07	-5.863E-07	-4.043E-07	-3.66E-05	-0.0012833	-4.245E-06	-1.968E-05
2 Mining	0	-8.362E-05	-1.681E-05	-4.48E-07	-7.81E-07	-8.871E-07	-1.763E-07	-6.75E-05	-1.051E-05	-8.242E-05	-5.488E-07	-1.647E-06	-7.818E-05	-8.348E-06	-7.977E-06	-4.444E-05	-9.797E-06	-1.97E-06	-4.938E-06	-2.585E-05	-1.686E-05	-1.163E-05	-3.55E-05	-8.46E-05	-2.7538E-05	-0.0001327
3 FoodDrinkTob	0	-3.727E-07	-0.0003148	-3.752E-07	-2.016E-06	-4.89E-08	-1.315E-07	-2.379E-06	-2.768E-08	-6.613E-08	-1.533E-07	-1.875E-07	-3.523E-07	-7.707E-07	-3.228E-05	-0.0005445	-0.0002074	-2.093E-06	-3.422E-06	-1.791E-05	-1.002E-05	-6.908E-06	-5.7E-05	-0.00024837	-8.7111E-05	-9.611E-05
4 TCFs	0	-7.812E-07	-5.482E-06	-1.579E-05	-1.567E-06	-6.825E-06	-8.884E-07	-4.272E-07	-2.213E-07	-1.862E-06	-1.264E-06	-1.214E-06	-1.013E-06	-3.838E-05	-4.077E-05	-5.2E-05	-1.488E-05	-1.066E-05	-2.844E-06	-1.488E-05	-4.339E-06					

Table E.3 Shocks for Cloud Computing with modest access speeds in Rest of New South Wales by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrnk	4TCFs	5MiscManuf	6WoodProds	7PaperPrnt	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTr	17RecPers	18Transpor	19PostalSrv	20telecom	21NBNet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commun		
1AgnrForFis	0	-2.251E-07	-0.0005468	-4.025E-06	-7.509E-07	-6.361E-07	-5.207E-08	-1.098E-06	-9.417E-09	-5.664E-08	-2.732E-08	-1.21E-07	-7.889E-08	-8.07E-07	-9.177E-06	-4.298E-05	-2.456E-05	-1.697E-06	-1.408E-07	-2.086E-07	-1.283E-07	-8.85E-08	-1.54E-05	-4.8116E-05	-2.0013E-06	-9.87E-06		
2Mining	0	-4.918E-05	-1.488E-05	-2.635E-07	-4.593E-07	-5.218E-07	-1.037E-07	-3.97E-05	-6.179E-06	-3.228E-07	-9.687E-07	-4.599E-05	-4.91E-06	-3.211E-06	-3.286E-05	-5.184E-06	-1.677E-06	-4.204E-06	-5.658E-06	-3.69E-06	-2.545E-06	-1.49E-05	-3.1742E-05	-1.2979E-06	-6.657E-05			
3FoodDrnkTob	0	-2.192E-07	-0.0002786	-2.207E-07	-1.186E-06	-2.876E-08	-7.735E-08	-1.4E-06	-1.628E-08	-3.89E-08	-9.019E-08	-1.103E-07	-2.072E-07	-4.533E-07	-1.3E-05	-0.0004025	-0.0001097	-1.736E-06	-2.914E-06	-3.92E-06	-2.192E-06	-1.512E-06	-2.39E-05	-9.3121E-05	-4.1055E-05	-4.82E-05		
4TCFs	0	-4.595E-07	-4.851E-06	-9.288E-06	-9.219E-07	-4.014E-06	-5.284E-07	-2.513E-07	-1.302E-07	-1.095E-06	-7.432E-07	-7.143E-07	-5.959E-07	-2.257E-05	-1.641E-05	-3.844E-05	-7.872E-06	-9.074E-06	-2.421E-06	-3.258E-06	-9.497E-07	-6.551E-07	-2.89E-05	-0.00013836	-5.0482E-05	-0.0002167		
5MiscManuf	0	-1.273E-06	-4.547E-05	-7.808E-07	-2.703E-06	-9.941E-07	-2.979E-06	-1.894E-06	-2.048E-07	-7.927E-07	-2.123E-06	-2.813E-06	-3.172E-06	-1.314E-05	-2.594E-05	-3.993E-05	-9.769E-06	-2.313E-05	-2.35E-05	-3.162E-05	-1.311E-05	-9.043E-06	-2.45E-05	-0.00029657	-4.9534E-05	-0.0001104		
6WoodProds	0	-4.661E-07	-4.249E-05	-4.661E-07	-4.356E-07	-3.045E-06	-8.09E-06	-1.002E-06	-3.328E-07	-4.492E-07	-8.203E-07	-5.859E-07	-3.12E-07	-3.421E-06	-1.723E-05	-3.355E-05	-7.545E-06	-4.381E-06	-4.995E-06	-6.72E-06	-3.866E-06	-2.666E-06	-2.05E-05	-0.00023687	-7.6289E-05	-0.0001543		
7PaperPrint	0	-4.269E-07	-5.427E-06	-2.494E-07	-3.524E-07	-5.431E-07	-5.773E-06	-3.347E-07	-1.255E-07	-3.736E-07	-3.61E-07	-9.376E-07	-7.773E-07	-2.637E-06	-3.315E-05	-0.000189	-1.725E-05	-6.927E-06	-2.789E-05	-3.753E-05	-2.345E-05	-1.617E-05	-0.000109	-0.0004408	-0.00027761	-8.783E-05		
8ChemCoalPrds	0	-2.377E-05	-1.398E-05	-1.95E-06	-7.736E-06	-2.207E-06	-3.064E-06	-1.576E-05	-2.107E-06	-2.55E-06	-2.051E-06	-3.085E-06	-1.834E-05	-2.35E-05	-4.708E-05	-0.0001041	-2.885E-05	-0.0002189	-4.025E-06	-2.435E-05	-1.181E-05	-8.145E-06	-0.000114	-0.00025311	-3.4186E-05	-0.0001211		
9NonMetMinPrd	0	-5.087E-07	-1.03E-05	-2.177E-07	-2.281E-07	-1.43E-07	-3.705E-08	-2.638E-07	-6.022E-06	-9.761E-07	-9E-07	-9.54E-07	-2.708E-06	-3.772E-05	-9.82E-06	-1.465E-05	-1.83E-06	-3.489E-07	-4.676E-08	-6.292E-08	-3.256E-08	-2.23E-08	-2.51E-05	-2.377E-05	-3.0546E-06	-1.651E-05		
10MetalPrds	0	-8.914E-06	-2.433E-05	-1.595E-06	-2.601E-06	-2.136E-06	-4.064E-07	-9.787E-07	-1.037E-06	-3.044E-05	-9.612E-06	-2.489E-05	-6.395E-06	-4.885E-05	-2.408E-05	-4.54E-05	-8.77E-06	-1.385E-05	-1.91E-05	-9.99E-06	-6.89E-06	-6.56E-05	-0.0002756	-4.7182E-05	-6.465E-05			
11TransEgp	0	-1.847E-06	-8.313E-07	-6.507E-08	-2.194E-07	-1.718E-07	-6.692E-08	-4.077E-08	-1.165E-07	-1.371E-07	-1.964E-05	-1.119E-06	-2.016E-07	-3.932E-06	-1.589E-05	-0.0003681	-2.272E-06	-0.0001364	-1.017E-05	-1.368E-05	-4.788E-06	-3.302E-06	-1.49E-05	-0.00082629	-1.7217E-05	-5.235E-06		
12OthMachEgp	0	-3.64E-05	-0.000318	-6.576E-06	-5.794E-06	-4.959E-06	-8.52E-06	-2.015E-05	-5.468E-06	-2.701E-05	-1.2E-05	-1.265E-05	-8.493E-05	-0.0001092	-0.0001563	-0.0005	-0.0001066	-0.000254	-5.992E-05	-9.79E-05	-5.874E-05	-3.916E-05	-0.000451	-0.00013844	-0.00041052	-0.000959		
13EGW	0	-4.912E-06	-1.293E-05	-4.56E-07	-4.621E-07	-4.985E-07	-4.205E-07	-6.674E-07	-6.983E-07	-2.691E-06	-7.996E-07	-4.54E-06	-0.0001755	-4.688E-06	-6.284E-05	-1.335E-05	-3.002E-05	-9.651E-06	-1.299E-05	-8.298E-06	-5.723E-06	-2.37E-05	-0.00013538	-0.00013997	-0.0001464			
14Construction	0	-1.291E-05	-3.549E-06	-2.48E-07	-1.301E-07	-6.257E-08	-1.375E-07	-1.307E-06	-5.497E-08	-3.645E-07	-1.484E-07	-2.44E-05	-0.0001853	-3.833E-05	-4.509E-05	-9.355E-06	-3.465E-05	-4.123E-05	-5.548E-05	-3.565E-05	-2.459E-05	-0.000139	-0.00097086	-3.231E-06	-1.643E-05			
15WholesaleTrad	0	-0.0001779	-0.00015544	-3.214E-05	-2.832E-05	-2.424E-05	-4.364E-05	-9.848E-05	-2.672E-05	-0.000132	-5.866E-05	-6.183E-05	-0.0004151	-0.0005337	-0.0007638	-0.00026394	-0.000521	-0.0004127	-0.0002929	-0.0004785	-0.0002871	-0.0001914	-0.0002025	-0.00098532	-0.00200642	-0.004672		
16RetailTrade	0	-1.455E-06	-8.944E-06	-2.644E-07	-2.112E-07	-2.64E-07	-1.071E-06	-3.497E-07	-8.306E-08	-1.648E-07	-1.022E-07	-3.359E-07	-2.436E-06	-4.727E-06	-3.466E-05	-0.0001535	-1.662E-05	-0.0001059	-1.879E-05	-2.529E-05	-1.628E-05	-9.13E-05	-9.13E-05	-0.00013366	-3.3706E-05	-0.0001368		
17RecPersSvc	0	-3.038E-06	-3.373E-05	-4.659E-07	-3.543E-07	-3.549E-07	-2.108E-06	-1.48E-06	-3.731E-07	-3.888E-07	-1.35E-06	-1.317E-06	-4.185E-06	-4.621E-06	-4.344E-05	-0.0001318	-7.521E-05	-2.913E-05	-1.65E-05	-2.813E-05	-1.731E-05	-1.194E-05	-0.000381	-0.00049876	-0.00023714	-0.0005329		
18Transport	0	-1.358E-05	-3.543E-05	-1.646E-06	-9.115E-07	-1.193E-06	-2.605E-06	-1.803E-06	-1.002161	-0.0002278	-0.00015295	-0.00019665	-0.0001295	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665		
19PostalSvcs	0	-8.336E-08	-1.744E-06	-6.148E-08	-8.038E-08	-3.621E-08	-5.913E-07	-4.217E-08	-1.06E-07	-8.829E-08	-3.353E-07	-2.943E-07	-5.427E-07	-5.078E-06	-3.686E-05	-6.795E-06	-4.165E-06	-6.869E-06	-9.243E-06	-5.748E-06	-3.964E-06	-3.69E-05	-0.00010728	-3.4192E-05	-0.0001021			
20telecoms	0	-0.0006555	-0.0005275	-0.0001184	-0.0001043	-8.931E-05	-0.0001534	-0.0003629	-9.847E-05	-0.0004864	-0.0002161	-0.0002278	-0.00015295	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665	-0.00019665		
21NBNetRetailSrv	0	-1.391E-12	-6.44E-12	-2.753E-13	-1.544E-13	-9.097E-14	-3.997E-13	-2.278E-13	-1.873E-13	-3.737E-13	-2.594E-13	-9.091E-13	-3.28E-12	-5.327E-12	-2.865E-11	-1.138E-10	-1.615E-11	-3.581E-11	-1.191E-11	0	0	0	0	0	0	0		
22NBNCosSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
23FinBusSvcs	0	-0.0003117	-0.0002739	-5.632E-05	-4.962E-05	-4.248E-05	-7.297E-05	-0.0001726	-4.683E-05	-0.0002313	-0.0001028	-0.0001083	-0.0007274	-0.0009352	-0.0013386	-0.0046252	-0.0009129	-0.0021759	-0.0005132	-0.0008385	-0.0003031	-0.0003354	-0.0003864	-0.01574587	-0.00351605	-0.0081872		
24PubAdmDef	0	-1.095E-06	-5.91E-08	-5.62E-08	-1.052E-07	-7.185E-07	-3.320E-07	-4.447E-08	-1.386E-07	-3.206E-07	-1.386E-07	-6.305E-07	-3E-06	-1.416E-06	-2.105E-05	-1.522E-06	-2.903E-05	-1.522E-06	-1.522E-06	-1.522E-06	-1.522E-06	-1.522E-06	-1.522E-06	-1.522E-06	-1.522E-06	-1.522E-06	-1.522E-06	
25 Education	0	-6.467E-07	-3.744E-06	-1.618E-07	-9.14E-08	-6.514E-08	-2.186E-07	-2.519E-07	-1.204E-07	-2.169E-07	-2.643E-07	-5.086E-07	-2.378E-06	-4.929E-07	-1.173E-06	-1.392E-05	-6.821E-06	-9.458E-06	-1.322E-06	-1.779E-06	-1.097E-06	-7.568E-07	-9.05E-05	-0.00011767	-0.00016632	-5.354E-05		
26 Community	0	-5.367E-09	-1.45E-06	-8.321E-08	-8.209E-09	-1.306E-08	-2.155E-07	-2.461E-07	-2.851E-09	-5.382E-09	-1.493E-07	-1.973E-08	-4.928E-08	-5.709E-08	-4.87E-07	-2.402E-06	-1.218E-06	-2.512E-06	-3.842E-07	-3.143E-06	-1.903E-06	-1.312E-06	-2.6E-06	-4.2744E-05	-9.7138E-06	-0.0002712		

Table E.4 Shocks for Cloud Computing with high access speeds in Rest of New South Wales by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrnk	4TCFs	5MiscManuf	6WoodProds	7PaperPrnt	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTr	17RecPers	18Transpor	19PostalSrv	20telecom	21NBNet	22NBNCos	23 FinBus	24 PubAdm	25 Education	26 Commun
1AgnrForFis	0	-1.109E-08	-3.451E-05	-1.983E-07	-3.699E-08	-3.133E-08	-2.565E-09	-5.407E-08	-4.639E-10	-2.79E-09	-1.346E-09	-5.962E-09	-3.886E-09	-3.975E-08	-5.445E-07	-2.783E-06	-1.365E-06	-7.977E-08	-6.618E-09	-9.445E-09	-5.81E-09	-4.007E-09	-1.22E-06	-2.183E-06	-1.6707E-07	-8.983E-07
2Mining	0	-2.423E-06	-9.39E-07	-1.298E-08	-2.263E-08	-2.57E-08	-5.109E-09	-1.956E-06	-3.044E-07	2.388E-06	-1.59E-08	-4.772E-08	-2.655E-06	-2.419E-07	-1.905E-07	-1.272E-06	-2.882E-07	-7.883E-08	-1.976E-07	-2.562E-07	-1.67E-07	-1.152E-07	-1.18E-06	-1.4401E-06	-1.0835E-06	-6.059E-06
3FoodDrnkTob	0	-1.08E-08	-1.758E-05	-1.087E-08	-5.843E-08	-1.417E-09	-3.81E-09	-6.894E-08	-8.021E-10	2.916E-06	-4.443E-09	-5.433E-09	-1.021E-08	-2.233E-08	-7.711E-07	-2.606E-05	-6.102E-06	-8.16E-08	-1.37E-07	-1.775E-07	-9.925E-08	-6.845E-08	-1.89E-06	-4.2248E-06	-3.4273E-06	-4.387E-06
4TCFs	0	-2.263E-08	-3.062E-07	-4.575E-07	-4.542E-08	-1.978E-07	-2.603E-08	-1.238E-08	-6.413E-09	-5.395E-08	-3.661E-08	-3.519E-08	-2.936E-													

Table E.5 Shocks for Cloud Computing with modest access speeds in Greater Melbourne by commodity and industry (bint_{S_{c,i}})

COMxIND	1AgriforFis	2 Mining	3 FoodDrink	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEq	12 OthMach	13 EGW	14 Constr	15 Wholesale	16 RetailTr	17 RecPers	18 Transpor	19 PostalSv	20 telecom	21 NBNRet	22 NBNCoS	23 FinBus	24 PubAdm	25 Education	26 Commun	
1AgriforFis	0	-4.683E-07	-0.000859	-8.374E-06	-1.562E-06	-1.323E-06	-1.083E-07	-2.283E-06	-1.959E-08	-1.178E-07	-5.683E-08	-2.518E-07	-1.641E-07	-1.679E-06	-2.729E-05	-7.181E-05	-6.287E-05	-2.519E-06	-2.09E-07	-8.779E-07	-5.4E-07	-3.724E-07	-4.68E-05	-9.7616E-05	-4.87E-06	-2.01E-05	
2 Mining	0	-0.0001023	-2.411E-05	-5.482E-07	-9.556E-07	-1.085E-06	-2.157E-07	-8.259E-05	-1.285E-05	-0.0001008	-6.715E-07	-2.015E-06	-9.566E-05	-1.021E-05	-9.55E-06	-5.489E-05	-1.327E-05	-2.489E-06	-6.24E-06	-2.381E-05	-1.553E-05	-1.071E-05	-4.53E-05	-6.439E-05	-3.1582E-05	-0.0001359	
3 FoodDrinkTob	0	-4.561E-07	-0.0004514	-4.591E-07	-2.467E-06	-5.983E-08	-1.609E-07	-2.911E-06	-3.387E-08	-8.092E-08	-1.876E-07	-2.294E-07	-4.31E-07	-9.43E-07	-3.865E-05	-0.0006725	-0.000281	-2.577E-06	-4.324E-06	-1.65E-05	-9.224E-06	-6.362E-06	-7.28E-05	-0.0001892	-9.9902E-05	-9.839E-05	
4 TCFs	0	-9.558E-07	-7.861E-06	-1.932E-06	-1.918E-06	-8.351E-06	-1.099E-06	-5.227E-07	-2.708E-07	-2.278E-06	-1.546E-06	-1.486E-06	-1.24E-06	-4.696E-05	-4.881E-05	-6.423E-05	-2.015E-05	-1.347E-05	-3.593E-06	-1.371E-05	-3.966E-06	-2.756E-06	-8.79E-05	-0.0002807	-0.00012284	-0.0004425	
5 MiscManuf	0	-2.649E-06	-7.369E-05	-1.624E-06	-5.623E-06	-2.068E-06	-6.397E-06	-3.939E-06	-4.26E-07	-1.649E-06	-4.416E-06	-5.851E-06	-6.599E-06	-2.733E-05	-7.715E-05	-6.671E-05	-2.501E-05	-3.433E-05	-3.488E-05	-0.000133	-5.517E-05	-3.805E-05	-7.47E-05	-0.00060167	-0.00012054	-0.0002253	
6 WoodProds	0	-9.695E-07	-6.885E-05	-9.697E-07	-9.062E-07	-6.334E-06	-1.683E-05	-2.084E-06	-6.923E-07	-9.345E-07	-1.706E-06	-1.219E-06	-6.491E-07	-7.116E-06	-5.123E-05	-5.606E-05	-1.931E-05	-6.502E-06	-7.413E-06	-2.827E-05	-1.627E-05	-1.122E-05	-6.26E-05	-0.00048054	-0.00018564	-0.000315	
7 PaperPrint	0	-8.88E-07	-8.794E-06	-5.188E-07	-7.33E-07	-1.13E-06	-1.201E-05	-6.962E-07	-2.61E-07	-7.772E-07	-7.51E-07	-1.95E-06	-1.617E-06	-5.486E-06	-9.895E-05	-0.0003158	-4.415E-05	-1.028E-05	-4.139E-05	-0.0001579	-9.866E-05	-6.805E-05	-0.000331	-0.00089364	-0.00067553	-0.0001793	
8 ChemCoalPrds	0	-4.944E-05	-2.265E-05	-4.058E-06	-1.609E-05	-4.592E-06	-6.373E-06	-3.278E-05	-4.382E-06	-5.304E-06	-4.267E-06	-6.417E-06	-3.814E-05	-4.889E-05	-0.00014	-0.0001739	-7.385E-05	-0.0003249	-5.974E-06	-0.0001024	-4.969E-05	-3.427E-05	-0.000346	-0.00051351	-8.3188E-05	-0.0020845	
9 NonMetMinPrd	0	-1.058E-06	-1.669E-05	-4.529E-07	-4.745E-07	-2.975E-07	-7.71E-08	-5.488E-07	-1.253E-05	-2.031E-06	-1.872E-06	-1.984E-06	-5.633E-06	-7.846E-05	-2.92E-05	-2.448E-05	-4.685E-06	-5.178E-07	-6.94E-08	-2.648E-07	-1.37E-07	-9.348E-08	-7.64E-05	-4.8223E-05	-7.4331E-06	-3.371E-05	
10 MetalPrds	0	-1.854E-05	-3.942E-05	-3.318E-06	-5.41E-06	-4.443E-06	-8.454E-07	-2.036E-06	-2.158E-06	-6.332E-05	-2E-05	-5.177E-05	-1.33E-05	-0.0001016	-7.159E-05	-7.585E-05	-2.245E-05	-3.349E-05	-2.055E-05	-8.039E-05	-4.204E-05	-2.899E-05	-0.0002	-0.00055913	-0.00011481	-0.000132	
11 TransEq	0	-3.843E-06	-1.347E-06	-1.354E-07	-4.564E-07	-3.574E-07	-1.392E-07	-8.482E-08	-2.423E-07	-2.852E-07	-4.086E-05	-2.328E-06	-4.193E-07	-8.18E-06	-4.725E-05	-0.000615	-5.817E-06	-0.0002024	-1.509E-05	-5.756E-05	-2.015E-05	-1.509E-05	-4.53E-05	-0.00167636	-4.1896E-05	-1.069E-05	
12 OthMachEq	0	-7.572E-05	-0.0005153	-1.368E-05	-1.205E-05	-1.032E-05	-1.772E-05	-4.192E-05	-1.137E-05	-5.619E-05	-2.497E-05	-2.632E-05	-0.0001767	-0.0002272	-0.0004647	-0.0009022	-0.0002729	-0.000377	-8.893E-05	-0.000412	-0.0002472	-0.0001648	-0.001374	-0.000372976	-0.0009897	-0.0009154	
13 EGW	0	-1.022E-05	-2.098E-05	-9.487E-07	-9.613E-07	-1.037E-06	-8.748E-07	-1.388E-06	-1.453E-06	-5.599E-06	-1.663E-06	-3.15E-06	-0.000365	-9.648E-06	-2.933E-05	-0.000105	-4.19E-05	-4.455E-05	-1.432E-05	-5.468E-05	-3.492E-05	-2.408E-05	-0.000298	-0.00027465	-0.00034059	-0.0002989	
14 Construction	0	-2.686E-05	-5.751E-06	-5.16E-07	-2.706E-07	-1.302E-07	-2.861E-07	-2.719E-06	-1.144E-07	-7.582E-07	-3.086E-07	-1.015E-06	-5.075E-05	-0.0003855	-0.000114	-7.533E-05	-2.395E-05	-5.143E-05	-6.118E-05	-0.0002335	-0.00015	-0.0001035	-0.000424	-0.00196965	-7.8622E-06	-3.355E-05	
15 WholesaleTrad	0	-0.0003701	-0.0025187	-6.686E-05	-5.891E-05	-5.042E-05	-8.663E-05	-0.0002049	-5.559E-05	-0.0002746	-0.000122	-0.0001286	-0.0008635	-0.0011102	-0.0004096	-0.0001337	-0.0001847	-0.0004346	-0.0020134	-0.001208	-0.0008054	-0.006717	-0.01822911	-0.0048244	-0.0095372		
16 RetailTrade	0	-3.026E-06	-1.449E-05	-5.5E-07	-4.393E-07	-5.491E-07	-2.229E-06	-7.24E-07	-1.728E-07	-3.429E-07	-2.125E-07	-6.988E-07	-9.834E-06	-0.0001031	-0.0002564	-4.255E-05	-0.0001571	-2.789E-05	-0.0001064	-6.852E-05	-4.726E-05	-0.000278	-0.000161	-0.00017117	-8.2019E-05	-0.0002793	
17 RecPersSvc	0	-6.316E-06	-5.466E-05	-9.692E-07	-7.37E-07	-7.382E-07	-4.385E-06	-3.079E-06	-7.761E-07	-1.87E-06	-2.808E-06	-2.739E-06	-8.705E-06	-9.613E-06	-0.0001021	-0.0002023	-0.0001926	-4.323E-05	-2.449E-05	-0.0001184	-7.284E-05	-5.024E-05	-0.000161	-0.00010187	-0.00057703	-0.00010879	
18 Transport	0	-2.825E-05	-5.74E-05	-3.461E-06	-1.896E-06	-2.482E-06	-5.419E-06	-3.75E-06	-2.214E-06	-5.745E-06	-2.714E-06	-5.194E-06	-4.588E-06	-2.023E-05	-0.0005782	-0.0001258	-2.947E-05	-0.0002981	-2.283E-05	-0.0001752	-0.0001123	-7.746E-05	-0.000621	-0.00017643	-0.00028063	-0.0003071	
19 PostalSvcs	0	-1.734E-07	-2.826E-06	-1.279E-07	-1.672E-07	-7.532E-08	-1.23E-06	-8.773E-08	-1.212E-07	-2.206E-07	-1.837E-07	-6.975E-07	-6.122E-07	-1.129E-06	-1.51E-05	-6.158E-05	-1.74E-05	-6.182E-06	-1.019E-05	-3.889E-05	-2.418E-05	-1.668E-05	-0.000112	-0.00021764	-8.3202E-05	-0.0002083	
20 telecoms	0	-0.0013636	-0.0092807	-0.0002463	-0.000217	-0.0001858	-0.0003192	-0.0007549	-0.0002048	-0.0001118	-0.0004496	-0.0004739	-0.00031817	-0.0004907	-0.0008695	-0.0162481	-0.0049144	-0.0067898	-0.0016015	-0.0074188	-0.0044513	-0.0029675	-0.02475	-0.06716854	-0.01799026	-0.0351417	
21 NBNRetailSrv	0	-2.893E-12	-1.043E-11	-5.727E-13	-3.212E-13	-1.892E-13	-8.315E-13	-4.739E-13	-3.896E-13	-7.849E-13	-5.396E-13	-1.891E-12	-6.823E-12	-7.336E-12	-8.52E-11	-1.9E-10	-4.136E-11	-5.315E-11	-1.768E-11	0	0	0	-3.35E-10	-7.747E-10	-2.3186E-10	-4.591E-10	
22 NBNCoSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 FinBusSvcs	0	-0.0006485	-0.0044138	-0.0001172	-0.0001032	-8.836E-05	-0.0001518	-0.000359	-9.742E-05	-0.0004812	-0.0002138	-0.0002254	-0.0015132	-0.0019455	-0.00039805	-0.0007274	-0.00023372	-0.0032291	-0.0007617	-0.0035283	-0.002117	-0.0014113	-0.011771	-0.03194466	-0.00855598	-0.016713	
24 PubAdmDef	0	-2.28E-06	-4.701E-06	-1.229E-07	-1.312E-07	-1.187E-07	-1.312E-07	-6.696E-07	-7.055E-07	-3.654E-07	-2.883E-07	-3.132E-06	-6.106E-05	-3.584E-05	-4.002E-06	-4.308E-05	-2.259E-06	-5.24E-05	-3.377E-05	-2.329E-05	-0.000154	-0.00015782	-0.00014315	-0.0001468			
25 Education	0	-1.345E-06	-6.067E-06	-3.366E-07	-1.901E-07	-1.355E-07	-4.547E-07	-5.239E-07	-2.505E-07	-4.513E-07	-5.497E-07	-1.058E-06	-4.946E-06	-1.025E-06	-3.489E-06	-2.326E-05	-1.746E-05	-1.404E-05	-1.962E-06	-7.486E-06	-4.618E-06	-3.185E-06	-0.000276	-0.00023872	-0.00040473	-0.0001093	
26 Community	0	-1.116E-08	-2.349E-06	-1.731E-07	-1.708E-08	-2.717E-08	-4.482E-07	-5.119E-07	-5.93E-09	-1.12E-08	-3.106E-07	-4.105E-08	-1.025E-07	-1.188E-07	-1.448E-06	-4.012E-06	-3.117E-06	-3.728E-06	-5.702E-07	-1.323E-05	-8.006E-06	-5.523E-06	-7.91E-06	-8.6718E-05	-2.3638E-05	-0.000537	

Table E.6 Shocks for Cloud Computing with high access speeds in Greater Melbourne by commodity and industry (bint_{S_{c,i}})

COMxIND	1AgriforFis	2 Mining	3 FoodDrink	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEq	12 OthMach	13 EGW	14 Constr	15 Wholesale	16 RetailTr	17 RecPers	18 Transpor	19 PostalSv	20 telecom	21 NBNRet	22 NBNCoS	23 FinBus	24 PubAdm	25 Education	26 Commun
1AgriforFis	0	-3.467E-07	-0.0005317	-6.201E-06	-1.157E-06	-9.798E-07	-8.021E-08	-1.691E-06	-1.451E-08	-8.725E-08	-4.209E-08	-1.864E-07	-1.215E-07	-1.243E-06	-1.893E-05	-4.705E-05	-3.903E-05	-1.564E-06	-1.297E-07	-5.22E-07	-3.211E-07	-2.214E-07	-2.76E-05	-6.073E-05	-2.9135E-06	-1.251E-05
2 Mining	0	-7.576E-05	-1.447E-05	-4.059E-07	-7.076E-07	-8.038E-07	-1.597E-07	-6.116E-05	-9.519E-06	-7.467E-05	-4.972E-07	-1.492E-06	-7.084E-05	-7.564E-06	-6.624E-06	-3.597E-05	-8.238E-06	-1.545E-06	-3.873E-06	-1.416E-05	-9.232E-06	-6.368E-06	-2.68E-05	-4.003E-05	-1.8894E-05	-8.439E-05
3 FoodDrinkTob	0	-3.377E-07	-0.000221	-3.399E-07	-1.827E-06	-4.43E-08	-1.192E-07	-2.156E-06	-2.508E-08	-5.992E-08	-1.389E-07	-1.699E-07	-3.192E-07	-6.983E-07	-2.681E-05	-0.0004406	-0.0001744	-1.6E-06	-2.684E-06	-9.809E-06	-5.485E-06	-3.783E-06	-4.3E-05	-0.00011753	-5.9767E-05	-6.11E-05
4 TCFs	0	-7.078E-07	-4.718E-06	-1.431E-05	-1.42E-06	-6.184E-06	-8.14E-07	-3.871E-07	-2.005E-07	-1.687E-06	-1.145E-06	-1.1E-06	-9.18E-07	-3.477E-05	-3.385E-05	-4.208E-05	-1.251E-05	-8.36E-06	-2.231E-06	-8.151E-06	-2.376E-					

Table E.7 Shocks for Cloud Computing with modest access speeds in Rest of Victoria by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrnk	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesa	16RetailTr	17RecPers	18Transpor	19PostalSv	20telecom	21NBNRet	22NBNCos	23FinBus	24PubAdm	25Education	26Commun
1AgnrForFis	0	-1.541E-07	-0.0003579	-2.755E-06	-5.14E-07	-4.354E-07	-3.564E-08	-7.512E-07	-6.446E-09	-3.877E-08	-1.87E-08	-8.284E-08	-5.4E-08	-5.524E-07	-5.018E-06	-2.703E-05	-1.6E-05	-1.138E-06	-9.438E-08	-1.192E-07	-7.331E-08	-5.056E-08	-2.4681E-05	-8.9804E-07	-4.552E-06	
2Mining	0	-3.367E-05	-9.739E-06	-1.804E-07	-3.144E-07	-3.572E-07	-7.098E-08	-2.718E-05	-4.23E-06	-3.318E-05	-2.209E-07	-6.631E-07	-3.148E-05	-3.361E-06	-1.756E-06	-2.066E-05	-3.377E-06	-1.124E-06	-2.818E-06	-3.233E-06	-2.108E-06	-1.454E-06	-8.4E-06	-1.6282E-05	-5.8238E-06	-3.071E-05
3FoodDrnkTob	0	-1.501E-07	-0.0001824	-1.51E-07	-8.118E-07	-1.969E-08	-5.295E-08	-9.58E-07	-1.114E-08	-2.663E-08	-6.173E-08	-7.549E-08	-1.418E-07	-3.103E-07	-7.107E-06	-0.0002531	-7.15E-05	-1.164E-06	-1.953E-06	-2.24E-06	-1.252E-06	-8.638E-07	-1.35E-05	-4.7767E-05	-1.8422E-05	-2.223E-05
4TCFs	0	-3.145E-07	-3.176E-06	-6.357E-06	-6.311E-07	-2.748E-06	-3.617E-07	-1.72E-07	-8.911E-08	-7.966E-07	-5.087E-07	-4.889E-07	-4.079E-07	-1.545E-05	-8.975E-06	-2.417E-05	-5.129E-06	-6.082E-06	-1.623E-06	-1.861E-06	-5.426E-07	-3.742E-07	-1.63E-05	-7.0797E-05	-2.2652E-05	-9.997E-05
5MiscManuf	0	-8.717E-07	-2.977E-05	-5.345E-07	-1.85E-06	-6.804E-07	-2.039E-06	-1.296E-06	-1.402E-07	-5.426E-07	-1.453E-06	-1.925E-06	-2.171E-06	-8.992E-06	-1.419E-05	-2.511E-05	-6.365E-06	-1.551E-05	-1.575E-05	-1.806E-05	-7.49E-06	-5.166E-06	-1.38E-05	-0.0001523	-2.2272E-05	-5.09E-05
6WoodProds	0	-3.19E-07	-2.781E-05	-3.191E-07	-2.982E-07	-2.084E-06	-5.537E-06	-6.857E-07	-2.278E-07	-3.075E-07	-5.615E-07	-4.01E-07	-2.136E-07	-2.342E-06	-9.421E-06	-2.11E-05	-4.915E-06	-2.937E-06	-3.348E-06	-3.839E-06	-2.208E-06	-1.523E-06	-1.16E-05	-0.0001215	-3.4233E-05	-7.118E-05
7PaperPrint	0	-2.922E-07	-3.553E-06	-1.707E-07	-2.412E-07	-3.717E-07	-3.952E-06	-2.291E-07	-8.588E-08	-2.557E-07	-2.471E-07	-6.418E-07	-5.32E-07	-1.805E-06	-1.813E-05	-0.0001189	-1.124E-05	-4.643E-06	-1.87E-05	-2.144E-05	-1.34E-05	-9.239E-06	-6.13E-05	-0.0002259	-0.00012457	-4.051E-05
8ChemCoalPrds	0	-1.627E-05	-9.15E-06	-1.335E-06	-5.295E-06	-1.511E-06	-2.097E-06	-1.079E-05	-1.442E-06	-1.745E-06	-1.404E-06	-2.112E-06	-1.255E-05	-1.609E-05	-2.574E-05	-6.545E-05	-1.88E-05	-0.0001467	-2.698E-06	-1.391E-05	-6.746E-06	-4.653E-06	-6.41E-05	-0.00012984	-1.534E-05	-0.000471
9NonMetMinPrd	0	-3.482E-07	-6.741E-06	-1.49E-07	-1.561E-07	-9.789E-08	-2.537E-08	-1.806E-07	-4.122E-06	-6.682E-07	-6.16E-07	-6.53E-07	-1.853E-06	-2.582E-05	-5.37E-06	-9.215E-06	-1.192E-06	-2.338E-07	-3.134E-08	-3.595E-08	-1.86E-08	-1.274E-08	-1.41E-09	-1.2193E-05	-1.3707E-06	-7.616E-06
10MetalPrds	0	-6.101E-06	-1.592E-05	-1.092E-06	-1.78E-06	-1.462E-06	-2.782E-07	-6.699E-07	-7.1E-07	-2.083E-05	-6.579E-06	-1.703E-05	-4.377E-06	-3.344E-05	-1.317E-05	-2.855E-05	-5.714E-06	-1.513E-05	-9.282E-06	-1.091E-05	-5.707E-06	-3.936E-06	-3.7E-05	-0.00014137	-2.1172E-05	-2.982E-05
11TransEq	0	-1.265E-06	5.442E-07	-4.454E-08	-1.502E-07	-1.176E-07	-4.581E-08	-2.791E-08	-7.972E-08	-9.384E-08	-1.344E-05	-7.66E-07	-1.38E-07	-2.692E-06	-8.689E-06	-0.0002315	-1.48E-06	-9.14E-05	-6.815E-06	-7.815E-06	-2.735E-06	-1.887E-06	-8.39E-06	-0.00042386	-7.7257E-06	-2.414E-06
12OthMachEgp	0	-2.491E-05	-0.0002082	-4.501E-06	-3.966E-06	-3.395E-06	-5.832E-06	-1.379E-05	-3.743E-06	-1.849E-05	-8.215E-06	-8.659E-06	-5.813E-05	-7.474E-05	-8.546E-05	-0.0003396	-6.945E-05	-0.0001703	-4.016E-05	-5.593E-05	-3.356E-05	-2.237E-05	-0.0002259	-0.00094304	-0.00018421	-0.0004409
13EGW	0	-3.363E-06	-8.467E-06	-3.121E-07	-3.163E-07	-3.412E-07	-2.879E-07	-4.699E-07	-4.78E-07	-1.842E-06	-5.473E-07	-0.0001201	-3.175E-05	-5.393E-06	-3.951E-05	-8.7E-06	-2.012E-05	-6.469E-06	-7.423E-06	-4.741E-06	-3.27E-06	-5.51E-05	-6.9443E-05	-6.2806E-05	-6.753E-05	
14Construction	0	-8.838E-06	-2.332E-06	-1.698E-07	-8.904E-08	-4.283E-08	-9.415E-08	-8.946E-07	-3.763E-08	-2.495E-07	-1.016E-07	-3.341E-07	-1.67E-05	-0.0001268	-2.096E-05	-2.835E-05	-6.095E-06	-2.323E-05	-2.763E-05	-3.17E-05	-2.037E-05	-1.405E-05	-7.85E-05	-0.00049801	-1.4498E-06	-7.58E-06
15WholesaleTrad	0	-0.0000218	-0.0001073	-2.2E-05	-1.938E-05	-1.659E-05	-2.85E-05	-6.741E-05	-1.829E-05	-9.036E-05	-4.015E-05	-2.232E-05	-0.0002841	-0.0003653	-0.0004177	-0.0001697	-0.0003394	-0.0003322	-0.0001963	-0.0002734	-0.000164	-0.0001053	-0.0004691	-0.0009033	-0.00021549	
16RetailTrade	0	-9.956E-07	-8.855E-06	-1.81E-07	-1.807E-07	-2.734E-07	-2.394E-07	-5.685E-08	-1.128E-07	-6.993E-08	-4.299E-07	-1.676E-07	-2.86E-07	-1.895E-05	-9.651E-05	-1.083E-05	-7.097E-05	-1.26E-05	-1.445E-05	-9.302E-06	-6.416E-06	-5.15E-05	-6.8563E-06	-1.5125E-05	-6.311E-05	
17RecPersSvc	0	-2.078E-06	-2.208E-05	-3.189E-07	-2.425E-07	-2.429E-07	-1.443E-06	-1.031E-06	-2.545E-07	-6.152E-07	-9.241E-07	-9.011E-07	-2.846E-07	-1.636E-06	-1.878E-05	-8.291E-05	-4.902E-05	-1.953E-05	-1.106E-05	-1.607E-05	-9.889E-06	-6.821E-06	-0.0002215	-0.00025584	-0.00010641	-0.0002458
18Transport	0	-9.295E-06	-2.319E-05	-1.139E-06	-6.239E-07	-8.168E-07	-1.234E-06	-7.183E-06	-1.234E-06	-1.89E-06	-8.931E-07	-1.709E-06	-2.125E-06	-6.675E-06	-0.0001063	-4.735E-05	-7.5E-06	-0.0001346	-1.031E-05	-2.379E-05	-1.525E-05	-0.000115	-5.1749E-05	-0.0001587	-5.1749E-05	-6.938E-05
19PostalSvcs	0	-5.706E-08	-1.142E-06	-4.208E-08	-5.502E-08	-2.478E-08	-4.047E-07	-2.887E-08	-3.988E-08	-7.258E-08	-6.043E-08	-2.295E-07	-2.014E-07	-3.715E-07	-2.777E-06	-2.318E-05	-4.427E-06	-2.792E-06	-4.604E-06	-5.28E-06	-3.284E-06	-2.265E-06	-2.08E-05	-5.5029E-05	-1.5343E-05	-4.707E-05
20telecoms	0	-0.0000487	-0.0037491	-8.106E-05	-7.142E-05	-6.113E-05	-0.0001049	-6.74E-05	-0.0003329	-0.0001479	-0.0001559	-0.0010469	-0.001346	-0.0015391	-0.0061154	-0.0012507	-0.0030666	-0.0007233	-0.0010072	-0.0006043	-0.0004029	-0.000584	-0.01698308	-0.00331744	-0.0079402	
21NBNRetailSrv	0	-9.521E-13	-4.215E-12	-1.884E-13	-1.057E-13	-6.227E-14	-2.736E-13	-1.559E-13	-1.282E-13	-2.583E-13	-1.776E-13	-6.222E-13	-2.245E-12	-2.414E-12	-1.567E-11	-7.153E-11	-1.052E-11	-2.401E-11	-7.986E-12	0	0	0	-6.2E-11	-1.9658E-10	-4.2755E-11	-1.037E-10
22NBNCoSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23FinBusSvcs	0	-0.0002134	-0.001783	-3.855E-05	-3.397E-05	-2.907E-05	-4.995E-05	-0.0001181	-3.206E-05	-0.0001583	-7.036E-05	-7.416E-05	-0.0004979	-0.0006401	-0.000732	-0.00029084	-0.0005948	-0.0014584	-0.000344	-0.000479	-0.0002874	-0.0001916	-0.00218	-0.00807698	-0.00157774	-0.0037763
24PubAdmDef	0	-7.503E-07	-1.899E-06	-4.045E-08	-3.876E-08	-7.199E-08	-4.918E-07	-3.044E-08	-1.202E-07	-2.194E-07	-9.486E-08	-4.316E-07	-2.033E-06	-1.888E-06	-1.349E-05	-1.019E-06	-1.02E-06	-9.48E-06	-7.115E-06	-4.584E-06	-2.85E-05	-6.00039742	-2.6397E-05	-3.371E-05		
25Education	0	-4.427E-07	-2.451E-06	-1.108E-07	-6.256E-08	-4.459E-08	-1.496E-07	-1.724E-07	-8.242E-08	-1.485E-07	-1.809E-07	-3.481E-07	-1.627E-06	-3.374E-07	-6.415E-07	-8.754E-06	-4.444E-06	-6.339E-06	-8.862E-07	-1.016E-06	-6.27E-07	-4.324E-07	-5.1E-05	-6.036E-05	-7.4632E-05	-2.469E-05
26Community	0	-3.674E-09	-9.49E-07	-5.696E-08	-5.619E-09	-8.942E-09	-1.475E-07	-1.684E-07	-1.951E-09	-3.684E-09	-1.022E-07	-1.351E-08	-3.373E-08	-3.907E-08	-2.663E-07	-1.51E-06	-7.934E-07	-1.684E-06	-2.575E-07	-1.796E-06	-1.087E-06	-7.498E-07	-1.46E-06	-2.1926E-05	-4.3588E-06	-0.0001251

Table E.8 Shocks for Cloud Computing with high access speeds in Rest of Victoria by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrnk	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesa	16RetailTr	17RecPers	18Transpor	19PostalSv	20telecom	21NBNRet	22NBNCos	23FinBus	24PubAdm	25Education	26Commun
1AgnrForFis	0	-5.078E-09	-1.835E-05	-9.081E-08	-1.694E-08	-1.435E-08	-1.175E-09	-2.476E-08	-2.124E-10	-1.278E-09	-2.73E-09	-1.78E-09	-1.821E-08	-1.939E-07	-1.279E-06	-8.002E-07	-3.759E-08	-3.119E-09	-7.987E-09	-4.913E-09	-3.388E-09	-6.11E-07	-1.1972E-06	-3.089E-08	-4.157E-07	
2Mining	0	-1.11E-06	-4.993E-07	-5.945E-09	-1.036E-08	-1.177E-08	-2.34E-09	-8.957E-07	-1.394E-07	-1.094E-06	-2.82E-09	-2.185E-08	-1.037E-06	-1.108E-07	-6.785E-08	-9.775E-07	-1.689E-07	-3.714E-08	-9.311E-08	-2.166E-07	-1.413E-07	-9.743E-08	-5.92E-07	-7.8981E-07	-2.0032E-07	-2.804E-06
3FoodDrnkTob	0	-4.946E-09	-9.35E-06	-4.978E-09	-2.676E-08	-6.489E-10	-1.745E-09	-3.157E-08	-3.673E-10	-8.775E-10	-2.035E-09	-2.488E-09	-4.674E-09	-1.023E-08	-2.746E-07	-1.198E-05	-3.576E-06	-6.453E-08	-1.501E-07	-8.392E-08	-5.788E-08	-9.51E-07	-2.3171E-06	-6.3367E-07	-2.03E-06	
4TCFs	0	-1.037E-08	-1.628E-07	-2.095E-07	-2.08E-08	-9.057E-08	-1.192E-08	-5.669E-09	-2.937E-09	-2.471E-08	-1.677E-08	-1.611E-08	-1.344E-08	-5.093E-07	-3.468E-07	-1.144E-06	-2.565E-07	-2.01E-07	-5.362E-08	-1.247E-07	-3.636E-08	-2.508E-08	-1.15E-06	-3.4427E-06	-7.7917E-07	-9

Table E.9 Shocks for Cloud Computing with modest access speeds in Greater Brisbane by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrink	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTra	17RecPers	18Transpor	19PostalSrv	20telecom	21NBNet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commun	
1AgnrForFis	0	-1.932E-07	-0.0003157	-3.456E-06	-6.447E-07	-5.461E-07	-4.47E-08	-9.423E-07	-8.085E-09	-4.862E-08	-2.346E-08	-1.039E-07	-6.773E-08	-6.928E-07	-8.467E-06	-2.5E-05	-2.189E-05	-1.056E-06	-8.765E-08	-2.845E-07	-1.75E-07	-1.207E-07	-1.75E-05	-4.9092E-05	-1.7617E-06	-8.498E-06	
2Mining	0	-4.222E-05	-8.591E-06	-2.262E-07	-3.944E-07	-4.48E-07	-8.903E-08	-3.409E-05	-5.305E-06	-4.162E-05	-2.771E-07	-8.316E-07	-3.948E-05	-4.215E-06	-2.963E-06	-1.911E-05	-4.621E-06	-1.044E-06	-2.617E-06	-7.716E-06	-5.031E-06	-3.47E-06	-1.75E-05	-3.2386E-05	-1.1425E-05	-5.732E-05	
3FoodDrinkTob	0	-1.882E-07	-0.0001609	-1.894E-07	-1.018E-06	-2.469E-08	-6.641E-08	-1.202E-06	-1.398E-08	-3.34E-08	-7.743E-08	-9.469E-08	-1.779E-07	-3.892E-07	-1.199E-05	-0.0002341	-9.783E-05	-1.081E-06	-1.814E-06	-5.346E-06	-2.989E-06	-2.062E-06	-2.81E-05	-9.501E-05	-3.614E-05	-4.15E-05	
4TCFs	0	-3.945E-07	-2.801E-06	-6.974E-06	-7.915E-07	-3.446E-06	-4.537E-07	-2.157E-07	-1.118E-07	-9.402E-07	-6.38E-07	-6.132E-07	-5.116E-07	-1.938E-05	-1.514E-05	-2.236E-05	-7.018E-06	-5.649E-06	-1.507E-06	-4.442E-06	-1.295E-06	-8.933E-07	-3.39E-05	-0.0001417	-4.4438E-06	-0.0001866	
5MiscManuf	0	-1.093E-06	-2.626E-05	-6.704E-07	-2.32E-06	-8.534E-07	-2.557E-06	-1.626E-06	-1.758E-07	-6.805E-07	-1.822E-06	-2.415E-06	-1.128E-05	-2.394E-05	-2.322E-05	-8.709E-06	-1.44E-05	-1.463E-05	-4.311E-05	-1.788E-05	-1.233E-05	-2.88E-05	-0.0003029	-4.3605E-05	-9.502E-05		
6WoodProds	0	-4.001E-07	-2.454E-05	-4.002E-07	-3.74E-07	-2.614E-06	-6.945E-06	-8.6E-07	-2.857E-07	-3.857E-07	-7.042E-07	-5.03E-07	-2.679E-07	-2.937E-06	-1.589E-05	-1.952E-05	-6.726E-06	-2.727E-06	-3.109E-06	-9.163E-06	-5.271E-06	-3.636E-06	-2.41E-05	-0.0002467	-6.7156E-06	-0.0001329	
7PaperPrint	0	-3.665E-07	-3.134E-06	-2.141E-07	-3.025E-07	-4.662E-07	-4.957E-06	-2.873E-07	-1.077E-07	-3.208E-07	-3.099E-07	-8.049E-07	-6.673E-07	-2.264E-06	-3.059E-05	-0.00011	-1.537E-05	-4.312E-06	-1.736E-05	-5.118E-05	-3.197E-05	-2.205E-05	-0.000128	-0.0004942	-0.00024437	-7.563E-05	
8ChemCoalPrds	0	-2.04E-05	-8.072E-06	-1.675E-06	-6.642E-06	-1.895E-06	-2.63E-06	-1.353E-05	-1.809E-06	-2.189E-06	-1.761E-06	-2.648E-06	-1.574E-05	-2.018E-05	-4.343E-05	-6.054E-05	-2.572E-05	-0.0001363	-2.506E-06	-3.32E-05	-1.61E-05	-1.111E-05	-0.000134	-0.00025825	-3.0094E-06	-0.0008792	
9NonMetMinPrd	0	-4.367E-05	-5.947E-06	-1.869E-07	-1.958E-07	-1.228E-07	-3.182E-08	-2.265E-07	-5.17E-06	-8.38E-07	-7.727E-07	-8.19E-07	-2.325E-06	-3.238E-05	-9.06E-06	-8.523E-06	-1.631E-06	-2.172E-07	-2.911E-08	-8.581E-08	-4.44E-08	-3.041E-08	-2.95E-05	-2.4252E-05	-2.6889E-06	-1.422E-05	
10MetalPrds	0	-7.652E-06	-1.405E-05	-1.37E-06	-2.233E-06	-1.834E-06	-3.489E-07	-8.402E-07	-8.905E-07	-2.613E-05	-8.252E-06	-2.137E-05	-5.49E-06	-4.194E-05	-2.221E-05	-2.641E-05	-7.818E-06	-1.405E-05	-8.621E-06	-2.605E-05	-1.962E-05	-9.395E-06	-7.7E-05	-0.0002819	-4.1534E-05	-5.566E-05	
11TransEq	0	-1.586E-06	-4.801E-07	-5.586E-08	-1.883E-07	-1.475E-07	-5.745E-08	-3.5E-08	-9.999E-08	-1.177E-07	-1.686E-05	-9.607E-07	-1.73E-07	-3.376E-06	-1.466E-05	-0.0002141	-2.055E-06	-8.489E-05	-6.329E-06	-1.85E-05	-6.529E-06	-4.503E-06	-1.75E-05	-0.00084306	-1.5156E-05	-4.507E-06	
12OthMachEgp	0	-3.125E-05	-0.0001837	-5.645E-06	-4.974E-06	-4.258E-06	-7.315E-06	-1.73E-05	-4.694E-06	-2.19E-05	-1.03E-05	-1.086E-05	-7.291E-05	-9.374E-05	-0.0001442	-0.0003141	-9.503E-05	-0.0001581	-3.73E-05	-0.0001335	-8.01E-05	-5.34E-05	-0.00053	-0.00017575	-0.00036138	-0.000823	
13EGW	0	-4.217E-06	-7.468E-06	-3.915E-07	-3.967E-07	-4.279E-07	-3.61E-07	-5.73E-07	-5.995E-07	-2.311E-06	-6.864E-07	-1.3E-06	-0.0001506	-3.982E-06	-9.099E-06	-3.655E-05	-1.19E-05	-1.859E-05	-6.008E-06	-1.772E-05	-1.132E-05	-7.804E-06	-0.000115	-0.00013812	-0.00012321	-0.0001261	
14Construction	0	-1.109E-05	-2.05E-06	-2.129E-07	-1.117E-07	-5.372E-08	-1.181E-07	-1.122E-06	-4.72E-08	-3.129E-07	-1.274E-07	-4.19E-07	-2.095E-05	-0.0001591	-3.536E-05	-2.623E-05	-8.34E-06	-2.157E-05	-2.566E-05	-7.566E-05	-4.862E-05	-3.353E-05	-0.000163	-0.00099056	-2.8442E-06	-1.415E-05	
15WholesaleTrad	0	-0.0001527	-0.0008976	-2.759E-05	-2.431E-05	-2.081E-05	-3.575E-05	-2.294E-05	-0.0001133	-5.036E-05	-5.308E-05	-0.0003564	-0.0004582	-0.0007047	-0.0015352	-0.0004644	-0.0007729	-0.0001823	-0.0006523	-0.0003913	-0.000261	-0.000259	-0.0016768	-0.0017623	-0.0004226		
16RetailTrade	0	-1.249E-06	-5.165E-06	-2.27E-07	-1.813E-07	-2.266E-07	-9.199E-07	-3.002E-07	-7.131E-08	-1.415E-07	-8.77E-08	-2.091E-06	-4.059E-06	-1.182E-05	-1.482E-05	-1.07E-05	-6.591E-05	-1.17E-05	-3.449E-05	-2.22E-05	-3.449E-05	-1.531E-05	-0.000107	-0.00013638	-0.9671E-05	-0.0001178	
17RecPersSvc	0	-2.606E-06	-1.948E-05	-4E-07	-3.042E-07	-3.047E-07	-1.81E-06	-1.271E-06	-3.038E-07	-7.716E-07	-1.159E-06	-1.13E-06	-5.939E-06	-3.967E-06	-3.168E-05	-7.669E-05	-6.707E-05	-1.813E-05	-1.027E-05	-3.835E-05	-2.36E-05	-1.628E-05	-0.000448	-0.00050888	-0.00020875	-0.0004589	
18Transport	0	-1.166E-05	-2.046E-05	-1.428E-06	-7.826E-07	-1.024E-06	-2.236E-06	-1.548E-06	-9.135E-07	-2.371E-06	-1.14E-06	-2.144E-06	-2.656E-06	-8.35E-06	-0.0001794	-4.38E-05	-1.026E-05	-0.000125	-9.576E-06	-5.678E-05	-3.639E-05	-2.51E-05	-0.00024	-0.00088685	-0.00010152	-0.0001295	
19PostalSvcs	0	-7.156E-08	-1.007E-06	-5.278E-08	-6.901E-08	-3.109E-08	-5.076E-07	-3.621E-08	-5.002E-08	-9.104E-08	-7.58E-08	-2.879E-07	-2.527E-07	-4.659E-07	-4.685E-06	-2.144E-05	-6.057E-06	-2.593E-06	-4.276E-06	-1.26E-05	-7.837E-06	-5.406E-06	-4.33E-05	-0.00010945	-3.0099E-05	-8.787E-05	
20telecoms	0	-0.0006627	-0.0003074	-0.0001017	-8.958E-05	-7.668E-05	-0.0001317	-0.0003115	-8.454E-05	-0.0001476	-0.0001855	-0.0001956	-0.0001311	-0.0016882	-0.0002566	-0.0005657	-0.0017113	-0.002848	-0.0006717	-0.0024042	-0.0014425	-0.0009617	-0.009545	-0.00378002	-0.00658001	-0.0148221	
21NBNetRetailSrv	0	-1.194E-12	-3.719E-12	-2.363E-13	-1.325E-13	-7.81E-14	-3.432E-13	-1.956E-13	-1.608E-13	-3.239E-13	-2.272E-13	-7.804E-13	-2.816E-12	-3.028E-12	-2.643E-11	-6.165E-11	-1.44E-11	-2.229E-11	-7.417E-12	0	0	0	-1.29E-10	-3.91E-10	-8.3874E-11	-1.937E-10	
22NBNCosSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23FinBusSvcs	0	-0.0002676	-0.001573	-4.835E-05	-4.26E-05	-3.647E-05	-6.265E-05	-0.0001482	-4.021E-05	-0.0001986	-8.825E-05	-9.302E-05	-0.0006245	-0.0008029	-0.0012349	-0.0026903	-0.0008139	-0.0013545	-0.0003195	-0.0011434	-0.000686	-0.0004574	-0.004539	-0.01606543	-0.00309514	-0.0070492	
24PubAdmDef	0	-9.41E-07	-1.675E-06	-5.074E-08	-4.861E-08	-9.029E-08	-6.169E-07	-3.818E-08	-1.508E-07	-2.752E-07	-1.19E-07	-5.413E-07	-2.575E-07	-4.136E-06	-3.151E-06	-1.248E-05	-1.897E-05	-9.474E-07	-1.698E-05	-1.094E-05	-5.94E-05	-0.00079049	-5.1784E-05	-6.192E-05			
25 Education	0	-5.552E-07	-2.162E-06	-1.389E-07	-7.847E-08	-5.592E-08	-1.877E-07	-2.162E-07	-1.034E-07	-1.862E-07	-2.269E-07	-4.366E-07	-2.041E-06	-4.232E-07	-1.082E-06	-8.097E-06	-6.081E-06	-5.887E-06	-8.23E-07	-2.426E-06	-1.497E-06	-1.032E-06	-0.000106	-0.00012006	-0.00014641	-4.61E-05	
26 Community	0	-4.608E-09	-8.372E-07	-7.144E-08	-7.048E-09	-1.121E-08	-1.85E-07	-2.113E-07	-2.447E-09	-4.621E-09	-1.282E-07	-1.694E-08	-4.231E-08	-4.901E-08	-4.493E-07	-1.397E-06	-1.086E-06	-1.564E-06	-2.392E-07	-4.287E-06	-2.595E-06	-1.79E-06	-3.05E-06	-4.3612E-05	-8.551E-06	-0.0002335	

Table E.10 Shocks for Cloud Computing with high access speeds in Greater Brisbane by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrink	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTra	17RecPers	18Transpor	19PostalSrv	20telecom	21NBNet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commun
1AgnrForFis	0	-1.042E-07	-0.0002192	-1.863E-06	-3.475E-07	-2.943E-07	-2.41E-08	-5.079E-07	-4.358E-09	-2.621E-08	-1.264E-08	-5.6E-08	-3.65E-08	-3.734E-07	-4.839E-06	-1.496E-05	-1.329E-05	-4.729E-07	-3.923E-08	-2.215E-07	-1.963E-07	-9.398E-08	-1.29E-05	-3.021E-05	-1.182E-06	-6.125E-06
2Mining	0	-2.276E-05	-5.964E-06	-1.219E-07	-2.126E-07	-2.415E-07	-4.799E-08	-1.837E-05	-2.859E-06	-2.243E-05	-1.494E-07	-4.482E-07	-2.128E-05	-2.272E-06	-1.693E-06	-1.143E-05	-2.806E-06	-4.673E-07	-1.171E-06	-6.008E-06	-3.918E-06	-2.702E-06	-1.25E-05	-1.9804E-05	-7.6655E-06	-4.131E-05
3FoodDrinkTob	0	-1.015E-07	-0.0001117	-1.021E-07	-5.488E-07	-1.331E-08	-3.579E-08	-6.476E-07	-7.534E-09	-1.8E-08	-4.173E-08	-5.104E-08	-9.588E-08	-2.098E-07	-6.853E-06	-0.0001401	-5.94E-05	-4.838E-07	-8.118E-07	-4.163E-06	-1.606E-06	-2.01E-05	-5.81E-05	-2.4248E-06	-2.911E-05	
4TCFs	0	-2.126E-07	-1.945E-06	-4.298E-06	-4.266E-07	-1.858E-06	-2.445E-07	-1.163E-07	-6.024E-08	-5.688E-07	-3.439E-07	-3.305E-07	-2.758E-07	-1.045E-05	-8.654E-06	-1.388E-05	-4.261E-06	-2.528E-06	-6.746E-07	-3.459E-06	-1.008E-06	-6.956E-07	-2.43E			

Table E.11 Shocks for Cloud Computing with modest access speeds in Rest of Queensland by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrnk	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTr	17RecPers	18Transpor	19PostalSv	20telecom	21NBNet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commu
1AgnrForFis	0	-2.216E-07	-0.0004915	-3.963E-06	-7.394E-07	-6.263E-07	-5.127E-08	-1.081E-06	-9.273E-09	-5.577E-08	-2.696E-08	-1.192E-07	-7.768E-08	-7.946E-07	-8.97E-06	-3.817E-05	-2.504E-05	-1.564E-06	-1.298E-07	-2.471E-07	-1.52E-07	-1.048E-07	-1.87E-05	-5.189E-05	-1.6623E-06	-8.349E-06
2Mining	0	-4.843E-05	-1.337E-05	-2.595E-07	-4.523E-07	-5.138E-07	-1.021E-07	-3.909E-05	-6.085E-06	-4.773E-05	-3.178E-07	-9.538E-07	-4.528E-05	-4.835E-06	-3.139E-06	-2.917E-05	-5.286E-06	-1.546E-06	-3.875E-06	-6.702E-06	-4.37E-06	-3.015E-06	-1.81E-05	-3.4231E-05	-1.078E-05	-5.631E-05
3FoodDrinkTob	0	-2.159E-07	-0.0002504	-2.173E-07	-1.168E-06	-2.832E-08	-7.616E-08	-1.378E-06	-1.603E-08	-3.83E-08	-8.88E-08	-1.086E-07	-2.04E-07	-4.464E-07	-1.27E-05	-0.0003574	-0.0001119	-1.6E-06	-2.685E-06	-4.644E-06	-2.597E-06	-1.791E-06	-2.9E-05	-0.0001043	-3.4099E-05	-4.077E-05
4TCFs	0	-4.524E-07	-4.361E-06	-9.145E-06	-9.078E-07	-3.953E-06	-5.203E-07	-2.474E-07	-1.282E-07	-1.078E-06	-7.318E-07	-7.033E-07	-5.868E-07	-2.232E-05	-1.604E-05	-3.414E-05	-8.027E-06	-8.363E-06	-2.231E-06	-3.859E-06	-1.125E-06	-7.759E-07	-3.51E-05	-0.00014921	-4.1929E-05	-0.0001834
5MiscManuf	0	-1.254E-06	-4.088E-05	-7.689E-07	-2.661E-06	-9.788E-07	-2.933E-06	-1.865E-06	-2.016E-07	-7.805E-07	-2.09E-06	-2.769E-06	-3.124E-06	-1.294E-05	-2.536E-05	-3.545E-05	-9.963E-06	-2.132E-05	-2.166E-05	-3.745E-05	-1.533E-05	-1.071E-05	-2.98E-05	-0.00031983	-4.1142E-05	-9.336E-05
6WoodProds	0	-4.589E-07	-3.82E-05	-4.59E-07	-4.289E-07	-2.998E-06	-7.965E-06	-9.864E-07	-3.277E-07	-4.423E-07	-8.077E-07	-5.769E-07	-3.072E-07	-3.368E-06	-1.684E-05	-2.979E-05	-7.694E-06	-4.038E-06	-4.603E-06	-7.959E-06	-4.579E-06	-3.158E-06	-2.5E-05	-0.00025545	-6.3364E-05	-0.0001305
7PaperPrint	0	-4.203E-07	-4.879E-06	-2.455E-07	-3.469E-07	-5.347E-07	-5.685E-06	-3.295E-07	-1.235E-07	-3.679E-07	-3.555E-07	-9.232E-07	-7.653E-07	-2.597E-06	-3.24E-05	-0.0001678	-1.759E-05	-6.383E-06	-2.571E-05	-4.445E-05	-2.777E-05	-1.916E-05	-0.000132	-0.00047504	-0.00023057	-7.43E-05
8ChemCoalPrds	0	-2.34E-05	-1.257E-05	-1.921E-06	-7.617E-06	-2.173E-06	-3.017E-06	-1.552E-05	-2.074E-06	-2.51E-06	-2.02E-06	-3.037E-06	-1.805E-05	-2.314E-05	-4.601E-05	-9.242E-05	-2.942E-05	-0.0002018	-3.71E-06	-2.884E-05	-1.399E-05	-9.648E-06	-0.000138	-0.00027297	-2.8394E-05	-0.0008638
9NonMetMinPrd	0	-5.009E-07	-9.257E-06	-2.144E-07	-2.246E-07	-1.408E-07	-3.649E-08	-2.598E-07	-5.93E-06	-9.612E-07	-8.862E-07	-9.393E-07	-2.666E-06	-3.714E-05	-9.598E-06	-1.301E-05	-1.866E-06	-3.215E-07	-4.309E-08	-7.453E-08	-3.857E-08	-2.641E-08	-3.05E-05	-2.5634E-05	-2.5371E-06	-1.397E-05
10MetalPrds	0	-8.777E-06	-2.187E-05	-1.571E-06	-2.561E-06	-2.103E-06	-4.002E-07	-9.636E-07	-1.021E-06	-2.997E-05	-9.464E-06	-2.45E-05	-6.297E-06	-4.81E-05	-2.353E-05	-4.031E-05	-8.943E-06	-2.08E-05	-1.276E-05	-2.263E-05	-1.183E-05	-8.161E-06	-7.96E-05	-0.00029722	-3.9188E-05	-5.469E-05
11TransEgp	0	-1.819E-06	-7.473E-07	-6.407E-08	-2.16E-07	-1.692E-07	-6.589E-08	-4.015E-08	-1.147E-07	-1.35E-07	-1.934E-05	-1.102E-06	-1.985E-07	-3.872E-06	-1.553E-05	-0.0003269	-2.176E-06	-0.0001257	-9.37E-06	-1.62E-05	-5.671E-06	-3.912E-06	-1.81E-05	-0.00089111	-1.43E-05	-4.428E-06
12OthMachEgp	0	-3.584E-05	-0.0002859	-6.475E-06	-5.705E-06	-4.883E-06	-8.389E-06	-1.984E-05	-5.384E-06	-2.659E-05	-1.182E-05	-1.246E-05	-8.363E-05	-0.0001075	-0.0001527	-0.0004795	-0.0001087	-0.0002341	-5.522E-05	-0.000116	-6.959E-05	-4.638E-05	-0.000548	-0.00018265	-0.00034097	-0.0008086
13EGW	0	-4.836E-06	-1.163E-05	-4.49E-07	-4.55E-07	-4.908E-07	-4.114E-07	-6.347E-07	-6.876E-07	-2.65E-06	-7.873E-07	-1.491E-06	-0.0001728	-4.567E-06	-9.639E-06	-5.79E-05	-1.362E-05	-2.767E-05	-8.894E-06	-1.539E-05	-9.829E-06	-6.779E-06	-0.000119	-0.00011625	-0.0001239	
14Construction	0	-1.271E-05	-3.191E-06	-2.442E-07	-1.281E-07	-6.161E-08	-1.354E-07	-1.287E-06	-5.413E-08	-3.589E-07	-1.461E-07	-4.806E-07	-2.402E-05	-0.0001824	-3.746E-05	-4.004E-05	-9.54E-06	-3.194E-05	-3.799E-05	-6.572E-05	-4.223E-05	-2.913E-05	-0.000169	-0.00104702	-2.6836E-06	-1.39E-05
15WholesaleTrad	0	-0.0001752	-0.0013973	-3.165E-05	-2.788E-05	-2.387E-05	-4.1E-05	-9.697E-05	-2.631E-05	-0.00013	-5.776E-05	-6.088E-05	-0.0004087	-0.0005253	-0.0007466	-0.0002346	-0.0005313	-0.0011443	-0.0002699	-0.0005668	-0.0003401	-0.0002267	-0.00069016	-0.0016665	-0.0039522	
16RetailTrade	0	-1.432E-06	-2.603E-07	-2.079E-07	-2.599E-07	-1.055E-06	-3.443E-07	-8.178E-08	-1.623E-07	-1.006E-07	-3.307E-07	-2.987E-06	-6.655E-06	-0.0001363	-1.695E-05	-9.758E-05	-1.732E-05	-2.996E-05	-1.929E-05	-1.132E-05	-2.996E-05	-0.0001141	-0.0001111	-0.00014415	-2.7959E-05	-0.0001157
17RecPersSvc	0	-2.989E-06	-3.032E-05	-4.588E-07	-3.489E-07	-3.494E-07	-2.076E-06	-1.457E-06	-3.674E-07	-8.85E-07	-1.239E-06	-1.296E-06	-4.12E-06	-4.55E-06	-3.356E-05	-0.0001171	-7.672E-05	-2.685E-05	-1.521E-05	-3.332E-05	-2.05E-05	-1.414E-05	-0.000463	-0.00053789	-0.00019696	-0.0004508
18Transport	0	-1.137E-05	-1.638E-06	-8.975E-07	-1.175E-06	-2.565E-06	-1.757E-06	-1.463E-06	-2.459E-06	-3.075E-06	-9.759E-06	-5.79E-06	-9.759E-06	-0.00019	-6.686E-05	-1.174E-05	-0.0001851	-1.418E-05	-4.932E-05	-3.161E-05	-2.18E-05	-0.000248	-0.00039374	-9.5786E-06	-0.0001272	
19PostalSvcs	0	-8.208E-08	-1.568E-06	-6.054E-08	-7.915E-08	-3.565E-08	-5.822E-07	-4.153E-08	-5.737E-08	-1.044E-07	-8.694E-08	-3.302E-07	-2.898E-07	-5.344E-07	-4.963E-06	-3.273E-05	-6.929E-06	-3.839E-06	-6.33E-06	-1.095E-05	-6.808E-06	-4.695E-06	-4.48E-05	-0.0001569	-2.8399E-05	-8.634E-05
20telecoms	0	-0.0006454	-0.0051486	-0.0001166	-0.0001027	-8.794E-05	-0.0001511	-0.0003573	-9.696E-05	-0.0004789	-0.0002128	-0.0002243	-0.001506	-0.00019363	-0.00027508	-0.00086354	-0.0019575	-0.00042163	-0.0009945	-0.0028883	-0.001253	-0.0008353	-0.0009868	-0.03570521	-0.00614052	-0.0145626
21NBNetRetailSrv	0	-1.37E-12	-5.789E-12	-2.711E-13	-1.52E-13	-8.957E-14	-3.936E-13	-2.243E-13	-1.844E-13	-3.715E-13	-2.554E-13	-8.951E-13	-3.23E-12	-4.73E-12	-2.8E-11	-1.01E-10	-1.647E-11	-3.301E-11	-1.098E-11	0	0	0	-1.34E-10	-4.1328E-10	-7.9138E-11	-1.903E-10
22NBNCosSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23FinBusSvcs	0	-0.000307	-0.0024486	-5.546E-05	-4.886E-05	-4.182E-05	-7.185E-05	-0.0001699	-4.611E-05	-0.0002278	-0.0001012	-0.0001067	-0.0007162	-0.0009209	-0.0013083	-0.0041069	-0.000931	-0.0020052	-0.000473	-0.0009932	-0.0005959	-0.0003973	-0.004693	-0.01698102	-0.00292037	-0.0069258
24PubAdmDef	0	-1.079E-06	-2.608E-06	-5.819E-08	-5.575E-08	-1.036E-07	-7.075E-07	-6.347E-07	-3.79E-08	-1.729E-07	-3.157E-07	-1.865E-07	-6.209E-07	-3.338E-06	-2.396E-06	-1.794E-06	-1.756E-06	-3.721E-07	-1.498E-06	-6.469E-06	-4.042E-06	-2.788E-06	-1.66E-05	-5.3118E-05	-3.762E-05	-1.09E-05
25 Education	0	-6.368E-07	-3.366E-06	-1.593E-07	-9E-08	-6.414E-08	-2.152E-07	-2.48E-07	-1.186E-07	-2.136E-07	-2.602E-07	-5.008E-07	-2.341E-06	-4.835E-07	-1.147E-06	-1.236E-05	-6.956E-06	-8.716E-06	-1.218E-06	-2.107E-06	-1.3E-06	-8.964E-07	-0.00011	-0.0001269	-0.00013814	-4.529E-05
26 Community	0	-5.284E-09	-1.303E-06	-8.193E-08	-8.083E-09	-1.286E-08	-2.121E-07	-2.423E-07	-2.807E-09	-5.3E-09	-1.47E-07	-1.943E-08	-4.852E-08	-5.621E-08	-4.76E-07	-2.132E-06	-1.242E-06	-2.315E-06	-3.541E-07	-3.723E-06	-2.254E-06	-1.555E-06	-3.15E-06	-4.6097E-05	-8.0681E-06	-0.0002295

Table E.12 Shocks for Cloud Computing with high access speeds in Rest of Queensland by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrnk	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTr	17RecPers	18Transpor	19PostalSv	20telecom	21NBNet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commu
1AgnrForFis	0	-2.022E-08	-5.585E-05	-3.617E-07	-6.747E-08	-5.715E-08	-4.679E-09	-9.861E-08	-8.461E-10	-5.089E-09	-2.455E-09	-1.087E-08	-7.088E-08	-7.251E-08	-7.533E-07	-4.079E-06	-2.5E-06	-9.117E-08	-7.564E-09	-3.596E-08	-2.212E-08	-1.526E-08	-2.34E-06	-5.8024E-06	-2.7121E-07	-1.225E-06
2Mining	0	-4.419E-06	-1.52E-06	-2.368E-08	-4.127E-08	-4.688E-08	-9.318E-09	-3.567E-06	-5.552E-07	-4.355E-06	-2.9E-08	-8.704E-08	-4.132E-06	-4.412E-07	-2.636E-07	-3.118E-06	-5.277E-07	-9.01E-08	-2.259E-07	-9.754E-07	-6.36E-07	-4.387E-07	-2.27E-06	-3.8278E-06	-1.7589E-06	-8.262E-06
3FoodDrinkTob	0	-1.97E-08	-2.846E-05	-1.983E-08	-1.066E-07	-2.584E-09	-6.95E-09	-1.257E-07	-1.463E-09	-3.495E-09	-8.103E-09	-9.909E-09	-1.862E-08	-4.073E-08	-1.067E-06	-3.82E-05	-1.117E-05	-9.327E-08	-1.565E-07	-6.758E-07	-3.779E-07	-2.606E-07	-3.65E-06	-1.123E-06	-5.5635E-06	-5.982E-06
4TCFs	0	-4.128E-08	-4.955E-07	-8.345E-07	-8.284E-08	-3.607E-07	-4.748E-08	-2.258E-08	-1.17E-08	-9.84E-08	-6.677E-08	-6.418E-08	-5.354E-08	-2.028E-06	-1.347E-06	-3.648E-06	-8.013E-07	-4.875E-07	-1.301E-07							

Table E.13 Shocks for Cloud Computing with modest access speeds in Greater Adelaide by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2 Mining	3 FoodDrnk	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEgp	12 OthMach	13 EGW	14 Constr	15 Wholesale	16 RetailTr	17 RecPers	18 Transpor	19 PostalSrv	20 telecom	21 NBNRet	22 NBNCoS	23 FinBus	24 PubAdm	25 Education	26 Commu
1AgnrForFis	0	-1.198E-07	-0.0002278	-2.143E-06	-3.997E-07	-3.386E-07	-2.772E-08	-5.842E-07	-5.012E-09	-3.015E-08	-1.454E-08	-6.442E-08	-4.295E-07	-5.986E-06	-1.88E-05	-1.037E-05	-5.965E-07	-4.949E-08	-1.513E-07	-9.307E-08	-6.419E-08	-1.08E-05	-2.6247E-05	-9.2102E-07	-6.134E-05	
2 Mining	0	-2.618E-05	-6.198E-06	-1.403E-07	-2.445E-07	-2.777E-07	-5.52E-08	-2.113E-05	-3.289E-06	-2.58E-05	-1.718E-07	-5.156E-07	-2.448E-05	-2.614E-06	-2.095E-06	-1.437E-05	-2.19E-06	-5.895E-07	-1.478E-06	-4.104E-06	-2.676E-06	-1.846E-06	-1.05E-05	-1.7315E-05	-5.9728E-06	-4.137E-05
3 FoodDrnkTob	0	-1.167E-07	-0.0001161	-1.175E-07	-6.313E-07	-1.531E-08	-4.117E-08	-7.449E-07	-8.666E-09	-2.07E-08	-4.8E-08	-5.87E-08	-1.103E-07	-2.413E-07	-8.477E-06	-0.0001761	-4.636E-05	-6.102E-07	-1.024E-06	-2.843E-06	-1.59E-06	-1.097E-06	-1.68E-05	-5.0797E-05	-1.8893E-05	-2.996E-05
4 TCFs	0	-2.446E-07	-2.021E-06	-4.944E-06	-4.907E-07	-2.137E-06	-2.813E-07	-1.338E-07	-6.93E-08	-5.829E-07	-3.956E-07	-3.802E-07	-3.172E-07	-1.202E-05	-1.071E-05	-1.682E-05	-3.325E-06	-3.189E-06	-8.51E-07	-2.363E-06	-6.888E-07	-4.751E-07	-2.03E-05	-7.5475E-05	-2.3232E-05	-0.0001347
5 MiscManuf	0	-6.778E-07	-1.894E-05	-4.156E-07	-1.439E-06	-5.291E-07	-1.586E-06	-1.008E-06	-1.09E-07	-4.219E-07	-1.13E-06	-1.497E-06	-1.689E-06	-6.993E-06	-1.692E-05	-1.746E-05	-4.127E-06	-8.13E-06	-8.259E-06	-2.293E-05	-9.509E-06	-6.559E-06	-1.73E-05	-0.00016178	-2.2796E-05	-6.859E-05
6 WoodProds	0	-2.481E-07	-1.77E-05	-2.481E-07	-2.319E-07	-1.621E-06	-4.306E-06	-5.332E-07	-1.771E-07	-2.391E-07	-4.366E-07	-3.118E-07	-1.661E-07	-1.821E-06	-1.124E-05	-1.468E-05	-3.187E-06	-1.54E-06	-1.756E-06	-4.874E-06	-2.804E-06	-1.934E-06	-1.45E-05	-0.00012921	-3.5108E-06	-9.591E-05
7 PaperPrint	0	-2.272E-07	-2.261E-06	-1.327E-07	-1.875E-07	-2.891E-07	-3.073E-06	-1.781E-07	-6.678E-08	-1.989E-07	-1.922E-07	-4.991E-07	-1.437E-07	-1.404E-06	-2.163E-05	-8.269E-05	-7.285E-06	-2.434E-06	-9.803E-06	-2.722E-05	-1.701E-05	-1.173E-05	-7.66E-05	-0.00024028	-0.00012776	-5.459E-05
8 ChemCoalPrds	0	-1.265E-05	-5.823E-06	-1.038E-06	-4.118E-06	-1.175E-06	-1.631E-06	-8.387E-06	-1.121E-06	-1.357E-06	-1.092E-06	-1.642E-06	-9.76E-06	-1.251E-05	-3.071E-05	-4.553E-05	-1.219E-05	-7.694E-05	-1.415E-06	-1.766E-05	-8.565E-06	-5.908E-06	-8.01E-05	-0.00013807	-1.5732E-05	-0.0003646
9 NonMetMinPrd	0	-2.708E-07	-4.29E-06	-1.159E-07	-1.214E-07	-7.612E-08	-1.973E-08	-1.404E-07	-3.206E-06	-5.196E-07	-4.79E-07	-5.078E-07	-1.441E-06	-2.008E-05	-6.406E-06	-6.41E-06	-7.73E-07	-1.226E-07	-1.643E-08	-4.564E-08	-2.362E-08	-1.617E-08	-1.77E-05	-1.2966E-05	-1.4057E-06	-1.026E-05
10 MetalPrds	0	-4.744E-06	-1.013E-05	-8.491E-07	-1.384E-06	-1.137E-06	-2.163E-07	-5.209E-07	-5.521E-07	-1.62E-05	-5.116E-06	-1.325E-05	-3.404E-06	-2.6E-05	-1.57E-05	-1.986E-05	-3.704E-06	-7.932E-06	-4.867E-06	-1.386E-05	-7.245E-06	-4.997E-06	-4.62E-05	-0.00015034	-2.1713E-06	-4.018E-05
11 TransEgp	0	-9.833E-07	-3.463E-07	-3.463E-08	-1.168E-07	-9.146E-08	-3.562E-08	-2.17E-08	-6.199E-08	-7.297E-08	-1.045E-05	-5.956E-07	-1.073E-07	-2.093E-06	-1.037E-05	-0.000161	-9.597E-07	-4.793E-05	-3.573E-06	-9.922E-06	-3.473E-06	-2.395E-06	-1.05E-05	-0.00045075	-7.9234E-06	-3.253E-06
12 OthMachEgp	0	-1.937E-05	-0.0001325	-3.5E-06	-3.084E-06	-2.64E-06	-4.535E-06	-1.073E-05	-2.91E-06	-1.438E-05	-6.388E-06	-6.733E-06	-4.52E-05	-5.812E-05	-0.0001019	-0.0002362	-4.503E-05	-8.929E-05	-2.106E-05	-7.101E-05	-4.26E-05	-2.84E-05	-0.000318	-0.0010287	-0.00018892	-0.0005941
13 EGW	0	-1.645E-06	-5.388E-06	-2.427E-07	-2.46E-07	-2.653E-07	-2.238E-07	-3.553E-07	-3.717E-07	-1.433E-06	-4.256E-07	-8.06E-07	-9.39E-05	-2.469E-06	-6.433E-06	-2.749E-05	-5.64E-06	-1.055E-05	-3.392E-06	-9.424E-06	-6.018E-06	-4.151E-06	-6.89E-05	-6.4412E-06	-9.00E-05	-9.1E-05
14 Construction	0	-6.873E-06	-1.479E-06	-1.32E-07	-6.924E-08	-3.33E-08	-7.321E-08	-6.956E-07	-2.926E-08	-1.94E-07	-7.897E-08	-2.598E-07	-1.299E-05	-9.863E-05	-2.5E-05	-1.972E-05	-3.951E-06	-1.218E-05	-1.449E-05	-4.024E-05	-2.586E-05	-1.784E-05	-9.8E-05	-0.00052961	-1.4869E-06	-1.021E-05
15 WholesaleTrad	0	-9.468E-05	-0.0006473	-1.711E-05	-1.507E-05	-1.29E-05	-2.216E-05	-5.242E-05	-1.422E-05	-7.026E-05	-3.122E-05	-3.291E-05	-0.0002209	-0.0002841	-0.0004983	-0.0011545	-0.0002201	-0.0004364	-0.0001029	-0.000347	-0.0002082	-0.0001388	-0.000554	-0.00490151	-0.0002336	-0.0029037
16 RetailTrade	0	-7.742E-07	-3.726E-07	-1.407E-07	-1.124E-07	-1.405E-07	-5.703E-07	-1.861E-07	-4.421E-08	-8.773E-08	-5.438E-08	-1.289E-07	-1.296E-06	-2.261E-05	-6.714E-05	-7.021E-06	-3.721E-05	-6.605E-06	-1.834E-05	-1.181E-05	-8.146E-06	-6.43E-05	-1.5511E-05	-8.504E-05		
17 RecPersSvc	0	-1.616E-06	-1.405E-05	-2.48E-07	-1.886E-07	-1.889E-07	-1.122E-06	-7.878E-07	-1.986E-07	-4.744E-07	-7.186E-07	-7.007E-07	-2.227E-06	-2.46E-06	-5.767E-05	-3.178E-05	-1.024E-05	-5.8E-06	-2.04E-05	-1.255E-05	-8.659E-06	-0.000268	-0.0002708	-0.00010913	-0.0003312	
18 Transport	0	-7.228E-06	-1.476E-05	-8.855E-07	-4.852E-07	-6.352E-07	-1.86E-06	-9.596E-07	-5.664E-07	-1.87E-06	-6.945E-07	-1.74E-06	-1.652E-06	-5.17E-06	-0.0001268	-3.294E-05	-4.863E-06	-1.06A-05	-5.406E-06	-3.02E-05	-1.936E-05	-1.635E-05	-0.000144	-5.3072E-05	-9.348E-05	
19 PostalSvcs	0	-4.437E-08	-7.265E-07	-3.272E-08	-4.278E-08	-1.927E-08	-3.147E-07	-2.245E-08	-3.101E-08	-5.644E-08	-4.699E-08	-1.785E-07	-1.566E-07	-2.889E-07	-3.312E-06	-1.612E-05	-2.87E-06	-1.464E-06	-2.414E-06	-6.704E-06	-4.169E-06	-2.875E-06	-2.6E-05	-5.852E-05	-1.5735E-05	-6.343E-05
20 telecoms	0	-0.0003489	-0.002386	-6.303E-05	-5.554E-05	-4.754E-05	-8.167E-05	-0.0001931	-5.241E-05	-0.0002589	-0.000115	-0.0001213	-0.0008141	-0.0010467	-0.0018359	-0.002454	-0.0008109	-0.0016079	-0.0003793	-0.0012787	-0.0007672	-0.0005115	-0.0002726	-0.01806052	-0.00034023	-0.0106991
21 NBNRetailSrv	0	-7.403E-13	-2.683E-12	-1.465E-13	-8.218E-14	-4.842E-14	-2.128E-13	-1.121E-13	-9.969E-14	-2.008E-13	-1.381E-13	-4.839E-13	-1.746E-12	-1.872E-12	-1.869E-11	-4.976E-11	-6.824E-12	-1.259E-11	-4.187E-12	0	0	0	-7.75E-11	-2.0905E-10	-4.3848E-11	-1.398E-10
22 NBNCoSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 FinBusSvcs	0	-0.0001659	-0.0011347	-2.998E-05	-2.641E-05	-2.261E-05	-3.884E-05	-9.186E-05	-2.493E-05	-0.0001231	-5.471E-05	-5.767E-05	-0.0003872	-0.0004978	-0.0008732	-0.00020232	-0.0003856	-0.0007647	-0.0001804	-0.0006082	-0.0003649	-0.0002433	-0.002723	-0.0008584	-0.0016181	-0.0050884
24 PubAdmDef	0	-5.834E-07	-1.209E-06	-3.146E-08	-3.014E-08	-5.598E-08	-3.825E-07	-8.805E-07	-3.394E-07	-1.706E-07	-7.376E-07	-3.356E-07	-1.957E-06	-2.238E-06	-6.000E-07	-6.604E-07	-5.349E-07	-9.032E-06	-5.82E-06	-4.014E-06	-3.57E-05	-0.00042264	-3.7022E-05	-4.469E-05		
25 Education	0	-3.442E-07	-1.56E-06	-8.614E-08	-4.865E-08	-3.467E-08	-1.164E-07	-1.341E-07	-6.409E-08	-1.155E-07	-1.407E-07	-2.707E-07	-1.266E-06	-2.624E-07	-7.653E-07	-6.09E-06	-2.881E-06	-3.324E-06	-4.647E-07	-1.29E-06	-7.96E-07	-5.489E-07	-6.38E-05	-6.4189E-05	-7.6541E-05	-3.327E-05
26 Community	0	-2.857E-09	-6.04E-07	-4.429E-08	-4.37E-09	-6.953E-09	-1.147E-07	-1.31E-07	-1.517E-09	-2.865E-09	-7.948E-08	-1.05E-08	-2.623E-08	-3.039E-08	-3.177E-07	-1.05E-06	-5.144E-07	-8.828E-07	-1.35E-07	-2.28E-06	-1.38E-06	-9.519E-07	-1.83E-06	-2.3317E-05	-4.4703E-06	-0.0001686

Table E.14 Shocks for Cloud Computing with high access speeds in Greater Adelaide by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2 Mining	3 FoodDrnk	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEgp	12 OthMach	13 EGW	14 Constr	15 Wholesale	16 RetailTr	17 RecPers	18 Transpor	19 PostalSrv	20 telecom	21 NBNRet	22 NBNCoS	23 FinBus	24 PubAdm	25 Education	26 Commu
1AgnrForFis	0	-3.657E-09	-8.654E-06	-6.539E-08	-1.22E-08	-1.033E-08	-8.459E-10	-1.783E-08	-1.53E-10	-9.201E-10	-4.438E-10	-1.966E-09	-1.282E-09	-1.311E-08	-2.322E-07	-8.816E-07	-3.688E-07	-2.677E-08	-2.221E-09	-1.563E-09	-9.613E-10	-6.3E-10	-2.65E-07	-1.5564E-06	-4.5692E-09	-1.574E-07
2 Mining	0	-7.79E-07	-2.355E-07	-4.281E-09	-7.462E-09	-8.477E-09	-1.685E-09	-6.45E-07	-1.004E-07	-7.875E-07	-5.244E-09	-1.574E-08	-7.47E-07	-9.792E-08	-8.125E-08	-6.739E-07	-7.784E-08	-2.645E-08	-6.631E-08	-4.239E-08	-2.764E-08	-1.907E-08	-2.56E-07	-1.0267E-06	-2.9631E-08	-1.062E-06
3 FoodDrnkTob	0	-3.561E-09	-4.41E-06	-3.585E-09	-1.927E-08	-4.672E-10	-1.257E-09	-2.273E-08	-2.645E-10	-6.319E-10	-1.465E-09	-1.792E-09	-3.366E-09	-7.364E-09	-3.288E-07	-8.256E-06	-1.648E-06	-2.738E-08	-4.595E-08	-2.937E-08	-1.642E-08	-1.133E-08	-4.12E-07	-3.0122E-06	-9.3731E-08	-7.687E-07
4 TCFs	0	-7.464E-09	-7.678E-08	-1.509E-07	-1.498E-08	-6.521E-08	-8.584E-09	-4.082E-09	-2.115E-09	-1.779E-08	-1.207E-08	-1.16E-08	-9.681E-09	-3.667E-07	-4.153E-07	-7.855E-07	-1.182E-07	-1.431E-07	-3.819E-08	-2.44E-08	-7.114E-09	-4.907E-09	-4.9			

Table E.15 Shocks for Cloud Computing with modest access speeds in Rest of South Australia by commodity and industry (bint_s_{c,i,r})

COMxIND	1 AgriForFis	2 Mining	3 FoodDrink	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEq	12 OthMach	13 EGW	14 Construc	15 Wholesale	16 RetailTra	17 RecPers	18 Transpor	19 PostalSrv	20 telecom	21 NBNRet	22 NBNCos	23 FinBus	24 PubAdm	25 Education	26 Commun	
1 AgriForFis	0	-3.210E-06	-8.516E-05	-5.741E-07	-1.071E-07	-9.072E-08	-7.426E-09	-1.565E-07	-1.343E-09	-8.078E-09	-3.896E-09	-1.726E-08	-1.125E-08	-1.151E-07	-1.348E-06	-8.254E-06	-2.348E-06	-3.529E-07	-2.928E-08	-2.166E-08	-1.332E-08	-9.188E-09	-2.04E-06	-7.1003E-06	-1.3975E-07	-9.701E-07	
2 Mining	0	-7.014E-06	-2.317E-06	-3.758E-08	-6.551E-08	-7.442E-08	-1.479E-08	-5.662E-06	-8.813E-07	-6.913E-06	-4.603E-08	-1.382E-07	-6.558E-06	-7.003E-07	-4.718E-07	-6.31E-06	-4.957E-07	-3.487E-07	-8.742E-07	-5.874E-07	-3.83E-07	-2.642E-07	-1.98E-06	-4.684E-06	-9.0626E-07	-6.544E-06	
3 FoodDrinkTob	0	-3.127E-08	-4.34E-05	-3.147E-08	-1.691E-07	-4.102E-09	-1.103E-08	-1.996E-07	-2.322E-09	-5.548E-09	-1.286E-08	-1.573E-08	-2.955E-08	-6.465E-08	-1.909E-06	-7.73E-05	-1.049E-05	-3.61E-07	-6.058E-07	-4.07E-07	-2.276E-07	-1.57E-07	-3.18E-06	-1.3741E-05	-2.8667E-06	-4.738E-06	
4 TCFs	0	-6.553E-08	-7.556E-07	-1.325E-06	-1.315E-07	-5.725E-07	-7.536E-08	-3.584E-08	-1.857E-08	-1.562E-07	-1.06E-07	-1.019E-07	-8.499E-08	-3.219E-06	-2.411E-06	-7.382E-06	-7.528E-07	-1.887E-06	-5.034E-07	-3.382E-07	-9.859E-08	-6.8E-08	-3.84E-06	-2.0417E-05	-3.525E-06	-2.13E-05	
5 MiscManuf	0	-1.816E-07	-7.083E-06	-1.114E-07	-3.855E-07	-1.418E-07	-4.248E-07	-2.701E-07	-2.921E-08	-1.131E-07	-3.027E-07	-4.011E-07	-4.524E-07	-1.874E-06	-3.811E-06	-7.667E-06	-9.343E-07	-4.81E-06	-4.886E-06	-3.282E-06	-1.361E-06	-9.387E-07	-3.26E-06	-4.3764E-05	-3.4586E-06	-1.085E-05	
6 WoodProds	0	-6.647E-08	-6.618E-06	-6.648E-08	-6.213E-08	-4.342E-07	-1.154E-06	-1.429E-07	-4.746E-08	-6.407E-08	-1.17E-07	-8.356E-08	-4.45E-08	-4.879E-07	-2.531E-06	-6.444E-06	-7.215E-07	-9.11E-07	-1.039E-06	-6.975E-07	-4.013E-07	-2.768E-07	-2.73E-06	-3.4953E-06	-5.327E-06	-1.517E-05	
7 PaperPrint	0	-6.088E-08	-8.453E-07	-3.556E-08	-5.025E-08	-7.745E-08	-8.234E-07	-4.773E-08	-1.789E-08	-5.329E-08	-5.149E-08	-1.337E-07	-1.109E-07	-3.761E-07	-4.87E-06	-3.63E-05	-1.649E-06	-1.44E-06	-5.799E-06	-3.896E-06	-2.434E-06	-1.679E-06	-1.45E-05	-6.5E-05	-1.9385E-05	-8.633E-06	
8 ChemCoalPrds	0	-3.389E-06	-2.177E-06	-2.782E-07	-1.103E-06	-3.148E-07	-4.369E-07	-2.247E-06	-3.005E-07	-3.636E-07	-2.925E-07	-4.4E-07	-2.615E-06	-3.352E-06	-6.916E-06	-1.999E-05	-2.759E-06	-4.552E-06	-8.369E-07	-2.527E-06	-1.226E-06	-8.455E-07	-1.51E-05	-3.7351E-05	-2.3871E-06	-0.001004	
9 NonMetMinPrd	0	-7.255E-08	-1.604E-06	-3.105E-08	-3.253E-08	-2.04E-08	-5.286E-09	-3.763E-08	-8.589E-07	-1.392E-07	-1.284E-07	-1.361E-07	-3.862E-07	-5.379E-06	-1.443E-06	-2.814E-06	-1.75E-07	-7.254E-08	-9.723E-09	-6.532E-09	-3.38E-09	-2.315E-09	-3.33E-06	-3.5076E-06	-2.133E-07	-1.623E-06	
10 MetalPrds	0	-1.271E-06	-3.789E-06	-2.275E-07	-3.709E-07	-3.046E-07	-5.796E-08	-1.396E-07	-1.479E-07	-4.341E-06	-1.371E-06	-3.549E-06	-9.121E-07	-6.967E-06	-3.57E-06	-8.719E-06	-8.387E-07	-4.692E-06	-2.879E-06	-1.983E-06	-1.037E-06	-7.152E-07	-8.72E-06	-4.0669E-05	-3.2946E-06	-6.355E-06	
11 TransEq	0	-2.635E-07	-1.295E-07	-9.28E-09	-3.129E-08	-2.45E-08	-9.544E-09	-5.815E-09	-1.661E-08	-1.955E-08	-2.801E-06	-1.596E-07	-2.875E-08	-5.608E-07	-2.334E-06	-7.069E-05	-2.173E-07	-2.835E-05	-2.114E-06	-1.42E-06	-4.97E-07	-3.428E-07	-1.98E-06	-0.0012193	-1.2022E-06	-5.145E-07	
12 OthMachEq	0	-5.191E-06	-4.954E-05	-9.378E-07	-8.263E-07	-7.073E-07	-1.215E-06	-2.874E-06	-7.798E-07	-3.852E-06	-1.712E-06	-1.804E-06	-1.211E-05	-1.557E-05	-2.296E-05	-0.001037	-1.019E-05	-5.282E-05	-1.246E-05	-1.016E-05	-6.098E-06	-4.055E-06	-6E-05	-0.00027129	-2.8666E-05	-9.396E-05	
13 EGW	0	-7.005E-07	-2.015E-06	-6.504E-08	-6.591E-08	-7.109E-08	-5.998E-08	-9.519E-08	-9.96E-08	-3.838E-07	-1.14E-07	-2.16E-07	-2.502E-05	-6.614E-07	-1.449E-06	-1.207E-05	-1.277E-06	-6.242E-06	-2.007E-06	-1.349E-06	-8.614E-07	-5.941E-07	-1.3E-05	-1.9977E-06	-9.7734E-06	-1.439E-05	
14 Construction	0	-1.842E-06	-5.529E-07	-3.537E-08	-1.855E-08	-8.924E-09	-1.962E-08	-1.864E-07	-7.84E-09	-5.198E-08	-2.116E-08	-6.96E-08	-3.48E-06	-2.643E-05	-5.631E-06	-8.659E-06	-8.946E-07	-7.205E-06	-8.572E-06	-5.759E-06	-3.701E-06	-2.533E-06	-1.85E-05	-0.0014327	-2.2561E-07	-1.615E-06	
15 WholesaleTrad	0	-2.537E-05	-0.0002421	-4.584E-06	-4.038E-06	-3.457E-06	-5.939E-06	-1.405E-05	-3.811E-06	-1.883E-05	-8.365E-06	-8.818E-06	-5.92E-05	-7.611E-05	-0.0001122	-0.0005068	-4.982E-05	-0.0002582	-6.089E-05	-4.967E-05	-2.98E-05	-1.987E-05	-0.000293	-0.00132593	-0.0001401	-0.0004592	
16 RetailTrade	0	-2.075E-07	-1.393E-06	-3.771E-08	-3.011E-08	-3.764E-08	-1.528E-07	-4.987E-08	-1.185E-08	-2.351E-08	-1.457E-08	-4.791E-08	-3.474E-07	-6.742E-07	-5.092E-06	-2.947E-05	-1.59E-06	-2.202E-05	-3.907E-06	-2.625E-06	-1.69E-06	-1.166E-06	-1.21E-05	-1.9724E-05	-2.3536E-06	-1.345E-05	
17 RecPersSrv	0	-4.33E-07	-5.254E-06	-6.645E-08	-5.053E-08	-5.061E-08	-3.006E-07	-2.111E-07	-5.321E-07	-1.282E-07	-1.925E-07	-1.878E-07	-5.968E-07	-6.591E-07	-5.045E-06	-2.532E-05	-7.195E-06	-6.057E-06	-3.431E-06	-2.92E-06	-1.797E-06	-1.239E-06	-5.07E-05	-7.36E-05	-1.6559E-05	-5.238E-05	
18 Transport	0	-1.937E-06	-5.518E-06	-2.373E-07	-1.3E-07	-1.702E-07	-3.715E-07	-2.571E-07	-1.518E-07	-3.939E-07	-1.861E-07	-3.561E-07	-4.427E-07	-1.387E-06	-2.875E-05	-1.446E-05	-1.101E-06	-4.177E-05	-3.198E-06	-4.322E-06	-2.77E-06	-1.911E-06	-2.71E-05	-0.00012827	-8.0528E-06	-1.478E-05	
19 PostalSrvcs	0	-1.189E-08	-2.716E-07	-8.768E-09	-1.146E-08	-5.164E-09	-8.433E-08	-6.015E-09	-8.31E-09	-1.512E-08	-1.259E-08	-4.782E-08	-4.197E-08	-7.74E-08	-7.46E-07	-7.078E-06	-6.498E-07	-8.661E-07	-1.428E-06	-9.595E-07	-5.966E-07	-4.115E-07	-4.9E-06	-1.583E-05	-2.3875E-06	-1.003E-05	
20 telecoms	0	-9.348E-05	-0.0008921	-1.689E-05	-1.488E-05	-1.274E-05	-2.888E-05	-5.175E-05	-1.404E-05	-6.937E-05	-3.082E-05	-3.249E-05	-0.0002181	-0.0002805	-0.0018676	-0.0001836	-0.000913	-0.0002244	-0.000183	-0.0001998	-7.321E-05	-0.001081	-0.00488564	-0.00051624	-0.0016921		
21 NBNRetailSrv	0	-1.984E-13	-1.003E-12	-3.926E-14	-2.202E-14	-1.297E-14	-5.701E-14	-3.249E-14	-2.671E-14	-5.381E-14	-3.7E-14	-1.296E-13	-4.678E-13	-5.03E-13	-4.209E-12	-2.184E-11	-1.545E-12	-7.447E-12	-2.477E-12	0	0	0	-1.46E-11	-5.6551E-11	-6.6532E-12	-2.21E-11	
22 NBNCoSrvs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 FinBusSrvcs	0	-4.446E-05	-0.0004243	-8.032E-06	-7.077E-06	-6.058E-06	-1.041E-05	-2.461E-05	-6.679E-06	-3.299E-05	-1.466E-05	-1.545E-05	-0.0001037	-0.0001334	-0.0001966	-0.0008882	-8.731E-05	-0.0004524	-0.0001067	-8.704E-05	-5.223E-05	-3.482E-05	-0.000514	-0.00232356	-0.00024552	-0.0008048	
24 PubAdmDef	0	-1.563E-07	-4.519E-07	-8.429E-09	-8.075E-09	-1.5E-08	-1.025E-07	-4.837E-08	-6.342E-09	-2.505E-08	-4.572E-08	-1.976E-08	-8.993E-08	-4.278E-07	-5.018E-07	-4.12E-06	-1.495E-07	-6.036E-06	-3.164E-07	-1.293E-06	-8.33E-07	-5.745E-07	-6.73E-06	-0.0001433	-4.1077E-06	-7.068E-06	
25 Education	0	-9.224E-08	-5.832E-07	-2.308E-08	-1.304E-08	-9.29E-09	-3.118E-08	-3.592E-08	-1.717E-08	-3.094E-08	-3.769E-08	-7.253E-08	-3.391E-07	-7.03E-08	-1.724E-07	-2.673E-06	-6.523E-07	-1.966E-06	-2.749E-07	-1.847E-07	-1.139E-07	-7.856E-08	-1.2E-05	-1.7364E-05	-1.1614E-05	-5.262E-05	
26 Community	0	-7.654E-10	-2.258E-07	-1.187E-08	-1.171E-09	-1.863E-09	-3.073E-08	-3.51E-08	-4.065E-10	-7.676E-10	-2.13E-08	-2.814E-09	-7.028E-09	-8.142E-09	-7.154E-08	-4.612E-07	-1.165E-07	-5.223E-07	-7.988E-08	-3.263E-07	-1.975E-07	-1.362E-07	-3.45E-07	-6.3076E-06	-6.7829E-07	-2.666E-05	

Table E.16 Shocks for Cloud Computing with high access speeds in Rest of South Australia by commodity and industry (bint_s_{c,i,r})

COMxIND	1 AgriForFis	2 Mining	3 FoodDrink	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEq	12 OthMach	13 EGW	14 Construc	15 Wholesale	16 RetailTra	17 RecPers	18 Transpor	19 PostalSrv	20 telecom	21 NBNRet	22 NBNCos	23 FinBus	24 PubAdm	25 Education	26 Commun	
1 AgriForFis	0	0.000E+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Mining	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 FoodDrinkTob	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 TCFs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 MiscManuf	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 WoodProds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 PaperPrint	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 ChemCoalPrds	0	0																									

Table E.17 Shocks for Cloud Computing with modest access speeds in Greater Perth by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrnk	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrds	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTra	17RecPers	18Transpor	19PostalSrv	20telecom	21NBNRet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commun	
1AgnrForFis	0	-1.785E-07	-0.0003094	-3.192E-06	-5.954E-07	-5.044E-07	-4.129E-08	-8.703E-07	-7.467E-09	-4.491E-08	-2.166E-08	-9.597E-08	-6.255E-08	-6.399E-07	-7.344E-06	-2.518E-05	-1.846E-05	-9.413E-07	-7.81E-08	-2.497E-07	-1.536E-07	-1.059E-07	-1.77E-05	-3.570E-05	-1.4813E-06	-6.96E-06	
2Mining	0	0	-3.9E-05	-8.419E-06	-2.09E-07	-3.642E-07	-4.138E-07	-8.232E-08	-3.148E-05	-4.9E-06	-3.844E-05	-2.559E-07	-7.681E-07	-3.646E-05	-3.894E-06	-2.57E-06	-1.925E-05	-3.897E-06	-9.302E-07	-2.332E-06	-6.772E-06	-4.416E-06	-3.046E-06	-1.72E-05	-2.352E-05	-9.6063E-06	-4.694E-05
3FoodDrnkTob	0	-1.738E-07	-0.0001577	-1.75E-07	-9.404E-07	-2.281E-08	-6.134E-08	-1.11E-06	-1.291E-08	-3.084E-08	-7.151E-08	-8.745E-08	-1.643E-07	-3.595E-07	-1.04E-05	-0.0002358	-8.249E-05	-9.63E-07	-1.616E-06	-4.692E-06	-2.624E-06	-1.81E-06	-2.76E-05	-6.909E-05	-3.0387E-05	-3.399E-05	
4TCFs	0	-3.643E-07	-2.745E-06	-7.365E-06	-7.31E-07	-3.183E-06	-4.19E-07	-1.993E-07	-1.032E-07	-8.684E-07	-5.893E-07	-5.664E-07	-4.725E-07	-1.79E-05	-1.313E-05	-2.252E-05	-5.917E-06	-5.033E-06	-1.343E-06	-3.899E-06	-1.137E-06	-7.84E-07	-3.33E-05	-0.00010266	-3.7365E-05	-0.0001528	
5MiscManuf	0	-1.01E-06	-2.573E-05	-6.192E-07	-2.143E-06	-7.883E-07	-2.362E-06	-1.502E-06	-1.624E-07	-6.286E-07	-1.683E-06	-2.23E-06	-2.516E-06	-1.042E-05	-2.076E-05	-2.339E-05	-7.343E-06	-1.283E-05	-1.303E-05	-3.784E-05	-1.569E-05	-1.082E-05	-2.83E-05	-0.0002006	-3.6664E-05	-7.782E-05	
6WoodProds	0	-3.696E-07	-2.404E-05	-3.696E-07	-3.454E-07	-2.414E-06	-6.415E-06	-7.943E-07	-2.639E-07	-3.562E-07	-6.505E-07	-4.646E-07	-2.474E-07	-2.713E-06	-1.379E-05	-1.966E-05	-5.671E-06	-2.43E-06	-2.77E-06	-8.042E-06	-4.626E-06	-3.191E-06	-2.37E-05	-0.00017576	-5.6467E-05	-0.0001088	
7PaperPrint	0	-3.385E-07	-3.071E-06	-1.977E-07	-2.794E-07	-4.306E-07	-4.578E-06	-2.654E-07	-9.949E-08	-2.963E-07	-2.863E-07	-7.435E-07	-6.163E-07	-2.091E-06	-2.653E-05	-0.0001107	-1.296E-05	-3.842E-06	-1.547E-05	-4.491E-05	-2.806E-05	-1.935E-05	-0.000125	-0.00032684	-0.00020548	-6.194E-05	
8ChemCoalPrds	0	-1.884E-05	-7.91E-06	-1.547E-06	-6.134E-06	-1.75E-06	-2.429E-06	-1.249E-05	-1.67E-06	-2.022E-06	-1.626E-06	-2.446E-06	-1.454E-05	-1.864E-05	-3.767E-05	-6.098E-05	-2.168E-05	-0.0001214	-2.233E-06	-2.914E-05	-1.413E-05	-9.748E-06	-0.000131	-0.00018781	-2.5304E-05	-0.0007201	
9NonMetMinPrd	0	-4.034E-07	-5.827E-06	-1.726E-07	-1.809E-07	-1.134E-07	-2.939E-08	-2.092E-07	-4.775E-06	-7.74E-07	-7.136E-07	-7.564E-07	-2.147E-06	-2.991E-05	-7.858E-06	-8.585E-06	-1.376E-06	-1.935E-07	-2.594E-08	-7.531E-08	-3.897E-08	-2.669E-08	-2.89E-05	-1.7637E-05	-2.2609E-06	-1.164E-05	
10MetalPrds	0	-7.068E-06	-1.377E-05	-1.265E-06	-2.062E-06	-1.694E-06	-3.222E-07	-7.76E-07	-8.225E-07	-2.413E-05	-7.622E-06	-1.973E-05	-5.071E-06	-3.874E-05	-1.926E-05	-2.66E-05	-6.592E-06	-1.252E-05	-7.681E-06	-2.286E-05	-1.196E-05	-8.245E-06	-7.55E-05	-0.0002045	-3.4923E-05	-4.559E-05	
11TransEgp	0	-1.465E-06	-4.704E-07	-5.16E-08	-1.74E-07	-1.362E-07	-5.306E-08	-3.233E-08	-9.235E-08	-1.087E-07	-1.558E-05	-8.873E-07	-1.598E-07	-3.118E-06	-1.272E-05	-0.0002157	-1.708E-06	-7.563E-05	-5.639E-06	-1.637E-05	-5.73E-06	-3.952E-06	-1.71E-05	-0.00061311	-1.2744E-05	-3.691E-06	
12OthMachEgp	0	-2.886E-05	-0.00018	-5.214E-06	-4.594E-06	-3.933E-06	-6.756E-06	-1.598E-05	-4.336E-06	-2.142E-05	-9.516E-06	-1.003E-05	-6.743E-05	-8.658E-05	-0.0001251	-0.0003164	-8.012E-05	-0.0001409	-3.323E-05	-0.0001172	-7.03E-05	-4.686E-05	-0.00052	-0.00031411	-0.00030386	-0.0006741	
13EGW	0	-3.895E-06	-7.319E-06	-3.616E-07	-3.664E-07	-3.953E-07	-3.355E-07	-5.292E-07	-5.537E-07	-2.134E-06	-6.34E-07	-1.201E-06	0.0001391	-3.782E-06	-3.681E-05	-1.004E-05	-1.665E-05	-5.353E-06	-1.555E-05	-9.931E-06	-0.000113	-0.00010403	-0.00010306	-0.00010332			
14Construction	0	-1.024E-05	-2.009E-06	-1.967E-07	-1.032E-07	-4.961E-08	-1.091E-07	-1.036E-06	-4.359E-08	-2.89E-07	-1.176E-07	-3.87E-07	-1.935E-05	-0.0001469	-3.067E-05	-2.642E-05	-7.032E-06	-1.922E-05	-2.287E-05	-6.64E-05	-4.267E-05	-2.943E-05	-0.00016	-0.00072038	-2.3915E-06	-1.159E-05	
15WholesaleTrad	0	-0.0001411	-0.0008796	-2.548E-05	-2.245E-05	-1.922E-05	-3.302E-05	-7.809E-05	-2.119E-05	-0.0001047	-4.651E-05	-4.903E-05	-0.0003291	-0.0004232	-0.0006112	-0.0015462	-0.0003916	-0.0006887	-0.0001624	-0.0005726	-0.0003436	-0.0002541	-0.0066714	-0.0014851	-0.0032944		
16RetailTrade	0	-1.153E-06	-5.061E-06	-2.096E-07	-1.674E-07	-2.093E-07	-8.496E-07	-2.773E-07	-6.586E-08	-1.307E-07	-8.101E-08	-2.646E-07	-1.913E-06	-7.749E-06	-2.774E-05	-8.992E-05	-1.249E-05	-5.873E-05	-1.042E-05	-3.027E-05	-1.949E-05	-1.042E-05	-9.178E-05	-2.4948E-05	-9.648E-05		
17RecPersSvc	0	-2.407E-06	-1.908E-05	-3.694E-07	-2.809E-07	-2.814E-07	-1.625E-06	-1.174E-06	-2.958E-07	-7.127E-07	-1.071E-06	-1.044E-06	-3.318E-06	-3.664E-06	-2.748E-05	-7.724E-05	-5.655E-05	-1.616E-05	-9.153E-06	-3.366E-05	-2.072E-05	-1.429E-05	-0.000449	-0.00037008	-0.00017552	-0.0003758	
18Transport	0	-1.077E-05	-2.005E-05	-1.319E-06	-7.228E-07	-9.462E-07	-1.067E-06	-1.43E-06	-8.437E-07	-2.19E-06	-1.035E-06	-2.462E-06	-7.712E-06	-0.0001556	-4.411E-05	-8.363E-06	-0.0001114	-8.532E-06	-4.983E-05	-3.194E-05	-2.203E-05	-0.000239	-0.00064496	-8.5300E-06	-0.0001061		
19PostalSvcs	0	-6.61E-08	-9.869E-07	-4.875E-08	-6.374E-08	-2.871E-08	-4.689E-07	-3.344E-08	-4.62E-08	-8.408E-08	-7.001E-08	-2.659E-07	-2.334E-07	-4.303E-07	-4.063E-06	-2.159E-05	-5.107E-06	-2.31E-06	-3.81E-06	-1.106E-05	-6.878E-06	-4.744E-06	-4.25E-05	-7.96E-05	-2.5308E-05	-7.197E-05	
20telecoms	0	-0.0005198	-0.0032411	-9.39E-05	-8.273E-05	-0.0001217	-0.0002877	-7.808E-05	-0.0003857	-0.0001714	-0.0001806	-0.0002128	-0.0015593	-0.002522	-0.0056974	-0.0014429	-0.0025375	-0.0009985	-0.00211	-0.001266	-0.000844	-0.009364	-0.02456631	-0.00547213	-0.012139		
21NBNRetailSrv	0	-1.103E-12	-3.644E-12	-2.183E-13	-1.224E-13	-7.213E-14	-3.17E-13	-1.806E-13	-1.485E-13	-2.929E-13	-2.057E-13	-7.208E-13	-2.601E-12	-2.796E-12	-2.293E-11	-6.664E-11	-1.214E-11	-1.986E-11	-6.608E-12	0	0	0	-1.27E-10	-2.8435E-10	-7.0524E-11	-1.586E-10	
22NBNCoSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23FinBusSvcs	0	-0.0002472	-0.0015414	-4.466E-05	-3.935E-05	-3.368E-05	-5.786E-05	-0.0001368	-3.714E-05	-0.0001834	-8.151E-05	-8.915E-05	-0.0005768	-0.0007416	-0.0010711	-0.0027096	-0.0006862	-0.0012068	-0.0002846	-0.0010035	-0.0006021	-0.0004014	-0.0004453	-0.01168348	-0.00260249	-0.0057732	
24PubAdmDef	0	-8.692E-07	-1.642E-06	-4.686E-08	-4.49E-08	-8.339E-08	-5.698E-07	-2.326E-08	-1.393E-07	-2.542E-07	-1.099E-07	-5E-07	-2.733E-06	-2.733E-06	-1.257E-05	-1.175E-06	-1.61E-05	-8.441E-07	-1.49E-05	-9.603E-06	-6.624E-06	-5.83E-05	-0.00057488	-4.3541E-05	-5.071E-05		
25 Education	0	-5.128E-07	-2.119E-06	-1.283E-07	-7.247E-08	-5.165E-08	-1.733E-07	-1.997E-07	-9.548E-08	-1.72E-07	-2.095E-07	-4.033E-07	-1.885E-06	-3.908E-07	-9.388E-07	-8.156E-06	-5.127E-06	-5.246E-06	-7.333E-07	-2.129E-06	-1.313E-06	-9.057E-07	-0.000104	-8.7311E-05	-0.00012311	-3.775E-05	
26 Community	0	-4.256E-09	-8.204E-07	-6.598E-08	-6.51E-09	-1.036E-08	-1.708E-07	-1.951E-07	-2.26E-09	-4.268E-09	-1.184E-07	-1.565E-08	-3.907E-08	-4.527E-08	-3.897E-07	-1.407E-06	-9.153E-07	-1.393E-06	-2.131E-07	-3.762E-06	-2.277E-06	-1.571E-06	-2.99E-06	-3.1716E-05	-7.1899E-06	-0.0001913	

Table E.18 Shocks for Cloud Computing with high access speeds in Greater Perth by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgnrForFis	2Mining	3FoodDrnk	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrds	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTra	17RecPers	18Transpor	19PostalSrv	20telecom	21NBNRet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commun
1AgnrForFis	0	-4.584E-09	-2.045E-05	-8.197E-08	-1.529E-08	-1.295E-08	-1.06E-09	-2.235E-08	-1.918E-10	-1.153E-09	-5.564E-10	-2.465E-09	-1.607E-09	-1.643E-08	-3.789E-07	-1.443E-06	-1.254E-06	-3.28E-08	-2.721E-09	-8.947E-09	-5.503E-09	-3.795E-09	-1.07E-06	-2.4602E-06	-8.3656E-08	-4.127E-07
2Mining	0	-1.002E-06	-5.565E-07	-5.366E-09	-9.355E-09	-1.063E-08	-2.112E-09	-8.085E-07	-1.258E-07	-9.872E-07	-6.573E-09	-1.973E-08	-9.655E-07	-1E-07	-1.326E-07	-1.109E-06	-2.646E-07	-3.241E-08	-8.124E-08	-2.427E-07	-1.582E-07	-1.091E-07	-1.04E-06	-1.623E-06	-5.425E-07	-2.784E-06
3FoodDrnkTob	0	-4.465E-09	-1.042E-05	-4.494E-09	-2.415E-08	-5.857E-10	-1.575E-09	-2.85E-08	-3.316E-10	-7.922E-10	-1.837E-09	-2.246E-09	-4.22E-09	-9.232E-09	-5.365E-07	-1.352E-05	-5.602E-06	-3.355E-08	-5.631E-08	-1.681E-07	-9.401E-08	-6.484E-08	-1.67E-06	-4.7613E-06	-1.7616E-06	
4TCFs	0	-9.357E-09	-1.814E-07	-1.891E-07	-1.878E-08	-8.175E-08	-1.076E-08	-5.117E-09	-2.651E-09	-2.23E-08	-1.513E-08	-1.455E-08	-1.214E-08	-4.597E-07	-6.776E-07	-1.291E-06	-4.018E-07	-1.754E-07	-4.679E-08	-1.397E-07	-4.073E-08	-2.809E-08	-2.02E-06	-7.		

Table E.19 Shocks for Cloud Computing with modest access speeds in Rest of Western Australia by commodity and industry (bint_{s,c,i,r})

COMxIND	1AgriforFis	2 Mining	3 FoodDrink	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEq	12 OthMach	13 EGW	14 Construc	15 Wholesale	16 RetailTr	17 RecPers	18 Transpor	19 PostalSrv	20 telecom	21 NBNRet	22 NBNCoS	23 FinBus	24 PubAdm	25 Education	26 Commun
1AgriforFis	0	-5.902E-08	-0.000131	-1.055E-06	-1.969E-07	-1.668E-07	-2.878E-07	-2.469E-09	-1.485E-08	-1.85E-08	-7.163E-09	-3.173E-08	-2.068E-08	-2.116E-07	-1.42E-06	-1.049E-05	-4.318E-06	-5.529E-07	-4.587E-08	-4.07E-08	-2.503E-08	-1.727E-08	-3.33E-06	-7.6604E-06	-3.1035E-07	-1.351E-06
2 Mining	0	-1.29E-05	-3.564E-06	-6.909E-08	-1.204E-07	-1.368E-07	-2.719E-08	-1.041E-05	-1.62E-06	-1.271E-05	-8.463E-08	-2.54E-07	-1.206E-05	-1.287E-06	-4.969E-07	-8.022E-06	-9.115E-07	-5.463E-07	-1.37E-06	-1.104E-06	-7.198E-07	-4.965E-07	-3.23E-06	-0.0535E-06	-2.0126E-06	-9.112E-06
3 FoodDrinkTob	0	-5.748E-08	-6.673E-05	-5.786E-08	-3.11E-07	-7.541E-09	-2.028E-08	-3.609E-07	-4.269E-09	-1.02E-08	-2.365E-08	-2.892E-08	-5.433E-08	-1.189E-07	-2.011E-06	-9.827E-05	-1.93E-05	-5.656E-07	-9.492E-07	-7.648E-07	-4.277E-07	-2.95E-07	-5.19E-06	-1.4825E-05	-6.3665E-06	-6.597E-06
4 TCFs	0	-1.205E-07	-1.162E-06	-2.435E-06	-2.417E-07	-1.053E-06	-1.385E-07	-6.588E-08	-3.413E-08	-2.871E-07	-1.949E-07	-1.873E-07	-1.562E-07	-5.918E-06	-2.54E-06	-9.386E-06	-1.384E-06	-2.956E-06	-7.887E-07	-6.355E-07	-1.853E-07	-1.278E-07	-6.27E-06	-2.2028E-05	-7.8284E-06	-2.967E-05
5 MiscManuf	0	-3.339E-07	-1.089E-05	-2.047E-07	-7.086E-07	-2.606E-07	-7.81E-07	-4.965E-07	-5.369E-08	-2.078E-07	-5.566E-07	-7.374E-07	-8.318E-07	-3.444E-06	-4.014E-06	-9.748E-06	-1.718E-06	-7.536E-06	-6.168E-06	-2.558E-06	-1.764E-06	-5.32E-06	-4.7216E-05	-5.6815E-06	-1.511E-05	
6 WoodProds	0	-1.222E-07	-1.018E-05	-1.222E-07	-1.142E-07	-7.983E-07	-2.121E-06	-2.626E-07	-8.725E-08	-1.178E-07	-2.151E-07	-1.536E-07	-8.18E-08	-8.969E-07	-2.666E-06	-8.192E-06	-1.327E-06	-1.427E-06	-1.627E-06	-1.311E-06	-7.541E-07	-5.202E-07	-4.46E-06	-3.7711E-05	-1.183E-05	-2.112E-05
7 PaperPrint	0	-1.119E-07	-1.3E-06	-6.538E-08	-9.238E-08	-1.424E-07	-1.514E-06	-8.774E-08	-3.29E-08	-9.799E-08	-9.466E-08	-2.458E-07	-2.038E-07	-6.914E-07	-5.13E-06	-4.615E-05	-3.032E-06	-2.256E-06	-9.086E-06	-7.321E-06	-4.574E-06	-3.155E-06	-2.36E-05	-7.0128E-05	-4.305E-05	-1.202E-05
8 ChemCoalPrds	0	-6.231E-06	-3.348E-06	-5.114E-07	-2.028E-06	-5.787E-07	-8.033E-07	-4.311E-06	-5.523E-07	-6.685E-07	-5.378E-07	-8.088E-07	-4.807E-06	-6.162E-06	-7.284E-06	-2.541E-05	-5.072E-06	-7.132E-05	-1.311E-06	-4.749E-06	-2.304E-06	-1.589E-06	-2.47E-05	-4.0297E-05	-5.3014E-06	-0.001398
9 NonMetMinPrd	0	-1.334E-07	-2.467E-06	-5.708E-08	-5.98E-08	-3.749E-08	-9.718E-09	-6.917E-08	-1.579E-06	-2.559E-07	-2.36E-07	-2.501E-07	-7.1E-07	-9.889E-06	-1.519E-06	-3.578E-06	-3.218E-07	-1.137E-07	-1.523E-08	-1.228E-08	-6.352E-09	-4.35E-09	-5.44E-06	-3.7847E-06	-4.7369E-07	-2.26E-06
10 MetalPrds	0	-2.337E-06	-5.827E-06	-4.182E-07	-6.819E-07	-5.6E-07	-1.066E-07	-2.566E-07	-2.72E-07	-7.98E-06	-2.52E-06	-6.525E-06	-1.677E-06	-1.281E-05	-3.725E-06	-1.108E-05	-1.542E-06	-7.352E-06	-4.511E-06	-3.727E-06	-1.949E-06	-1.344E-06	-1.42E-05	-4.8377E-05	-7.3176E-05	-8.849E-06
11 TransEgp	0	-4.844E-07	-1.991E-07	-1.706E-08	-5.752E-08	-4.505E-08	-1.755E-08	-1.069E-08	-3.054E-08	-3.595E-08	-5.15E-06	-2.934E-07	-5.285E-08	-1.031E-06	-2.459E-06	-8.987E-05	-3.995E-07	-4.442E-05	-3.12E-06	-2.669E-06	-9.34E-07	-6.442E-07	-3.23E-06	-0.001315	-2.6699E-06	-7.165E-07
12 OthMachEgp	0	-9.543E-06	-7.618E-05	-1.724E-06	-1.519E-06	-1.3E-06	-2.234E-06	-5.283E-06	-1.434E-06	-7.081E-06	-3.147E-06	-2.227E-05	-2.863E-05	-2.418E-05	-0.000131	-1.874E-05	-8.276E-05	-1.952E-05	-1.91E-05	-1.146E-05	-7.64E-06	-9.8E-05	-0.000292	-6.361E-05	-0.000130	
13 EGW	0	-1.288E-06	-3.098E-06	-1.196E-07	-1.212E-07	-1.307E-07	-1.103E-07	-1.75E-07	-1.831E-07	-7.056E-07	-3.97E-07	-4.6E-05	-1.216E-06	-1.536E-06	-2.348E-06	-9.779E-06	-2.355E-06	-1.619E-06	-2.155E-06	-2.145E-06	-1.116E-06	-9.21E-06	-2.1705E-05	-2.004E-05		
14 Construction	0	-3.385E-06	-8.502E-07	-6.503E-08	-3.411E-08	-1.64E-08	-3.606E-08	-3.427E-07	-1.441E-08	-9.556E-08	-3.89E-08	-1.28E-07	-6.397E-06	-4.858E-05	-5.931E-06	-1.101E-05	-1.645E-06	-1.129E-05	-1.343E-05	-1.082E-05	-6.956E-06	-4.797E-06	-3.02E-05	-0.001545	-5.0104E-06	-2.249E-06
15 WholesaleTrad	0	-4.664E-05	-0.000373	-8.426E-06	-7.424E-06	-6.355E-06	-1.092E-05	-2.582E-05	-7.007E-06	-3.461E-05	-1.538E-05	-1.621E-05	-0.000108	-0.000139	-0.000182	-0.000644	-9.16E-05	-0.000405	-9.54E-05	-9.335E-05	-5.601E-05	-3.734E-05	-0.000479	-0.001430	-0.000311	-0.000639
16 RetailTrade	0	-3.814E-07	-2.142E-06	-6.932E-08	-5.536E-08	-6.92E-08	-2.809E-07	-9.168E-08	-2.178E-08	-4.321E-08	-2.678E-08	-8.807E-08	-3.86E-07	-1.239E-06	-5.363E-06	-3.747E-05	-2.923E-06	-3.449E-06	-6.122E-06	-4.934E-06	-3.177E-06	-5.00E-06	-1.218E-05	-5.2269E-06	-1.873E-05	
17 RecPersSvc	0	-7.9E-07	-8.08E-06	-1.222E-07	-9.289E-08	-9.304E-08	-5.527E-07	-3.88E-07	-9.828E-08	-2.356E-07	-3.54E-07	-3.452E-07	-1.097E-06	-1.212E-06	-5.313E-06	-3.219E-05	-1.323E-05	-9.49E-06	-5.376E-06	-5.487E-06	-3.377E-06	-2.329E-06	-8.27E-05	-7.9406E-05	-3.6774E-05	-7.295E-05
18 Transport	0	-3.56E-06	-8.486E-06	-4.362E-07	-2.39E-07	-3.129E-07	-2.79E-07	-4.727E-07	-7.241E-07	-3.421E-07	-8.546E-07	-8.139E-07	-2.55E-06	-3.009E-05	-1.838E-05	-2.024E-06	-6.544E-05	-5.011E-06	-8.123E-06	-5.207E-06	-4.44E-06	-4.43E-05	-0.000138	-1.7844E-05	-2.059E-05	
19 PostalSvcs	0	-2.085E-08	-4.177E-07	-1.612E-08	-2.107E-08	-9.493E-09	-1.55E-07	-1.106E-08	-1.528E-08	-2.78E-08	-2.315E-08	-8.791E-08	-7.716E-08	-1.423E-07	-7.875E-07	-8.999E-06	-1.195E-06	-1.357E-06	-2.237E-06	-1.803E-06	-1.121E-06	-7.733E-07	-8E-06	-0.001383	-5.3023E-06	-1.397E-05
20 Telecoms	0	-0.0001719	-0.0013719	-3.105E-05	-2.736E-05	-2.342E-05	-4.023E-05	-9.514E-05	-2.582E-05	-0.0001275	-5.667E-05	-9.573E-05	-0.000401	-0.0005156	-0.0003455	-0.0023743	-0.0003375	-0.0014904	-0.0003515	-0.0003439	-0.0002064	-0.0001376	-0.001764	-0.00257103	-0.0011464	-0.0023563
21 NBNRetailSrv	0	-3.647E-13	-1.543E-12	-7.218E-14	-4.048E-14	-2.385E-14	-1.048E-13	-5.972E-14	-4.91E-14	-9.893E-14	-6.801E-14	-2.383E-13	-8.6E-13	-9.247E-13	-4.434E-12	-2.772E-11	-2.84E-12	-1.167E-11	-3.881E-12	0	0	0	-2.39E-11	-6.1011E-11	-1.4775E-11	-3.078E-11
22 NBNCoSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.315E-06	0	0	0	0
23 FinBusSvcs	0	-8.173E-05	-0.0006525	-1.477E-05	-1.301E-05	-1.114E-05	-1.913E-05	-4.525E-05	-1.228E-05	-6.605E-05	-2.695E-05	-2.841E-05	-0.0001907	-0.0002452	-0.0002071	-0.0011292	-0.0001605	-0.0007088	-0.0001672	-0.0001636	-9.815E-05	-6.543E-05	-0.000839	-0.00250685	-0.00054525	-0.0011206
24 PubAdmDef	0	-2.874E-07	-6.95E-07	-1.55E-08	-1.485E-08	-2.757E-08	-1.166E-08	-4.605E-08	-8.405E-08	-3.633E-08	-1.653E-07	-7.855E-07	-5.285E-07	-5.238E-06	-1.507E-06	-7.209E-06	-4.958E-07	-2.429E-06	-1.656E-06	-1.08E-06	-1.1E-05	-0.0001235	-9.1223E-06	-9.843E-06		
25 Education	0	-1.696E-07	-8.969E-07	-4.243E-08	-2.396E-08	-1.708E-08	-5.731E-08	-6.603E-08	-3.157E-08	-5.888E-08	-6.295E-08	-1.333E-07	-6.234E-07	-1.292E-07	-1.815E-07	-3.399E-06	-1.199E-06	-3.081E-06	-4.307E-07	-3.471E-07	-2.141E-07	-1.476E-07	-1.96E-05	-1.8734E-05	-2.5792E-05	-7.328E-06
26 Community	0	-1.407E-09	-3.473E-07	-2.182E-08	-2.152E-09	-3.425E-09	-5.649E-08	-6.452E-08	-7.474E-10	-1.411E-09	-3.915E-08	-5.173E-09	-1.292E-08	-1.497E-08	-7.535E-08	-5.863E-07	-2.141E-07	-8.183E-07	-1.252E-07	-6.132E-07	-3.712E-07	-2.56E-07	-5.64E-07	-6.8051E-06	-1.5064E-06	-3.713E-05

Table E.20 Shocks for Cloud Computing with high access speeds in Rest of Western Australia by commodity and industry (bint_{s,c,i,r})

COMxIND	1AgriforFis	2 Mining	3 FoodDrink	4 TCFs	5 MiscManuf	6 WoodProds	7 PaperPrint	8 ChemCoal	9 NonMetM	10 MetalPrd	11 TransEq	12 OthMach	13 EGW	14 Construc	15 Wholesale	16 RetailTr	17 RecPers	18 Transpor	19 PostalSrv	20 telecom	21 NBNRet	22 NBNCoS	23 FinBus	24 PubAdm	25 Education	26 Commun
1AgriforFis	0	-3.098E-09	-5.879E-06	-5.541E-08	-1.034E-08	-8.755E-09	-7.167E-10	-1.511E-08	-1.296E-10	-7.796E-10	-3.761E-10	-1.666E-09	-1.086E-09	-1.111E-08	-4.636E-06	-6.495E-07	-3.435E-07	-2.986E-08	-2.478E-09	-2.459E-10	-1.512E-10	-1.043E-10	-2.45E-07	-6.308E-08	-4.429E-09	-1.278E-07
2 Mining	0	-6.77E-07	-1.6E-07	-3.627E-09	-6.323E-09	-7.182E-09	-1.427E-09	-5.465E-07	-8.506E-08	-6.672E-07	-4.443E-09	-1.333E-08	-6.33E-07	-6.799E-08	-1.622E-08	-4.965E-07	-7.25E-08	-2.951E-08	-7.398E-08	-6.669E-09	-4.349E-09	-3E-09	-2.38E-07	-4.1613E-08	-2.8722E-08	-8.619E-07
3 FoodDrinkTob	0	-3.018E-09	-2.996E-06	-3.037E-09	-1.632E-08	-3.959E-10	-1.065E-09	-1.926E-08	-2.241E-10	-5.354E-10	-1.241E-09	-1.518E-09	-2.832E-09	-6.24E-09	-5.666E-08	-6.083E-06	-1.535E-06	-3.05E-08	-5.127E-08	-2.584E-09	-1.782E-09	-1.82E-07	-1.127E-08	-9.8555E-08	-6.241E-07	
4 TCFs	0	-6.324E-09	-5.217E-08	-1.278E-07	-1.269E-08	-5.526E-08	-7.274E-09	-3.459E-09	-1.792E-09	-1.507E-08	-1.023E-08	-9.832E-09	-8.202E-09	-3.107E-07	-8.292E-08	-5.809E-07	-1.101E-07	-1.597E-07	-4.26E-08	-3.84E-09	-1.119E-09	-7.721E-10	-4.61E-07	-1.8139E-07	-1.112E-07	-2.806E-06
5 MiscManuf	0	-1.753E-0																								

Table E.21 Shocks for Cloud Computing with modest access speeds in Tasmania by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgrForFis	2Mining	3FoodDrink	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTr	17RecPers	18Transpor	19PostalSv	20telecom	21NBNRet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commu	
1AgrForFis	0	-4.183E-08	-8.722E-05	-7.481E-07	-1.395E-07	-1.182E-07	-9.677E-09	-2.04E-07	-1.75E-09	-1.053E-08	-5.077E-09	-2.249E-08	-1.466E-08	-1.5E-07	-1.135E-06	-6.782E-06	-2.245E-06	-1.498E-07	-1.243E-08	-2.143E-08	-1.318E-08	-9.093E-09	-2.18E-06	-9.759E-06	-2.1939E-07	-1.355E-06	
2Mining	0	-9.14E-06	-2.373E-06	-4.897E-08	-8.537E-08	-6.997E-08	-1.927E-08	-3.78E-06	-1.148E-06	-9.009E-06	-5.999E-08	-1.8E-07	-8.546E-06	-9.125E-07	-3.973E-07	-5.184E-06	-4.74E-07	-1.481E-07	-3.711E-07	-5.813E-07	-3.791E-07	-2.615E-07	-2.11E-06	-6.4379E-06	-1.4228E-06	-9.142E-06	
3FoodDrinkTob	0	-4.074E-08	-4.444E-05	-4.101E-08	-2.204E-07	-5.345E-09	-1.438E-08	-2.601E-07	-3.026E-09	-7.229E-09	-1.676E-08	-2.05E-08	-8.351E-08	-8.425E-08	-1.608E-06	-6.351E-05	-1.003E-05	-1.533E-07	-2.572E-07	-4.028E-07	-2.252E-07	-1.553E-07	-3.4E-06	-1.8887E-05	-4.5006E-06	-6.619E-06	
4TCFs	0	-8.539E-08	-7.738E-07	-1.726E-06	-1.713E-07	-7.461E-07	-9.82E-08	-4.67E-08	-2.419E-08	-2.035E-07	-1.381E-07	-1.327E-07	-1.107E-07	-4.195E-06	-2.03E-06	-6.066E-06	-7.197E-07	-8.01E-07	-2.137E-07	-3.347E-07	-9.757E-08	-6.73E-08	-4.1E-06	-2.8062E-05	-5.534E-06	-2.976E-05	
5MiscManuf	0	-2.367E-07	-7.254E-06	-1.451E-07	-5.023E-07	-1.847E-07	-5.536E-07	-3.519E-07	-3.806E-08	-1.473E-07	-3.945E-07	-5.227E-07	-5.896E-07	-2.441E-06	-3.21E-06	-6.3E-06	-8.932E-07	-2.042E-06	-2.074E-06	-3.248E-06	-1.347E-06	-9.29E-07	-3.48E-06	-6.0151E-05	-5.4302E-06	-1.516E-05	
6WoodProds	0	-8.661E-08	-6.778E-06	-8.662E-08	-8.095E-08	-5.658E-07	-1.503E-06	-1.862E-07	-6.184E-08	-8.349E-08	-1.524E-07	-1.089E-07	-5.798E-08	-6.357E-07	-2.131E-06	-5.294E-06	-6.898E-07	-3.868E-07	-4.409E-07	-6.903E-07	-3.971E-07	-2.739E-07	-2.92E-06	-4.8042E-05	-8.3631E-06	-2.119E-05	
7PaperPrint	0	-7.933E-08	-8.657E-07	-4.634E-08	-6.548E-08	-1.009E-07	-1.073E-06	-6.219E-08	-2.332E-08	-6.943E-08	-6.709E-08	-1.742E-07	-1.444E-07	-4.901E-07	-4.101E-06	-2.983E-05	-1.577E-06	-6.115E-07	-2.462E-06	-3.856E-06	-2.409E-06	-1.661E-06	-1.55E-05	-8.934E-05	-3.0432E-05	-1.206E-05	
8ChemCoalPrds	0	-4.417E-06	-2.23E-06	-3.625E-07	-1.438E-06	-4.102E-07	-5.694E-07	-2.928E-06	-3.915E-07	-4.738E-07	-3.812E-07	-5.733E-07	-3.408E-06	-4.368E-06	-5.824E-06	-1.642E-05	-2.638E-06	-1.933E-05	-3.553E-07	-2.501E-06	-1.213E-06	-8.368E-07	-1.62E-05	-5.1337E-05	-3.7476E-06	-0.001402	
9NonMetMinPrd	0	-9.454E-08	-1.643E-06	-4.046E-08	-4.239E-08	-2.658E-08	-6.888E-09	-4.903E-08	-1.119E-06	-1.814E-07	-1.673E-07	-1.773E-07	-7.01E-06	-1.215E-06	-2.312E-06	-1.673E-07	-3.08E-08	-4.128E-09	-6.465E-09	-3.345E-09	-2.291E-09	-3.56E-06	-4.821E-06	-3.3486E-07	-2.268E-06		
10MetalPrds	0	-1.656E-06	-3.881E-06	-2.965E-07	-4.833E-07	-3.969E-07	-7.552E-08	-1.819E-07	-1.928E-07	-5.656E-06	-1.786E-06	-4.625E-06	-1.188E-06	-9.078E-06	-2.978E-06	-7.163E-06	-8.018E-07	-1.992E-06	-1.223E-06	-1.963E-06	-1.026E-06	-7.078E-07	-9.32E-06	-5.5898E-05	-5.1723E-06	-8.878E-06	
11TransEgp	0	-3.433E-07	-1.326E-07	-1.209E-08	-4.077E-08	-3.193E-08	-1.244E-08	-7.577E-09	-2.164E-08	-2.548E-08	-3.65E-06	-2.08E-07	-3.746E-08	-7.308E-07	-1.966E-06	-5.808E-05	-2.077E-07	-1.204E-05	-8.975E-07	-1.405E-06	-4.919E-07	-3.393E-07	-2.11E-06	-0.0016759	-1.8874E-06	-7.189E-07	
12OthMachEgp	0	-6.764E-06	-5.073E-05	-1.222E-06	-1.077E-06	-9.217E-07	-1.583E-06	-3.745E-06	-1.016E-06	-5.019E-06	-2.23E-06	-2.351E-06	-1.578E-05	-2.029E-05	-1.933E-05	-8.52E-05	-9.746E-06	-2.243E-05	-5.29E-06	-1.006E-05	-6.035E-06	-4.023E-06	-6.41E-05	-0.0037288	-4.5003E-05	-0.001313	
13EGW	0	-9.128E-07	-2.063E-06	-8.475E-08	-8.588E-08	-9.264E-08	-7.815E-08	-1.247E-07	-8.197E-07	-5.02E-07	-1.486E-07	-2.814E-07	-3.261E-05	-8.519E-07	-2.11E-06	-2.914E-06	-1.211E-06	-2.65E-06	-8.52E-07	-1.335E-06	-8.525E-07	-5.88E-07	-1.39E-05	-2.7457E-05	-1.5344E-06	-2.011E-05	
14Construction	0	-2.4E-06	-5.662E-07	-4.61E-08	-2.418E-08	-1.163E-08	-2.556E-08	-2.429E-07	-1.022E-08	-6.773E-08	-2.757E-08	-9.07E-08	-4.534E-06	-3.443E-05	-4.742E-06	-7.114E-06	-8.553E-07	-3.059E-06	-3.639E-06	-5.7E-06	-3.663E-06	-2.526E-06	-1.98E-05	-0.0019691	-3.5419E-07	-2.257E-06	
15WholesaleTrad	0	-3.306E-05	-0.000248	-5.973E-06	-5.262E-06	-4.505E-06	-7.739E-06	-1.83E-05	-4.967E-06	-2.453E-05	-1.09E-05	-1.149E-05	-7.714E-05	-9.918E-05	-9.45E-05	-0.000164	-4.763E-05	-0.0001096	-2.585E-05	-4.916E-05	-2.95E-05	-1.966E-05	-0.000313	-0.00182242	-0.00021995	-0.0006416	
16RetailTrade	0	-2.703E-07	-1.427E-06	-4.913E-08	-3.924E-08	-4.905E-08	-1.991E-07	-6.499E-08	-1.544E-08	-3.063E-08	-1.899E-08	-6.242E-08	-4.572E-08	-7.85E-07	-4.288E-06	-2.422E-05	-1.52E-06	-9.347E-06	-1.659E-06	-2.598E-06	-1.673E-06	-1.154E-06	-1.3E-05	-2.711E-05	-3.6494E-06	-1.879E-05	
17RecPersSvc	0	-5.642E-07	-5.381E-06	-8.658E-08	-6.584E-08	-6.595E-08	-3.918E-07	-2.75E-07	-6.933E-08	-1.67E-07	-2.509E-07	-2.447E-07	-7.77E-07	-8.588E-07	-2.48E-06	-2.08E-05	-6.878E-06	-2.572E-06	-1.457E-06	-2.89E-06	-1.778E-06	-1.227E-06	-5.41E-05	-0.0001116	-2.5996E-05	-7.319E-05	
18Transport	0	-2.524E-06	-5.651E-06	-3.092E-07	-1.694E-07	-2.218E-07	-4.841E-07	-3.35E-07	-5.137E-07	-5.132E-07	-2.425E-07	-4.64E-07	-5.769E-07	-1.807E-06	-2.406E-05	-1.188E-06	-1.053E-06	-1.773E-05	-1.358E-06	-4.278E-06	-2.742E-06	-1.891E-06	-2.9E-05	-0.0001763	-1.2642E-05	-2.06E-05	
19PostalSvcs	0	-1.549E-08	-2.782E-07	-1.143E-08	-1.494E-08	-6.729E-09	-1.099E-07	-7.837E-09	-1.083E-08	-1.971E-08	-1.641E-08	-6.231E-08	-5.469E-08	-1.009E-07	-6.282E-07	-5.816E-06	-6.212E-07	-3.677E-07	-6.063E-07	-9.496E-07	-5.905E-07	-4.073E-07	-5.24E-06	-2.1758E-05	-3.7482E-06	-1.402E-05	
20telecoms	0	-0.0001218	-0.0009136	-2.201E-05	-1.939E-05	-1.66E-05	-1.83E-05	-9.099E-05	-4.017E-05	-4.234E-05	-0.0002842	-0.0003654	-0.000482	-0.0001534	-0.0001755	-0.0004039	-9.526E-05	-0.0001811	-0.0001087	-7.245E-05	-0.0001155	-0.00071506	-0.00081046	-0.002364			
21NBNRetailSrv	0	-2.585E-13	-1.027E-12	-5.116E-14	-2.869E-14	-1.691E-14	-7.429E-14	-4.233E-14	-3.481E-14	-7.012E-14	-4.821E-14	-1.689E-13	-6.096E-13	-6.554E-13	-3.544E-12	-1.795E-11	-1.477E-12	-3.162E-12	-1.052E-12	0	0	0	-1.56E-11	-7.7726E-11	-1.0445E-11	-3.089E-11	
22NBNCosSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23FinBusSvcs	0	-5.793E-05	-0.0004345	-1.047E-05	-9.222E-06	-7.894E-06	-1.356E-05	-3.207E-05	-8.703E-06	-4.299E-05	-1.91E-05	-2.014E-05	-0.0001352	-0.0001738	-0.0001656	-0.0002798	-8.347E-05	-0.0001921	-4.531E-05	-8.614E-05	-5.169E-05	-3.446E-05	-0.000549	-0.00319361	-0.00038544	-0.0011243	
24PubAdmDef	0	-2.037E-07	-4.628E-07	-1.098E-08	-1.052E-08	-1.954E-08	-1.335E-07	-6.358E-08	-8.264E-09	-3.264E-08	-5.958E-08	-2.575E-08	-1.172E-07	-5.575E-07	-4.225E-07	-3.385E-06	-1.429E-07	-2.563E-06	-1.344E-07	-1.279E-06	-8.244E-07	-1.29E-06	-6.4487E-06	-9.875E-06			
25 Education	0	-1.202E-07	-5.973E-07	-3.007E-08	-1.699E-08	-1.211E-08	-4.062E-08	-4.681E-08	-2.238E-08	-4.032E-08	-4.911E-08	-9.451E-08	-4.419E-07	-9.16E-08	-1.451E-07	-2.197E-06	-6.236E-07	-8.349E-07	-1.167E-07	-1.828E-07	-1.128E-07	-7.775E-08	-1.29E-05	-2.3866E-05	-1.8233E-05	-7.352E-05	
26 Community	0	-9.974E-10	-2.313E-07	-1.546E-08	-1.526E-09	-2.428E-09	-4.004E-08	-4.573E-08	-5.297E-10	-1E-09	-2.775E-08	-3.667E-09	-9.158E-09	-1.061E-08	-6.025E-08	-3.789E-07	-1.113E-07	-2.217E-07	-3.392E-08	-3.23E-07	-1.955E-07	-1.348E-07	-3.69E-07	-8.6695E-06	-1.0649E-06	-3.725E-05	

Table E.22 Shocks for Cloud Computing with high access speeds in Tasmania by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgrForFis	2Mining	3FoodDrink	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTr	17RecPers	18Transpor	19PostalSv	20telecom	21NBNRet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commu
1AgrForFis	0	-2.008E-08	-5.114E-05	-3.591E-07	-6.698E-08	-5.674E-08	-4.645E-09	-9.79E-08	-8.4E-10	-5.052E-09	-2.437E-09	-1.08E-08	-7.037E-09	-7.198E-08	-5.837E-07	-3.448E-06	-1.308E-06	-5.329E-08	-4.421E-09	-1.663E-08	-1.023E-08	-7.054E-09	-1.43E-06	-3.5918E-06	-1.4223E-07	-8.964E-07
2Mining	0	-4.387E-06	-1.392E-06	-2.351E-08	-4.097E-08	-4.655E-08	-9.25E-09	-3.542E-06	-5.512E-07	-4.324E-06	-2.879E-08	-8.641E-08	-4.102E-06	-4.38E-07	-2.042E-07	-2.636E-06	-2.761E-07	-5.266E-08	-1.32E-07	-4.51E-07	-2.941E-07	-2.028E-07	-1.39E-06	-2.3695E-06	-9.2333E-07	-6.046E-06
3FoodDrinkTob	0	-1.956E-08	-2.606E-05	-1.968E-08	-1.058E-07	-2.566E-09	-6.9E-09	-1.248E-07	-1.452E-09	-3.47E-09	-8.045E-09	-9.838E-09	-1.848E-08	-4.044E-08	-8.266E-07	-3.229E-05	-5.845E-06	-5.425E-08	-9.149E-08	-3.125E-07	-1.747E-07	-1.205E-07	-2.23E-06	-6.9513E-06	-2.9176E-06	-4.378E-06
4TCFs	0	-4.098E-08	-4.537E-07	-8.285E-07	-8.224E-08	-3.581E-07	-4.714E-08	-2.241E-08	-1.161E-08	-9.769E-08	-6.629E-08	-6.372E-08	-5.316E-08	-2.014E-06	-1.044E-06	-3.084E-06	-4.193E-07	-2.849E-07	-7.602E-08	-2.597E-07	-7.569E-08	-5.221E-08	-2.			

Table E.25 Shocks for Cloud Computing with modest access speeds in Australian Capital Territory by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgrForFis	2Mining	3FoodDrink	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTr	17RecPers	18Transpor	19PostalSv	20telecom	21NBNet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commun
1AgrForFis	0	-7.778E-09	-6.316E-05	-1.391E-07	-2.595E-08	-2.198E-08	-1.799E-09	-3.792E-08	-3.254E-10	-1.957E-09	-9.44E-10	-4.182E-09	-2.788E-09	-4.803E-07	-3.025E-06	-2.83E-06	-5.396E-08	-4.477E-09	-4.139E-08	-2.546E-08	-1.756E-08	-2.54E-06	-8.9908E-06	-3.3943E-07	-1.191E-06	
2Mining	0	-1.699E-06	-1.719E-06	-9.105E-09	-1.587E-08	-1.803E-08	-3.583E-09	-1.372E-06	-2.135E-07	-1.675E-06	-1.115E-08	-3.347E-08	-1.589E-06	-1.697E-07	-1.681E-07	-2.313E-06	-5.974E-07	-5.333E-08	-1.337E-07	-1.123E-06	-7.32E-07	-5.049E-07	-2.46E-06	-5.9311E-06	-2.2012E-06	-8.034E-06
3FoodDrinkTob	0	-7.575E-09	-3.219E-05	-7.625E-09	-4.098E-08	-9.938E-10	-2.673E-09	-4.836E-08	-5.626E-10	-1.344E-09	-3.116E-09	-3.811E-09	-7.159E-09	-1.566E-08	-6.802E-07	-2.833E-05	-1.265E-05	-5.521E-08	-9.265E-08	-7.778E-07	-4.349E-07	-3E-07	-3.95E-06	-1.74E-05	-6.963E-06	-5.817E-06
4TCFs	0	-1.588E-08	-5.604E-07	-3.209E-07	-3.186E-08	-1.387E-07	-1.826E-08	-6.883E-09	-4.498E-09	-3.784E-08	-2.568E-08	-2.468E-08	-2.059E-08	-7.8E-07	-8.59E-07	-2.706E-06	-9.071E-07	-2.885E-07	-7.699E-08	-6.463E-07	-1.884E-07	-1.3E-07	-4.77E-06	-2.5854E-05	-8.5619E-06	-2.616E-05
5MiscManuf	0	-4.4E-08	-5.253E-06	-2.698E-08	-9.339E-08	-3.435E-08	-1.029E-07	-6.543E-08	-7.076E-09	-2.739E-08	-7.335E-08	-9.718E-08	-1.096E-07	-4.539E-07	-1.358E-06	-2.81E-06	-1.126E-06	-7.355E-07	-7.472E-07	-6.273E-06	-2.601E-06	-1.794E-06	-4.05E-06	-5.5416E-05	-8.4013E-06	-1.332E-05
6WoodProds	0	-1.61E-08	-4.909E-06	-1.611E-08	-1.505E-08	-1.052E-07	-2.795E-07	-3.461E-08	-1.15E-08	-1.552E-08	-2.834E-08	-2.024E-08	-1.078E-08	-1.182E-07	-9.016E-07	-2.362E-06	-8.694E-07	-1.393E-07	-1.588E-07	-1.333E-06	-7.669E-07	-5.29E-07	-3.39E-06	-4.426E-05	-1.2939E-05	-1.862E-05
7PaperPrint	0	-1.475E-08	-6.27E-07	-8.616E-09	-1.217E-08	-1.876E-08	-1.995E-07	-1.156E-08	-4.335E-09	-1.291E-08	-1.247E-08	-3.24E-08	-2.686E-08	-9.112E-08	-1.735E-06	-1.33E-05	-1.987E-06	-2.202E-07	-8.869E-07	-7.446E-06	-4.652E-06	-3.209E-06	-1.8E-05	-8.2308E-05	-4.7083E-05	-1.06E-05
8ChemCoalPrds	0	-8.211E-07	-1.615E-06	-6.739E-08	-2.673E-07	-6.27E-08	-1.059E-07	-5.445E-07	-7.279E-08	-8.809E-08	-7.087E-08	-1.066E-07	-6.335E-07	-8.121E-07	-2.464E-06	-7.326E-06	-3.324E-06	-6.961E-06	-1.28E-07	-4.83E-06	-2.343E-06	-1.616E-06	-1.88E-05	-4.7296E-05	-5.7981E-06	-0.0001232
9NonMetMinPrd	0	-1.758E-08	-1.19E-06	-7.523E-09	-7.881E-09	-4.941E-09	-1.281E-09	-9.116E-09	-2.081E-07	-3.373E-08	-3.11E-08	-3.296E-08	-9.356E-08	-1.303E-06	-5.139E-07	-1.031E-06	-2.109E-07	-1.109E-08	-1.487E-09	-1.248E-08	-6.46E-09	-4.424E-09	-4.14E-06	-4.4416E-06	-5.1808E-07	-1.993E-06
10MetalPrds	0	-3.08E-07	-2.81E-06	-5.512E-08	-8.986E-08	-7.38E-08	-1.404E-08	-3.382E-08	-3.844E-08	-1.052E-06	-3.321E-07	-8.599E-07	-2.21E-07	-1.688E-06	-1.26E-06	-3.196E-06	-1.011E-06	-7.176E-07	-4.403E-07	-3.79E-06	-1.982E-06	-1.367E-06	-1.08E-05	-5.1498E-05	-8.0023E-06	-7.802E-06
11TransEqp	0	-6.383E-08	-9.604E-08	-2.248E-09	-7.58E-09	-5.937E-09	-2.312E-09	-1.409E-09	-4.024E-09	-4.737E-09	-6.787E-07	-3.867E-08	-6.964E-09	-1.359E-07	-8.316E-07	-2.591E-05	-2.618E-07	-4.336E-06	-3.233E-07	-2.714E-06	-9.499E-07	-6.552E-07	-2.45E-06	-0.0001544	-2.9201E-06	-6.318E-07
12OthMachEqp	0	-1.258E-06	-3.674E-05	-2.272E-07	-2.002E-07	-1.714E-07	-2.944E-07	-6.962E-07	-1.889E-07	-9.332E-07	-4.147E-07	-4.371E-07	-2.934E-06	-3.773E-06	-8.179E-06	-3.801E-05	-1.228E-05	-8.078E-06	-1.905E-06	-1.942E-05	-1.165E-05	-7.769E-06	-7.45E-05	-0.0003453	-6.9627E-05	-0.0001154
13EGW	0	-1.697E-07	-1.494E-06	-1.576E-08	-1.597E-08	-1.722E-08	-1.453E-08	-2.306E-08	-2.413E-08	-9.299E-08	-2.763E-08	-5.232E-08	-6.062E-06	-1.603E-07	-5.162E-07	-4.423E-06	-5.595E-07	-5.455E-07	-2.069E-07	-2.578E-06	-1.646E-06	-1.135E-06	-1.61E-05	-2.5296E-05	-2.3739E-05	-1.675E-05
14Construction	0	-4.461E-07	-4.101E-07	-8.57E-09	-4.495E-09	-2.162E-09	-4.752E-09	-4.516E-08	-1.899E-09	-1.259E-08	-5.126E-09	-1.686E-08	-8.43E-07	-6.402E-06	-2.006E-06	-3.174E-06	-1.078E-06	-1.102E-06	-1.311E-06	-1.101E-06	-7.074E-06	-4.879E-06	-2.3E-05	-0.0001814	-5.4799E-07	-1.983E-06
15WholesaleTrad	0	-6.147E-06	-0.0001796	-1.11E-06	-9.784E-07	-8.975E-07	-1.439E-06	-3.403E-06	-9.234E-07	-4.561E-06	-2.027E-06	-2.136E-06	-1.434E-05	-1.844E-05	-3.998E-05	-0.0001858	-6.004E-05	-3.949E-05	-9.312E-06	-9.493E-05	-5.696E-05	-3.797E-05	-0.000364	-0.00167898	-0.0003403	-0.0006539
16RetailTrade	0	-5.026E-08	-1.033E-06	-9.135E-09	-7.296E-09	-9.12E-09	-3.702E-08	-1.208E-08	-2.87E-09	-5.695E-09	-3.53E-09	-1.161E-08	-8.416E-08	-1.633E-07	-1.814E-06	-1.08E-05	-1.915E-06	-3.367E-06	-5.976E-07	-5.018E-06	-3.231E-06	-2.228E-06	-1.51E-05	-2.4976E-05	-5.7166E-06	-1.651E-05
17RecPersSvc	0	-1.049E-07	-3.897E-06	-1.61E-08	-1.224E-08	-1.226E-08	-7.284E-08	-5.114E-08	-1.289E-08	-3.105E-08	-4.665E-08	-4.549E-08	-1.446E-07	-1.597E-07	-1.797E-06	-9.28E-06	-8.67E-06	-9.262E-07	-5.247E-07	-5.58E-06	-3.434E-06	-2.369E-06	-6.29E-05	-9.3198E-05	-4.0219E-05	-6.432E-05
18Transport	0	-4.692E-07	-4.093E-06	-3.15E-08	-4.123E-08	-9E-08	-6.259E-08	-3.677E-08	-9.542E-08	-4.508E-08	-8.627E-08	-1.073E-07	-3.36E-07	-1.018E-05	-5.3E-06	-1.31E-06	-6.387E-06	-4.891E-07	-8.261E-06	-5.295E-06	-3.652E-06	-3.39E-06	-0.0001624	-1.9559E-06	-1.815E-05	
19PostalSvcs	0	-2.88E-09	-2.015E-07	-2.124E-09	-2.777E-09	-1.251E-09	-2.043E-08	-1.457E-09	-2.013E-09	-3.664E-09	-3.051E-09	-1.159E-08	-1.017E-08	-8.75E-08	-2.658E-07	-2.594E-06	-7.83E-07	-1.324E-07	-2.184E-07	-1.834E-06	-1.14E-06	-7.865E-07	-6.09E-06	-2.0046E-05	-5.7991E-06	-1.232E-05
20telecoms	0	-2.265E-05	-0.0006617	-4.092E-06	-3.605E-06	-3.086E-06	-5.302E-06	-1.254E-05	-3.402E-06	-1.681E-05	-7.468E-06	-7.872E-06	-2.85E-05	-6.795E-05	-0.0001473	-0.0006845	-0.0002212	-0.0001455	-3.431E-05	-0.0003498	-0.0002099	-0.0001399	-0.0001342	-0.0001865	-0.00125389	-0.0020776
21NBNetRetailSrv	0	-4.806E-14	-7.44E-13	-9.512E-15	-5.335E-15	-3.143E-15	-1.381E-14	-7.871E-15	-6.471E-15	-1.304E-14	-8.963E-15	-3.141E-14	-1.133E-13	-1.219E-13	-1.499E-12	-8.006E-12	-1.862E-12	-1.139E-12	-3.788E-13	0	0	0	-1.82E-11	-7.1608E-11	-1.616E-11	-2.714E-11
22NBNCosSvcs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1.338E-06	0	0	0	0	0
23FinBusSvcs	0	-1.077E-05	-0.0003147	-1.946E-06	-1.715E-06	-1.468E-06	-2.521E-06	-5.963E-06	-1.618E-06	-7.993E-06	-3.52E-06	-3.744E-06	-2.513E-05	-3.231E-05	-7.005E-05	-0.0003255	-0.0001052	-6.918E-05	-1.632E-05	-0.0001664	-9.981E-05	-6.654E-05	-0.000638	-0.00294224	-0.00059634	-0.0009881
24PubAdmDef	0	-3.878E-08	-3.352E-07	-2.042E-09	-1.956E-09	-3.634E-09	-1.537E-09	-6.069E-09	-1.108E-08	-4.788E-09	-2.179E-08	-1.036E-07	-1.788E-07	-1.519E-06	-4.839E-06	-0.00014477	-8.393E-06	-2.471E-06	-4.839E-06	-1.592E-06	-1.681E-06	-1.16E-07	-3.4E-07	-1.6037E-05	-1.2392E-06	-1.057E-06
25 Education	0	-2.235E-08	-4.326E-07	-5.592E-09	-3.158E-09	-2.251E-09	-7.553E-09	-8.702E-09	-4.16E-09	-7.496E-09	-9.131E-09	-1.575E-08	-8.215E-08	-1.703E-08	-6.14E-08	-9.798E-07	-7.86E-07	-3.007E-07	-4.204E-08	-3.53E-07	-2.177E-07	-1.502E-07	-1.49E-05	-2.1988E-05	-2.8209E-05	-6.461E-06
26 Community	0	-1.854E-10	-1.675E-07	-2.875E-09	-2.837E-10	-4.514E-10	-7.444E-09	-8.503E-09	-9.849E-11	-1.86E-10	-5.16E-09	-6.818E-10	-1.703E-09	-1.972E-09	-2.549E-08	-1.69E-07	-1.403E-07	-7.987E-08	-1.222E-08	-6.237E-07	-3.775E-07	-2.604E-07	-4.29E-07	-7.9871E-06	-1.6475E-06	-3.274E-05

Table E.26 Shocks for Cloud Computing with high access speeds in Australian Capital Territory by commodity and industry (bint_{S_{c,i,r}})

COMxIND	1AgrForFis	2Mining	3FoodDrink	4TCFs	5MiscManuf	6WoodProds	7PaperPrint	8ChemCoal	9NonMetM	10MetalPrd	11TransEq	12OthMach	13EGW	14Construc	15Wholesale	16RetailTr	17RecPers	18Transpor	19PostalSv	20telecom	21NBNet	22NBNCos	23FinBus	24PubAdm	25 Education	26 Commun
1AgrForFis	0	-2.450E-09	-7.403E-06	-4.381E-08	-8.172E-09	-6.932E-09	-5.667E-10	-1.194E-08	-1.025E-10	-6.164E-10	-2.973E-10	-1.317E-09	-8.586E-10	-8.782E-09	-4.897E-08	-2.683E-07	-1.153E-07	-4.904E-09	-4.068E-10	-9.074E-09	-5.581E-09	-3.849E-09	-2.54E-07	-3.2577E-06	-3.2507E-08	-6.76E-08
2Mining	0	-5.353E-07	-2.015E-07	-2.868E-09	-4.999E-09	-5.679E-09	-1.129E-09	-4.321E-07	-6.725E-08	-5.276E-07	-3.513E-09	-1.054E-08	-5.005E-07	-5.344E-08	-1.714E-08	-2.051E-07	-2.435E-08	-4.846E-09	-1.215E-08	-2.461E-07	-1.605E-07	-1.107E-07	-2.46E-07	-2.1491E-06	-2.1081E-07	-4.56E-07
3FoodDrinkTob	0	-2.386E-09	-3.773E-06	-2.402E-09	-1.291E-08	-3.13E-10	-8.418E-10	-1.523E-08	-1.772E-10	-4.233E-10	-9.815E-10	-1.2E-09	-2.255E-09	-4.934E-09	-6.934E-08	-2.512E-06	-5.154E-07	-5.017E-09	-8.419E-08	-1.705E-07	-9.534E-08	-6.576E-08	-3.95E-07	-6.3048E-06	-6.6685E-07	-3.302E-07
4TCFs	0	-5E-09	-6.569E-08	-1.011E-07	-1.003E-08	-4.369E-08	-5.751E-09	-2.735E-09	-1.417E-09	-1.192E-08	-8.088E-09	-7.774E-09	-6.486E-09	-2.457E-07	-8.757E-08	-2.399E-07	-3.697E-08	-2.622E-08	-6.996E-09							

Table E.27 Shocks for Electronic Commerce with modest access speeds by industry and region ($alab_{oi,r}$)

INDxDST	SydneyNSW	RoNSW	MelbourneVic	RoVic	BrisbaneQld	RoQld	AdelaideSA	RoSA	PerthWA	RoWA	Tas	NT	ACT
1 AgriForFish	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2 Mining	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
3 FoodDrinkTob	-0.011592	-0.004243	-0.016944	-0.003281	-0.007753	-0.005719	-0.000712	-0.000535	-0.000185	-0.002354	-0.000006	0.000000	-0.000024
4 TCFs	-0.000128	-0.000055	-0.000302	-0.000039	-0.000093	-0.000030	-0.000014	-0.000025	-0.000007	-0.000016	-0.000033	-0.000003	-0.000001
5 MiscManuf	-0.000113	-0.000048	-0.000266	-0.000035	-0.000082	-0.000027	-0.000012	-0.000022	-0.000006	-0.000014	-0.000029	-0.000003	-0.000001
6 WoodProds	-0.000097	-0.000041	-0.000228	-0.000030	-0.000070	-0.000023	-0.000011	-0.000019	-0.000005	-0.000012	-0.000025	-0.000002	-0.000001
7 PaperPrint	-0.000166	-0.000071	-0.000391	-0.000051	-0.000120	-0.000039	-0.000018	-0.000033	-0.000008	-0.000020	-0.000043	-0.000004	-0.000001
8 ChemCoalPrds	-0.000393	-0.000167	-0.000925	-0.000121	-0.000284	-0.000093	-0.000043	-0.000077	-0.000020	-0.000048	-0.000101	-0.000010	-0.000003
9 NonMetMinPrd	-0.000107	-0.000045	-0.000251	-0.000033	-0.000077	-0.000025	-0.000012	-0.000021	-0.000005	-0.000013	-0.000028	-0.000003	-0.000001
10 MetalPrds	-0.000526	-0.000224	-0.001240	-0.000162	-0.000380	-0.000124	-0.000057	-0.000103	-0.000027	-0.000064	-0.000136	-0.000013	-0.000004
11 TransEgp	-0.000234	-0.000100	-0.000551	-0.000072	-0.000169	-0.000055	-0.000025	-0.000046	-0.000012	-0.000028	-0.000060	-0.000006	-0.000002
12 OthMachEgp	-0.000247	-0.000105	-0.000581	-0.000076	-0.000178	-0.000058	-0.000027	-0.000048	-0.000013	-0.000030	-0.000064	-0.000006	-0.000002
13 EGW	-0.004020	-0.001713	-0.009467	-0.001235	-0.002903	-0.000950	-0.000437	-0.000789	-0.000205	-0.000489	-0.001039	-0.000098	-0.000031
14 Construction	-0.004020	-0.001713	-0.009467	-0.001235	-0.002903	-0.000950	-0.000437	-0.000789	-0.000205	-0.000489	-0.001039	-0.000098	-0.000031
15 WholesalTrad	-0.004120	-0.000782	-0.006173	-0.000407	-0.002590	-0.000593	-0.000283	-0.000112	-0.000040	-0.000200	-0.000008	0.000000	0.000000
16 RetailTrade	-0.013028	-0.003043	-0.014153	-0.002777	-0.004229	-0.002507	-0.000599	-0.000573	-0.000118	-0.001443	-0.000271	0.000000	-0.000006
17 RecPersSvc	-0.006517	-0.001916	-0.019672	-0.000915	-0.005070	-0.002006	-0.000190	-0.000024	0.000000	-0.000082	0.000000	0.000000	-0.000011
18 Transport	-0.013907	-0.002421	-0.013718	-0.003770	-0.003449	-0.005468	-0.000692	-0.000720	-0.000274	-0.002887	-0.000321	0.000000	-0.000006
19 PostalSrvcs	-0.000699	-0.000122	-0.000690	-0.000190	-0.000173	-0.000275	-0.000035	-0.000036	-0.000014	-0.000145	-0.000016	0.000000	0.000000
20 telecoms	-0.000988	-0.000175	-0.001702	-0.000128	-0.000975	-0.000110	-0.000166	-0.000029	0.000000	-0.000058	0.000000	0.000000	-0.000001
21 NBNRetailSrv	-0.000593	-0.000105	-0.001021	-0.000077	-0.000585	-0.000066	-0.000100	-0.000017	0.000000	-0.000035	0.000000	0.000000	-0.000001
22 NBNCoSrvcs	-0.000395	-0.000070	-0.000681	-0.000051	-0.000390	-0.000044	-0.000067	-0.000012	0.000000	-0.000023	0.000000	0.000000	0.000000
23 FinBusSrvces	-0.017365	-0.003365	-0.030091	-0.004055	-0.016093	-0.004845	-0.001440	-0.000425	-0.000147	-0.001616	-0.000252	0.000000	-0.000096
24 PubAdmDef	-0.034389	-0.001632	-0.022898	-0.002933	-0.005526	-0.006325	-0.002171	-0.000390	-0.000046	-0.000048	-0.000275	0.000000	-0.000109
25 Education	-0.012178	-0.002589	-0.016111	-0.002138	-0.009575	-0.001599	-0.000532	0.000000	-0.000070	-0.000305	0.000000	0.000000	-0.000134
26 Community	-0.031303	-0.003820	-0.040633	-0.004300	-0.017429	-0.002555	-0.002494	-0.000488	-0.000034	-0.000785	-0.000068	0.000000	-0.000166

Table E.28 Shocks for Electronic Commerce with high access speeds by industry and region ($alab_{o,i,r}$)

INDxDST	SydneyNSW	RoNSW	MelbourneVic	RoVic	BrisbaneQld	RoQld	AdelaideSA	RoSA	PerthWA	RoWA	Tas	NT	ACT
1 AgriForFish	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2 Mining	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
3 FoodDrinkTob	-0.352066	-0.204447	-0.331281	-0.133828	-0.118061	-0.183783	-0.085170	-0.031845	-0.115692	-0.048971	-0.032613	-0.011228	-0.023619
4 TCFs	-0.003005	-0.001492	-0.003104	-0.001021	-0.001281	-0.001469	-0.000794	-0.000213	-0.001183	-0.000391	-0.000277	-0.000082	-0.000052
5 MiscManuf	-0.002647	-0.001314	-0.002735	-0.000900	-0.001129	-0.001294	-0.000700	-0.000187	-0.001042	-0.000345	-0.000244	-0.000073	-0.000045
6 WoodProds	-0.002266	-0.001125	-0.002341	-0.000770	-0.000966	-0.001108	-0.000599	-0.000160	-0.000892	-0.000295	-0.000209	-0.000062	-0.000039
7 PaperPrint	-0.003893	-0.001933	-0.004021	-0.001323	-0.001660	-0.001903	-0.001029	-0.000276	-0.001533	-0.000507	-0.000359	-0.000107	-0.000067
8 ChemCoalPrds	-0.009207	-0.004572	-0.009510	-0.003129	-0.003925	-0.004502	-0.002433	-0.000652	-0.003625	-0.001199	-0.000850	-0.000252	-0.000158
9 NonMetMinPrd	-0.002499	-0.001241	-0.002581	-0.000849	-0.001065	-0.001222	-0.000660	-0.000177	-0.000984	-0.000325	-0.000231	-0.000068	-0.000043
10 MetalPrds	-0.012341	-0.006128	-0.012748	-0.004194	-0.005261	-0.006034	-0.003262	-0.000874	-0.004859	-0.001607	-0.001139	-0.000338	-0.000212
11 TransEgp	-0.005484	-0.002723	-0.005664	-0.001864	-0.002338	-0.002681	-0.001449	-0.000388	-0.002159	-0.000714	-0.000506	-0.000150	-0.000094
12 OthMachEqp	-0.005780	-0.002870	-0.005971	-0.001965	-0.002464	-0.002826	-0.001528	-0.000409	-0.002276	-0.000753	-0.000533	-0.000158	-0.000099
13 EGW	-0.094245	-0.046796	-0.097348	-0.032031	-0.040175	-0.046078	-0.024908	-0.006674	-0.037107	-0.012269	-0.008697	-0.002582	-0.001617
14 Construction	-0.094245	-0.046796	-0.097348	-0.032031	-0.040175	-0.046078	-0.024908	-0.006674	-0.037107	-0.012269	-0.008697	-0.002582	-0.001617
15 WholesalTrad	-0.120496	-0.036533	-0.108639	-0.019978	-0.033705	-0.035707	-0.023831	-0.005367	-0.029234	-0.005653	-0.004520	-0.001733	-0.001912
16 RetailTrade	-0.266165	-0.143648	-0.239995	-0.090329	-0.083553	-0.127551	-0.062835	-0.027585	-0.084154	-0.035070	-0.022665	-0.006571	-0.010110
17 RecPersSvc	-0.381187	-0.137044	-0.350847	-0.089288	-0.122174	-0.139752	-0.057888	-0.013106	-0.103013	-0.024097	-0.012530	-0.011087	-0.015793
18 Transport	-0.242057	-0.150750	-0.223722	-0.101043	-0.093840	-0.138927	-0.052982	-0.031344	-0.083611	-0.049108	-0.013308	-0.006638	-0.004793
19 PostalSrvcs	-0.012167	-0.007578	-0.011246	-0.005079	-0.004717	-0.006983	-0.002663	-0.001576	-0.004203	-0.002468	-0.000669	-0.000334	-0.000241
20 telecoms	-0.092294	-0.012380	-0.052095	-0.007073	-0.016882	-0.014665	-0.008980	-0.001285	-0.014816	-0.002415	-0.001272	-0.000817	-0.002456
21 NBNRetailSrv	-0.055376	-0.007428	-0.031257	-0.004244	-0.010129	-0.008799	-0.005388	-0.000771	-0.008890	-0.001449	-0.000763	-0.000490	-0.001474
22 NBNCoSrvcs	-0.036918	-0.004952	-0.020838	-0.002829	-0.006753	-0.005866	-0.003592	-0.000514	-0.005927	-0.000966	-0.000509	-0.000327	-0.000983
23 FinBusSrvces	-0.812411	-0.215295	-0.655760	-0.121447	-0.252891	-0.261469	-0.151710	-0.028630	-0.248098	-0.046746	-0.030596	-0.015003	-0.035546
24 PubAdmDef	-0.768938	-0.205534	-0.416980	-0.105430	-0.209705	-0.221657	-0.112119	-0.030330	-0.152507	-0.032722	-0.041687	-0.017538	-0.038406
25 Education	-0.434685	-0.143946	-0.350278	-0.064592	-0.126714	-0.119559	-0.066244	-0.010051	-0.106545	-0.022322	-0.015780	-0.010398	-0.024414
26 Community	-0.968661	-0.368698	-0.752647	-0.170060	-0.317452	-0.311894	-0.229148	-0.036241	-0.259987	-0.050466	-0.050632	-0.013691	-0.044497

Table E.29 Shocks for Online Higher Education with modest and high access speeds by region
($acap^{Education,r}$)

Region	Modest	High
SydneyNSW	-0.1072605	-4.0458036
RoNSW	-0.2522690	-7.5133519
MelbourneVic	-0.2989537	-7.2820871
RoVic	-0.5037738	-11.2427225
BrisbaneQld	-0.0949551	-3.5774839
RoQld	-0.1177558	-5.1553677
AdelaideSA	-0.0908733	-10.3512826
RoSA	-0.5102465	-8.2282197
PerthWA	-0.0265783	-7.0502461
RoWA	-0.2946669	-5.6158947
Tas	-0.7618426	-7.8440172
NT	-0.2498450	-8.1863811
ACT	-0.0003657	-1.0048433

Table E.30 Shocks for Telehealth Practice ($atot^{Community,r}$) and Transport due to Telehealth Practice by region ($fsub^{Transport,r,h}$) with modest and high access speeds

Region	Telehealth Practice		Transport	
	Modest	High	Modest	High
SydneyNSW	-0.473806	-14.934288	-0.017610	-0.655529
RoNSW	-3.037825	-19.631987	-0.091277	-1.983450
MelbourneVic	-1.013566	-15.534254	-0.034092	-0.792353
RoVic	-3.310836	-17.769111	-0.107065	-2.075783
BrisbaneQld	-0.430786	-10.249535	-0.020098	-0.647084
RoQld	-5.879312	-26.107298	-0.134552	-4.268352
AdelaideSA	-0.146153	-17.687363	-0.013946	-1.385354
RoSA	-13.182782	-17.637511	-0.153327	-2.745087
PerthWA	-0.057767	-15.977122	-0.007080	-1.469828
RoWA	-0.620815	-12.923039	-0.165733	-3.004564
Tas	-7.090253	-19.842921	-0.302200	-2.737987
NT	-15.566382	-13.019981	-0.160387	-3.993484
ACT	-0.000361	-0.636200	-0.000051	-0.139874

Table E.31 Shocks for Telework with modest access speeds by industry and region (*alab_{o_{i,r}}*)

INDxDST	Greater Sydney	Rest of NSW	Greater Melbo	Rest of Vic.	Greater Brisba	Rest of QLD	Greater Adela	Rest of SA	Greater Perth	Rest of WA	Tas	NT	ACT
1 AgriForFish	-0.00651391	-0.01406032	-0.01141571	-0.01770916	-0.00727355	-0.00810738	-0.00449133	-0.02180698	-0.00220573	-0.01825960	-0.04239406	-0.01062995	-0.00001648
2 Mining	-0.00370105	-0.00798874	-0.00648613	-0.01006192	-0.00413266	-0.00460642	-0.00255187	-0.01239020	-0.00125324	-0.01037467	-0.02408729	-0.00603968	-0.00000936
3 FoodDrinkTob	-0.00575052	-0.01241254	-0.01007786	-0.01563376	-0.00642114	-0.00715725	-0.00396498	-0.01925135	-0.00194723	-0.01611970	-0.03742576	-0.00938418	-0.00001455
4 TCFs	-0.00493522	-0.01065271	-0.00864904	-0.01341723	-0.00551076	-0.00614250	-0.00340283	-0.01652191	-0.00167116	-0.01383427	-0.03211958	-0.00805371	-0.00001248
5 MiscManuf	-0.00407716	-0.00880059	-0.00714528	-0.01108446	-0.00455263	-0.00507454	-0.00281120	-0.01364935	-0.00138060	-0.01142899	-0.02653515	-0.00665346	-0.00001031
6 WoodProds	-0.00506874	-0.01094092	-0.00888304	-0.01378023	-0.00565985	-0.00630869	-0.00349489	-0.01696892	-0.00171637	-0.01420855	-0.03298858	-0.00827160	-0.00001282
7 PaperPrint	-0.00485536	-0.01048033	-0.00850908	-0.01320012	-0.00542158	-0.00604311	-0.00334777	-0.01625457	-0.00164411	-0.01361041	-0.03159984	-0.00792339	-0.00001228
8 ChemCoalPrds	-0.00462708	-0.00998759	-0.00810902	-0.01257950	-0.00516668	-0.00575898	-0.00319037	-0.01549034	-0.00156681	-0.01297050	-0.03011413	-0.00755086	-0.00001170
9 NonMetMinPrd	-0.00547878	-0.01182598	-0.00960163	-0.01489499	-0.00611770	-0.00681903	-0.00377761	-0.01834162	-0.00185522	-0.01535796	-0.03565720	-0.00894073	-0.00001386
10 MetalPrds	-0.00476982	-0.01029569	-0.00835917	-0.01296756	-0.00532607	-0.00593664	-0.00328879	-0.01596820	-0.00161515	-0.01337062	-0.03104312	-0.00778379	-0.00001207
11 TransEqp	-0.00343772	-0.00742034	-0.00602465	-0.00934602	-0.00383862	-0.00427868	-0.00237031	-0.01150865	-0.00116408	-0.00963652	-0.02237350	-0.00560996	-0.00000870
12 OthMachEqp	-0.00483504	-0.01043647	-0.00847347	-0.01314487	-0.00539889	-0.00601782	-0.00333376	-0.01618654	-0.00163723	-0.01355345	-0.03146760	-0.00789023	-0.00001223
13 EGW	-0.00380542	-0.00821402	-0.00666905	-0.01034567	-0.00424920	-0.00473632	-0.00262383	-0.01273962	-0.00128858	-0.01066724	-0.02476657	-0.00621000	-0.00000963
14 Construction	-0.00635658	-0.01372073	-0.01114000	-0.01728144	-0.00709788	-0.00791157	-0.00438286	-0.02128029	-0.00215246	-0.01781859	-0.04137015	-0.01037321	-0.00001608
15 WholesalTrad	-0.00454713	-0.00981501	-0.00796890	-0.01236213	-0.00507740	-0.00565947	-0.00313524	-0.01522268	-0.00153974	-0.01274638	-0.02959378	-0.00742038	-0.00001150
16 RetailTrade	-0.00627190	-0.01353794	-0.01099159	-0.01705122	-0.00700332	-0.00780617	-0.00432447	-0.02099680	-0.00212378	-0.01758121	-0.04081902	-0.01023502	-0.00001586
17 RecPersSvc	-0.00501063	-0.01081548	-0.00878120	-0.01362224	-0.00559496	-0.00623636	-0.00345483	-0.01677437	-0.00169669	-0.01404566	-0.03261037	-0.00817677	-0.00001267
18 Transport	-0.00405850	-0.00876031	-0.00711258	-0.01103372	-0.00453180	-0.00505132	-0.00279833	-0.01358688	-0.00137428	-0.01137668	-0.02641370	-0.00662301	-0.00001027
19 PostalSrvcs	-0.00587154	-0.01267376	-0.01028995	-0.01596277	-0.00655627	-0.00730787	-0.00404842	-0.01965649	-0.00198821	-0.01645893	-0.03821337	-0.00958167	-0.00001485
20 telecoms	-0.00307305	-0.00663321	-0.00538556	-0.00835461	-0.00343143	-0.00382480	-0.00211887	-0.01028783	-0.00104059	-0.00861429	-0.02000015	-0.00501487	-0.00000777
21 NBNRetailSrv	-0.00672212	-0.01450976	-0.01178062	-0.01827524	-0.00750605	-0.00836653	-0.00463490	-0.02250405	-0.00227624	-0.01884327	-0.04374920	-0.01096973	-0.00001700
22 NBNCoSrvcs	-0.00672212	-0.01450976	-0.01178062	-0.01827524	-0.00750605	-0.00836653	-0.00463490	-0.02250405	-0.00227624	-0.01884327	-0.04374920	-0.01096973	-0.00001700
23 FinBusSrvces	-0.00541301	-0.01168402	-0.00948637	-0.01471618	-0.00604427	-0.00673717	-0.00373227	-0.01812144	-0.00183294	-0.01517360	-0.03522916	-0.00883341	-0.00001369
24 PubAdmDef	-0.00450935	-0.00973348	-0.00790271	-0.01225944	-0.00503523	-0.00561246	-0.00310920	-0.01509623	-0.00152695	-0.01264050	-0.02934796	-0.00735875	-0.00001141
25 Education	-0.00537572	-0.01160354	-0.00942103	-0.01461481	-0.00600263	-0.00669077	-0.00370656	-0.01799662	-0.00182032	-0.01506908	-0.03498649	-0.00877256	-0.00001360
26 Community	-0.00546708	-0.01180074	-0.00958114	-0.01486319	-0.00610464	-0.00680447	-0.00376955	-0.01830246	-0.00185125	-0.01532517	-0.03558108	-0.00892165	-0.00001383

Table E.32 Shocks for Telework with high access speeds by industry and region (*alab_o_{i,r}*)

INDxDST	Greater Sydney	Rest of NSW	Greater Melbo	Rest of Vic.	Greater Brisba	Rest of QLD	Greater Adela	Rest of SA	Greater Perth	Rest of WA	Tas	NT	ACT
1 AgriForFish	-0.20274097	-0.37650474	-0.23095694	-0.35657152	-0.26558933	-0.38273007	-0.41049102	-0.32629873	-0.41849047	-0.33334984	-0.39022634	-0.32316275	-0.04527790
2 Mining	-0.11519256	-0.21392097	-0.13122420	-0.20259539	-0.15090149	-0.21745805	-0.23323116	-0.18539511	-0.23777625	-0.18940139	-0.22171725	-0.18361333	-0.02572582
3 FoodDrinkTob	-0.17898105	-0.33238085	-0.20389030	-0.31478367	-0.23446400	-0.33787661	-0.36238416	-0.28805865	-0.36944613	-0.29428342	-0.34449437	-0.28529019	-0.03997163
4 TCFs	-0.15360534	-0.28525630	-0.17498299	-0.27015403	-0.20122198	-0.28997288	-0.31100578	-0.24721805	-0.31706651	-0.25256028	-0.29565239	-0.24484210	-0.03430450
5 MiscManuf	-0.12689894	-0.23566056	-0.14455978	-0.22318403	-0.16623677	-0.23955710	-0.25693314	-0.20423579	-0.26194013	-0.20864920	-0.24424914	-0.20227293	-0.02834019
6 WoodProds	-0.15776116	-0.29297396	-0.17971718	-0.27746309	-0.20666608	-0.29781815	-0.31942009	-0.25390657	-0.32564480	-0.25939334	-0.30365131	-0.25146634	-0.03523261
7 PaperPrint	-0.15111981	-0.28064048	-0.17215153	-0.26578258	-0.19796595	-0.28528074	-0.30597330	-0.24321774	-0.31193596	-0.24847353	-0.29086834	-0.24088023	-0.03374941
8 ChemCoalPrds	-0.14401470	-0.26744579	-0.16405760	-0.25328646	-0.18865831	-0.27186789	-0.29158756	-0.23178253	-0.29726987	-0.23679121	-0.27719278	-0.22955493	-0.03216263
9 NonMetMinPrd	-0.17052327	-0.31667413	-0.19425543	-0.29990851	-0.22338436	-0.32191020	-0.34525964	-0.27444639	-0.35198789	-0.28037701	-0.32821523	-0.27180875	-0.03808276
10 MetalPrds	-0.14845739	-0.27569618	-0.16911858	-0.26110005	-0.19447820	-0.28025469	-0.30058269	-0.23893275	-0.30644031	-0.24409595	-0.28574385	-0.23663643	-0.03315481
11 TransEqp	-0.10699671	-0.19870068	-0.12188772	-0.18818091	-0.14016499	-0.20198611	-0.21663697	-0.17220442	-0.22085869	-0.17592565	-0.20594227	-0.17054940	-0.02389545
12 OthMachEqp	-0.15048736	-0.27946598	-0.17143107	-0.26467027	-0.19713745	-0.28408683	-0.30469279	-0.24219986	-0.31063049	-0.24743365	-0.28965104	-0.23987214	-0.03360816
13 EGW	-0.11844108	-0.21995371	-0.13492483	-0.20830874	-0.15515703	-0.22359054	-0.23980846	-0.19062340	-0.24448173	-0.19474266	-0.22796986	-0.18879137	-0.02645131
14 Construction	-0.19784432	-0.36741131	-0.22537882	-0.34795952	-0.25917476	-0.37348629	-0.40057675	-0.31841788	-0.40838300	-0.32529870	-0.38080151	-0.31535765	-0.04418434
15 WholesalTrad	-0.14152623	-0.26282451	-0.16122279	-0.24890984	-0.18539843	-0.26717019	-0.28654912	-0.22777749	-0.29213325	-0.23269962	-0.27240307	-0.22558837	-0.03160688
16 RetailTrade	-0.19520863	-0.36251663	-0.22237631	-0.34332398	-0.25572201	-0.36851068	-0.39524024	-0.31417590	-0.40294249	-0.32096505	-0.37572844	-0.31115643	-0.04359571
17 RecPersSvc	-0.15595247	-0.28961508	-0.17765677	-0.27428204	-0.20429670	-0.29440374	-0.31575802	-0.25099560	-0.32191136	-0.25641946	-0.30017002	-0.24858334	-0.03482868
18 Transport	-0.12631812	-0.23458195	-0.14389814	-0.22216252	-0.16547591	-0.23846065	-0.25575716	-0.20330100	-0.26074123	-0.20769421	-0.24313122	-0.20134713	-0.02821048
19 PostalSrvcs	-0.18274767	-0.33937573	-0.20818113	-0.32140823	-0.23939825	-0.34498716	-0.37001046	-0.29412079	-0.37722105	-0.30047656	-0.35174419	-0.29129406	-0.04081282
20 telecoms	-0.09564666	-0.17762281	-0.10895805	-0.16821895	-0.12529649	-0.18055972	-0.19365644	-0.15393723	-0.19743032	-0.15726372	-0.18409622	-0.15245777	-0.02136065
21 NBNRetailSrv	-0.20922162	-0.38853978	-0.23833952	-0.36796938	-0.27407894	-0.39496410	-0.42361244	-0.33672892	-0.43186759	-0.34400543	-0.40270000	-0.33349270	-0.04672521
22 NBNCoSrvcs	-0.20922162	-0.38853977	-0.23833952	-0.36796938	-0.27407894	-0.39496410	-0.42361244	-0.33672892	-0.43186759	-0.34400543	-0.40269999	-0.33349270	-0.04672521
23 FinBusSrvces	-0.16847628	-0.31287272	-0.19192355	-0.29630835	-0.22070282	-0.31804592	-0.34111507	-0.27115188	-0.34776256	-0.27701131	-0.32427527	-0.26854591	-0.03762561
24 PubAdmDef	-0.14035062	-0.26064133	-0.15988358	-0.24684224	-0.18385839	-0.26495091	-0.28416887	-0.22588543	-0.28970661	-0.23076667	-0.27014033	-0.22371450	-0.03134434
25 Education	-0.16731578	-0.31071758	-0.19060154	-0.29426731	-0.21918256	-0.31585515	-0.33876540	-0.26928413	-0.34536709	-0.27510319	-0.32204159	-0.26669610	-0.03736643
26 Community	-0.17015924	-0.31599809	-0.19384073	-0.29926826	-0.22290748	-0.32122298	-0.34452257	-0.27386050	-0.35123646	-0.27977846	-0.32751455	-0.27122849	-0.03800146

Table E.33 Shocks for Telework with modest and high access speeds (*NatMacro("AggEmploy")*)

Modest	High
0.0233768	0.6701248

Table E.34 Shocks for Entertainment with modest and high access speeds by region $(fsub^{RecPers.Srvr,r,h})$

Regions	Modest	High
Greater Sydney	1.448524	1.448517
Rest of NSW	2.511977	2.467753
Greater Melbourne	1.855610	1.852553
Rest of Vic.	2.572581	2.374384
Greater Brisbane	1.314394	1.310935
Rest of QLD	3.887874	3.833111
Greater Adelaide	3.173849	3.169802
Rest of SA	2.055969	1.965838
Greater Perth	3.332535	3.330071
Rest of WA	2.131885	2.075685
Tas	2.594016	2.462422
NT	2.080213	2.059377
ACT	0.297863	0.297863