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Urban Amenities and Trade Resilience During the Covid-19 Pandemic in Malaysia

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Abstract: *The main objective of this study is to empirically examine the role played by amenities in supporting growth and trade in Malaysia during the pandemic and post-pandemic recovery phases. The manufacturing sector has been an important factor in mitigating the negative impact of the pandemic. It has also been a positive driver of the country's economic recovery. Transport, health and ICT-related amenities supported production, consumption, and trade activities during the pandemic and post-pandemic recovery periods.*

Keywords*:* Growth, Amenities, Covid-19

JEL Classifications: F43, O18, I15

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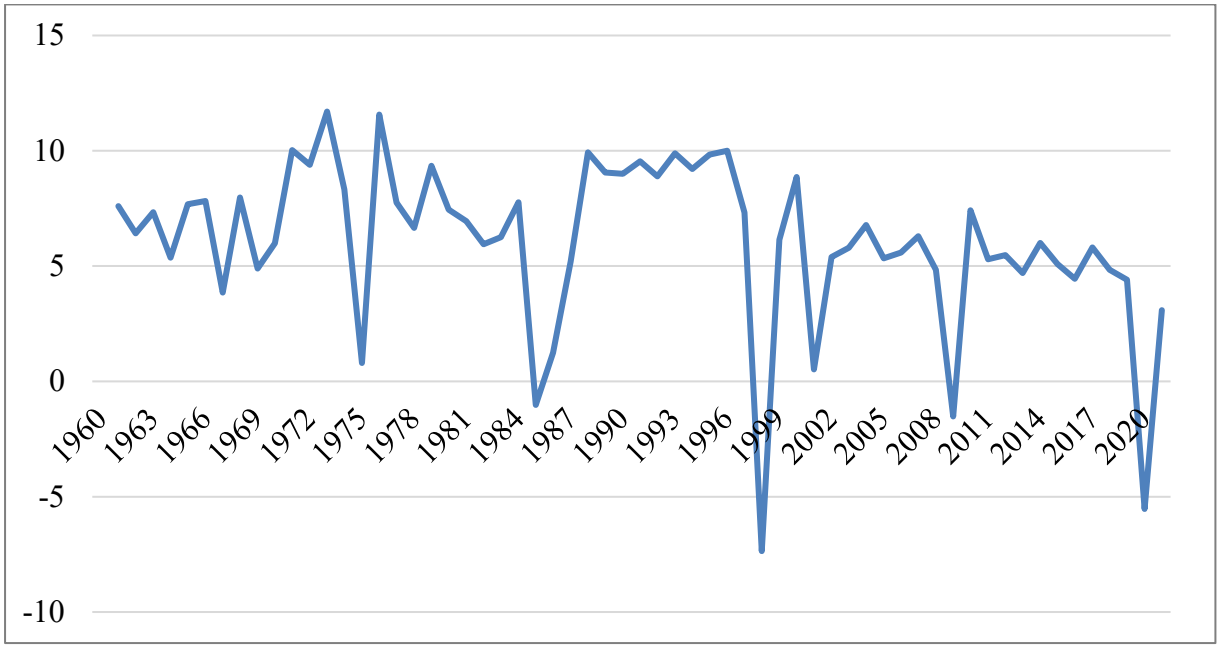
1. Introduction

The Covid-19 pandemic had a severe impact on the Malaysian economy in 2020. After growing by 4.3% in 2019, the country's economy contracted by -5.5% in 2020. The pandemic-induced economic crisis was the second-worst in Malaysia's history (after the Asian financial crisis in 1998) (Figure 1). The Malaysian economy recovered in 2021 by growing at 3.1%. The economic contraction in 2020 could have been worse and the subsequent recovery slower without the resilience of its export sector. The country's exports declined only marginally by 1.4% in 2020, followed by growth of 26% in 2021.

Figure 1: Malaysia: Real GDP Growth (annual %)



Source: World Bank (https://data.worldbank.org).

There are many factors underlying the resilience of Malaysia's exports. The composition of its exports could have been conducive to continuing growth due to robust demand for some products, such as rubber gloves and electricals and electronics. This is consistent with the findings of Arriola et al. (2021), who showed evidence that some export markets performed well during the pandemic despite an overall decline in trade volumes.

Urban amenities have also played a role in the resilience of trade. Adequate amenities, such as health facilities, ICT infrastructure, and logistics, could have supported production and consumption activities during the pandemic. Mouratidis (2021), for example, argued that amenities have helped to mitigate the negative impacts of Covid-19 in terms of the quality of

life in cities. The role of amenities applies to trade as well in the areas of exporting and global value chain (GVC) participation. The importance of urban amenities in supporting external trade activities (imports, exports, and GVC participation) during the Covid-19 pandemic in Malaysia has not been researched thus far. The goal of this paper is to fill this research gap. The main objective of this study is to empirically examine the role played by amenities in supporting the trade sector in Malaysia during the pandemic period.

The outline of this paper is as follows. Section 2 briefly reviews the literature on the impact of the Covid-19 pandemic on trade as well as the roles played by amenities. The impact of the pandemic on the Malaysian economy is reviewed in Section 3. The methodology used in this study is explained in Section 4, whilst the empirical results are discussed in Section 5. Section 6 provides policy discussions. Section 7 concludes.

2. Literature Review

The literature on the role of trade and amenities in recovery from the Covid-19 pandemic is fairly nascent and continues to evolve.

Arriola et al. (2021) found that the recovery of production and trade during the pandemic period was sharp (v-shaped) starting from the second half of 2020. This was attributed to both reductions in backlogs in supply chains and logistics as well as the increase in demand for durable goods after the lockdowns during the first half of 2020. As a result, some export markets performed relatively well during the pandemic despite an overall decline in trade volumes.

A country's vulnerability to the pandemic depends on its trade structure. Bas et al (2022) showed that the impact of the Covid-19 pandemic on exports was more adverse with: (i) high reliance on foreign inputs, (ii) greater reliance on China as an input supplier, (iii) greater utilisation of unskilled labour, and (iv) a lower degree of trade complexity.

Adequate amenities, such as health facilities, ICT infrastructure, and logistics, could ensure that consumption and production activities continued to take place during the pandemic. Mouratidis (2021), for example, found that urban amenities helped to mitigate the negative impacts of Covid-19 on the quality of life in cities.

In terms of production and trade, Mena et al. (2022) showed that healthcare and logistics infrastructures contribute to trade resilience. In their paper, trade resilience is defined and measured in terms of the year-on-year monthly percentage change in the total trade volume.
Another important aspect of the impact of the pandemic on economic performance is inequality and poverty. In this regard, Brown and Ravallion (2022) found that higher within-county

inequality and/or poverty measures came with substantially larger attenuations to non-residential mobility at given average incomes.

Overall, the emerging literature on the impact of the Covid-19 pandemic on economies suggests that resilience in trade depends on trade structure and supporting services, including urban amenities. This study provides further evidence on the role of amenities in trade resilience in a middle-income country.

3. Covid-19 and the Economy in Malaysia

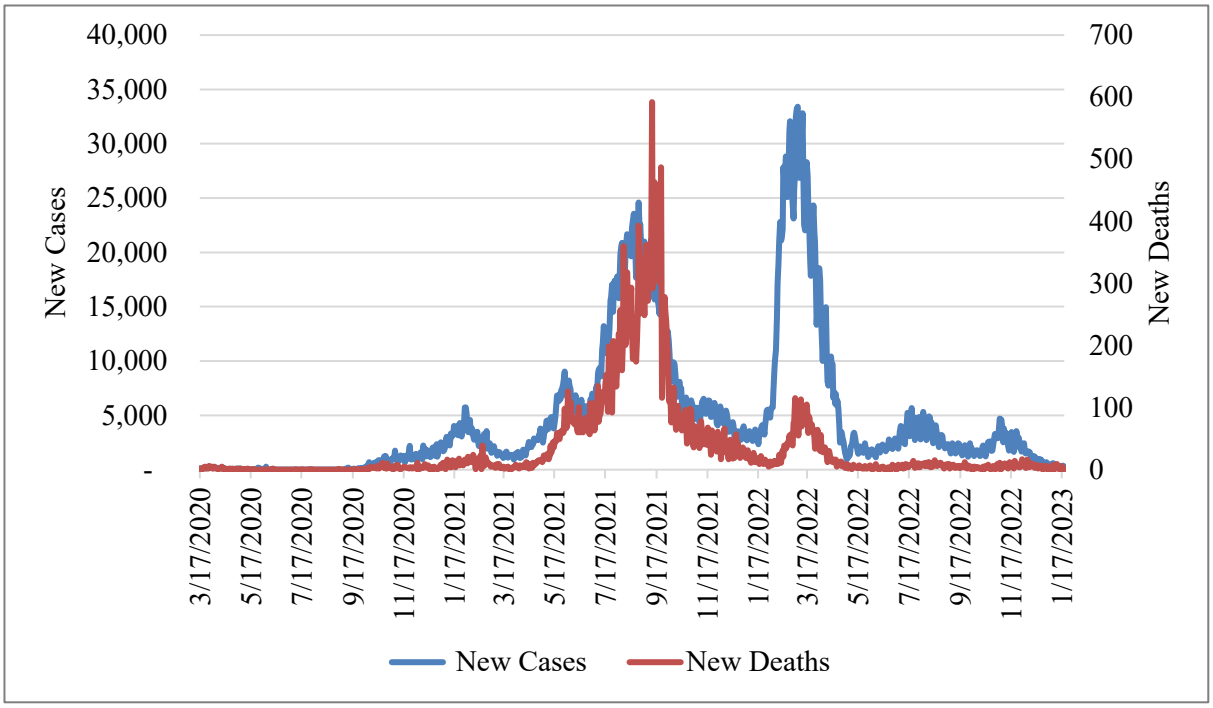
3.1. National-level analysis

Malaysia experienced a number of Covid-19 infection waves since early 2020 (Figure 2). Comparing the number of new Covid-19 cases across time, the pandemic in Malaysia peaked significantly twice – first in August/September 2021 and second in March 2022. The number of new deaths was much lower during the second peak in March 2022, and this can be attributed to the high vaccination rates.

The economic impact of the pandemic was shaped by a series of government restrictions on physical mobility:

- Movement Control Order: 18 March 2020–3 May 2020
- Conditional Movement Control Order: 4 May 2020–9 June 2020
- Recovery Movement Control Order: 10 June 2020–31 March 2021
- Total Lockdown: 1 June 2021–14 June 2021

Figure 2: Malaysia: Covid-19 New Cases and New Deaths

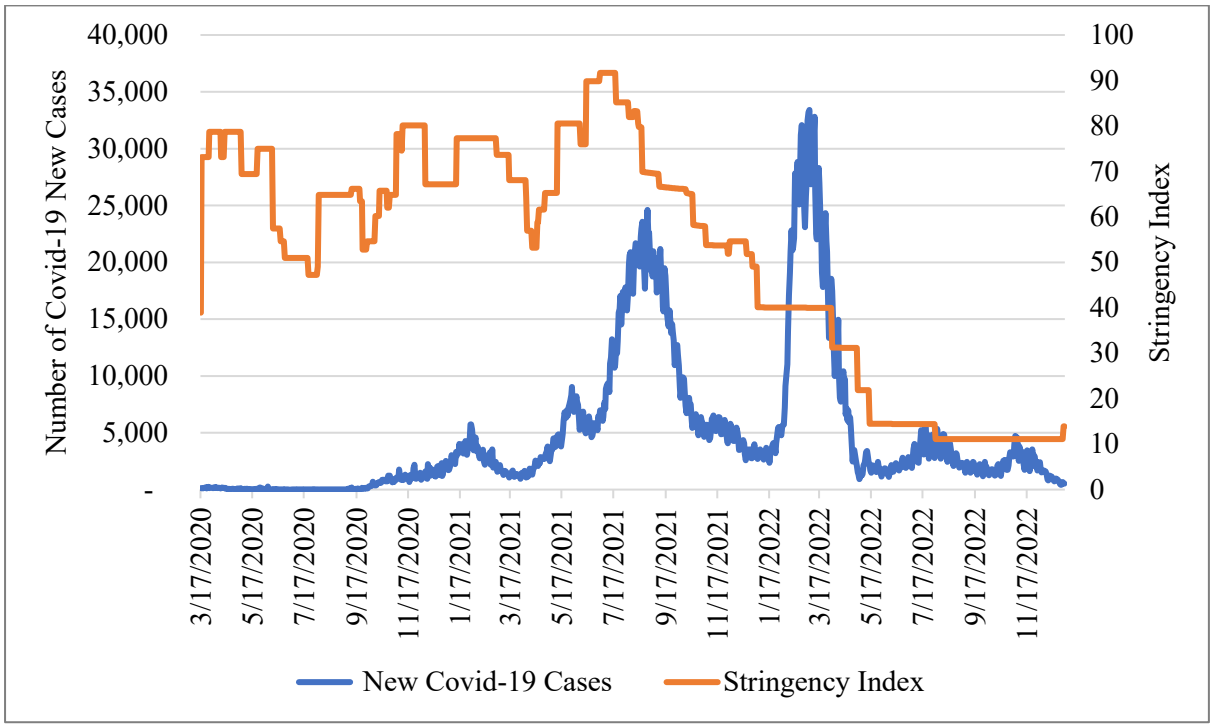


Source: Ministry of Health, Malaysia.

The restrictions on mobility that were implemented in Malaysia to control the spread of the pandemic were amongst the longest in the region. They lasted some 16 months, which affected domestic economic activity severely. The services sector was especially badly hit. The Malaysian government only began to move to an endemic phase (which entailed the relaxation of restrictions on mobility and social interactions) with the implementation of the National Recovery Plan starting from 7 August 2021. The impact of this is reflected in the downward trend in the Stringency Index starting from August 2021 until May 2022 (Figure 3).

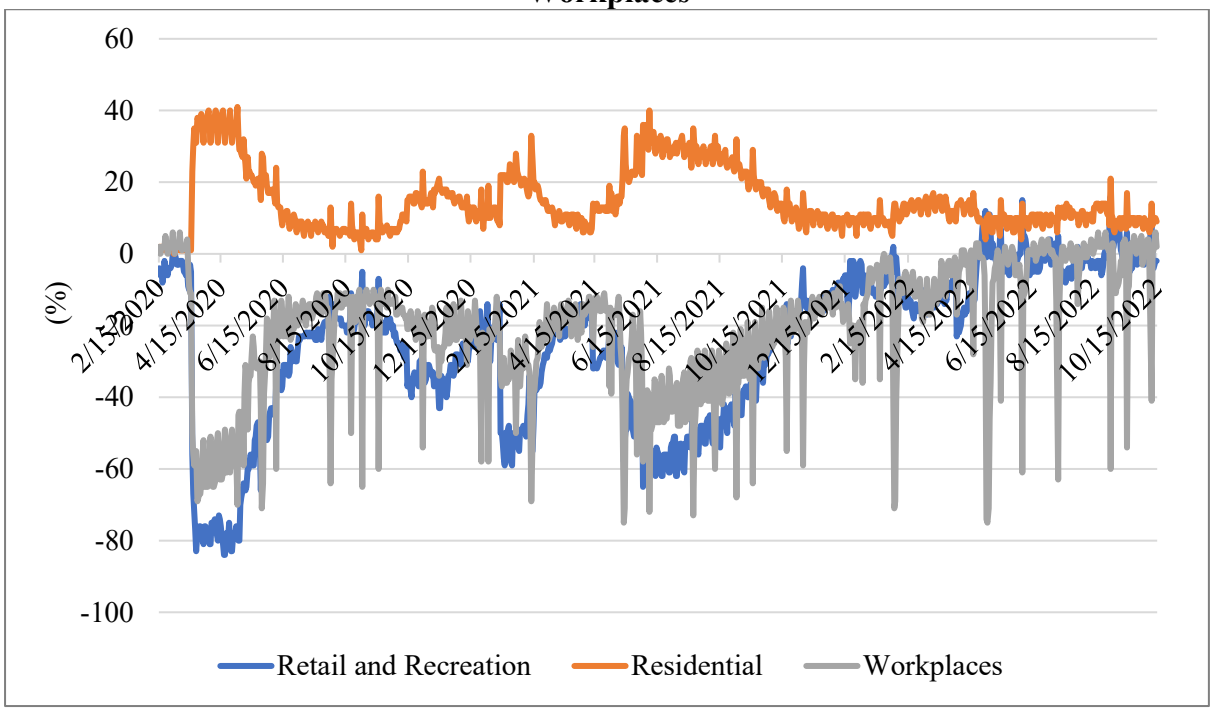
The impact of the mobility restrictions and the normalisation phase (endemic) can be seen from the trends in population mobility as measured by the Google mobility trends (Figure 4). The trends suggest that nearly full mobility was achieved by December 2021. However, it is useful to note that the trends in residential mobility suggest that a portion of the change to off-site working arrangements (e.g. working from home) become a permanent feature. In other words, some workers continued to work from home during and after the endemic period.

Figure 3: Covid-19 New Cases and Stringency Index



Sources: Ministry of Health, Malaysia; Covid-19 Government Response Tracker (https://www.bsg.ox.ac.uk/research/covid-19-government-response-tracker).

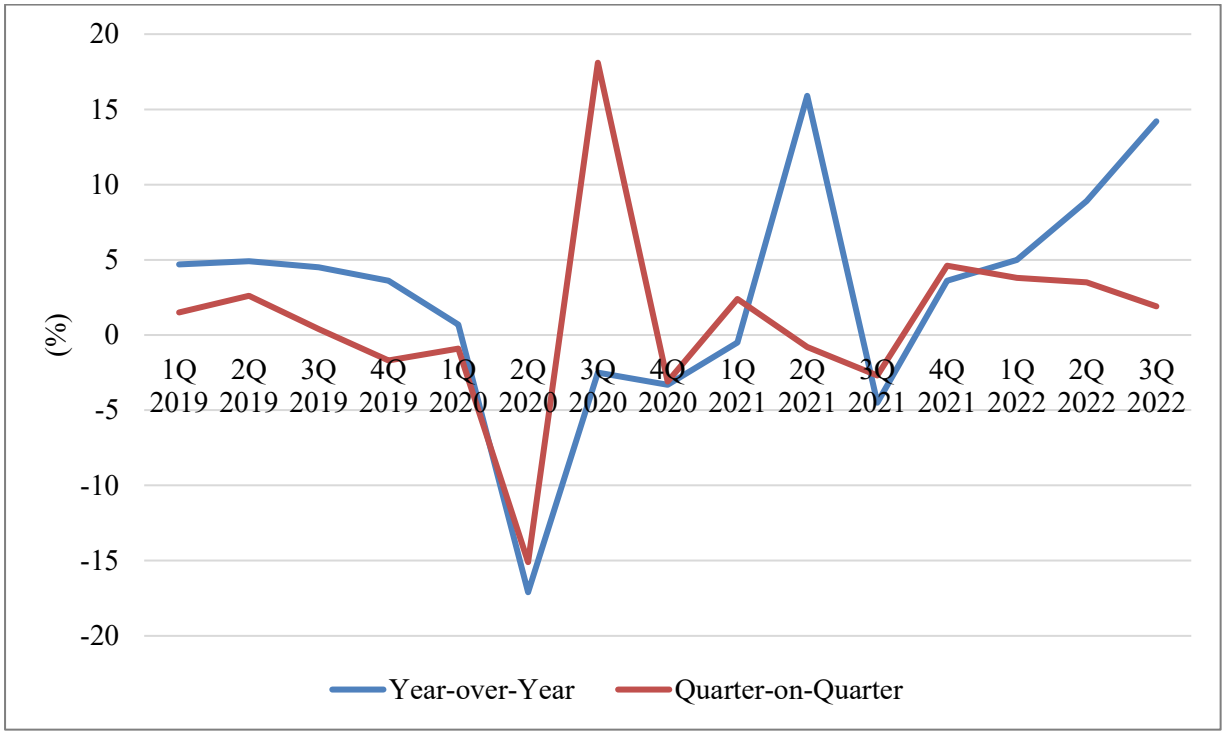
Figure 4: Malaysia - Google Mobility Trends for Retail-Recreation, Residential and Workplaces



Note: The daily change in mobility is calculated by comparing mobility in a given the day with the baseline value for that day of the week. The baseline is the median value for the corresponding day of the week during the five-week period 3 January–6 February 2020.
Source: Google Community Mobility Reports (https://www.google.com/covid19/mobility/).

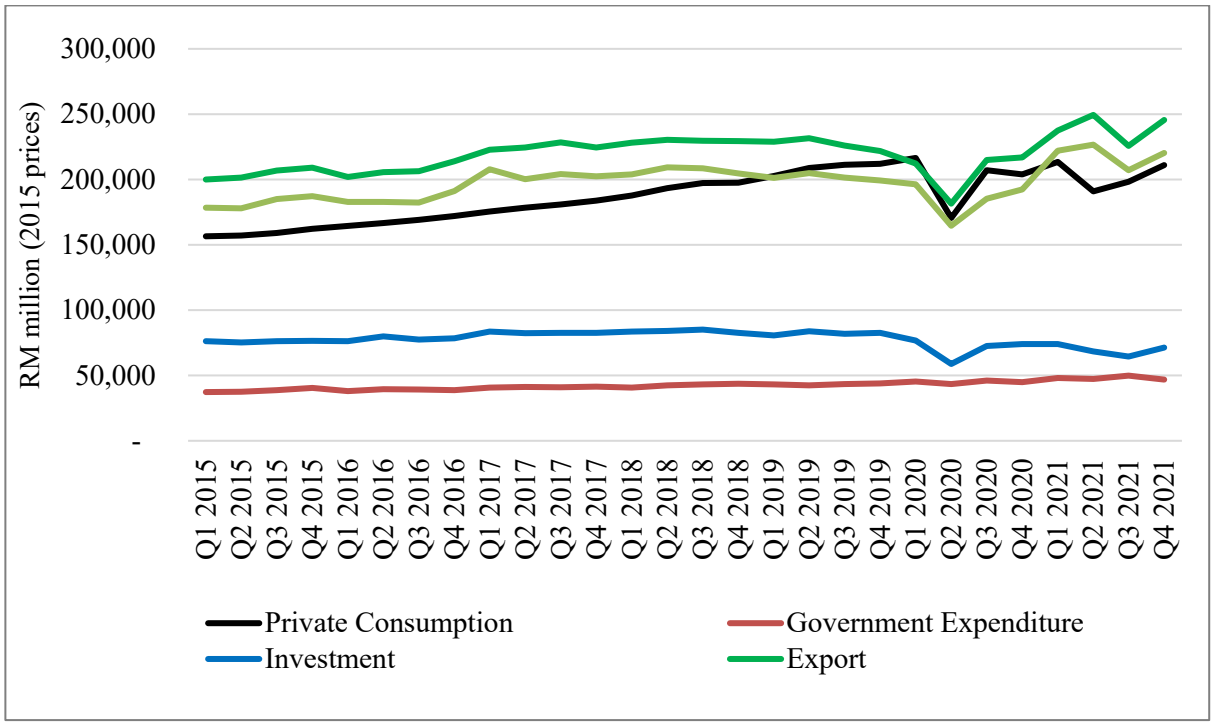
Malaysia's economic recovery from the pandemic is discernible from the quarterly economic growth figures (Figure 5). The recovery, which began in the third quarter of 2021, clearly coincides with the transition to the endemic phase. The role of trade in economic recovery is evident from a decomposition of gross domestic product (GDP) by expenditure (Figure 6). Net exports were an important source of growth for the economy. The contribution of exports to GDP rose consistently during the one-year period from the second quarter of 2020 to the second quarter of 2021. In contrast, private consumption expenditure was fairly unstable during this period.

Figure 5: Quarterly Real GDP Growth, Year-Over-Year and Quarter-on-Quarter, 2019–2022
(Constant Prices 2015)



Source: Department of Statistics Malaysia.

Figure 6: Real GDP by Expenditure, 2015–2021



Source: Department of Statistics Malaysia.

3.2. State-level analysis

An analysis at the state level is useful to unpack variations in economic performance at a more disaggregated level. Some states are more important than others in terms of the size of their economy. The state with the largest economy is Selangor, which accounts for close to 24.8% of Malaysia's GDP (Table 1). Other states with relatively large economies include Kuala Lumpur (15.7%), Johor (9.5%), Sarawak (9.5%), and Pulau Pinang (7.1%).

In terms of the impact of the pandemic and economic recovery, some of the larger states experienced less severe contractions in 2020 and some experienced more robust recovery in 2021 (Table 2). Of these larger states, Pulau Pinang experienced one of the lowest levels of contraction (-2.1% in 2020) and a very rapid recovery (+6.8% in 2021). The state of Selangor contracted by -5.2% in 2020 but recovered by growing at 5.0% in 2021.

State-level data indicate that a significant driver of growth in 2020–2021 was the performance of the manufacturing sector (Table 3). The manufacturing sector in Pulau Pinang, Selangor, and Sarawak recovered robustly from 2020 to 2021.

Table 1: States' Shares of National GDP (%)

	2015	2016	2017	2018	2019	2020	2021
Johor	9.3	9.5	9.5	9.6	9.4	9.5	9.5
Kedah	3.4	3.3	3.3	3.3	3.3	3.4	3.4
Kelantan	1.8	1.8	1.8	1.8	1.8	1.9	1.9
Melaka	3.1	3.1	3.1	3.1	3.1	3.0	3.0
Negeri Sembilan	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Pahang	4.2	4.1	4.2	4.1	4.1	4.1	4.0
Pulau Pinang	6.6	6.7	6.7	6.7	6.6	6.9	7.1
Perak	5.4	5.4	5.3	5.4	5.3	5.5	5.5
Perlis	0.5	0.5	0.4	0.4	0.4	0.4	0.4
Selangor	22.8	22.9	23.2	23.7	24.2	24.3	24.8
Terengganu	2.6	2.6	2.6	2.6	2.5	2.5	2.5
Sabah	6.3	6.3	6.4	6.2	6.0	5.8	5.7
Sarawak	10.3	10.1	10.0	9.8	9.6	9.5	9.5
FT Kuala Lumpur	15.4	15.6	15.9	16.2	16.4	16.1	15.7
FT Labuan	0.5	0.5	0.5	0.5	0.5	0.6	0.6

Source: Department of Statistics Malaysia.

Table 2: Real GDP Growth by State (%)

	2016	2017	2018	2019	2020	2021
Johor	6.1	5.9	5.7	2.8	-4.7	2.4
Kedah	4.1	4.6	4.0	4.5	-1.8	3.2
Kelantan	5.0	4.6	2.7	5.5	-1.2	2.4
Melaka	4.5	8.3	3.8	2.9	-5.9	2.0
Negeri Sembilan	3.9	4.9	4.3	5.1	-3.6	3.0
Pahang	2.9	7.3	3.1	3.8	-6.1	0.9
Pulau Pinang	5.6	5.2	5.1	3.7	-2.1	6.8
Perak	4.4	5.1	5.3	4.1	-2.4	3.5
Perlis	4.0	2.2	3.3	4.5	-6.0	1.5
Selangor	4.8	7.2	7.0	6.7	-5.2	5.0
Terengganu	3.2	5.7	2.5	3.3	-5.7	3.6
Sabah	5.1	8.1	1.5	0.7	-9.2	1.1
Sarawak	2.4	4.5	2.2	2.8	-6.8	2.9
FT Kuala Lumpur	6.0	7.6	6.9	6.1	-7.4	0.8
FT Labuan	6.9	5.9	6.7	5.2	-0.4	0.5
Malaysia	4.4	5.8	4.8	4.4	-5.5	3.1

Source: Department of Statistics Malaysia.

Table 3: States' Sectoral Composition as a Share of GDP, 2021 (%)

	Agriculture	Mining	Manufacturing	Construction	Services
Johor	13.1	0.5	31.4	2.6	52.4
Kedah	12.0	0.2	30.7	2.2	54.9
Kelantan	22.8	1.4	4.9	1.6	69.3
Melaka	10.9	0.1	37.9	2.1	48.9
Negeri Sembilan	7.0	0.4	38.1	2.9	51.5
Pahang	23.5	1.0	23.5	2.9	49.2
Pulau Pinang	2.0	0.1	47.6	2.6	47.7
Perak	15.4	0.5	20.1	2.5	61.5
Perlis	17.6	0.5	8.1	2.6	71.2
Selangor	1.5	0.2	32.1	5.2	61.0
Terengganu	7.8	0.5	37.0	3.2	51.5
Sabah	15.9	26.0	7.6	3.0	47.4
Sarawak	11.0	21.1	28.4	3.4	36.0
FT Kuala Lumpur	0.0	0.1	2.8	5.6	91.6
FT Labuan	1.5	0.0	17.8	1.9	78.8

Source: Department of Statistics Malaysia

Table 4: States' Sectoral GDP Growth, 2020–2021 (%)

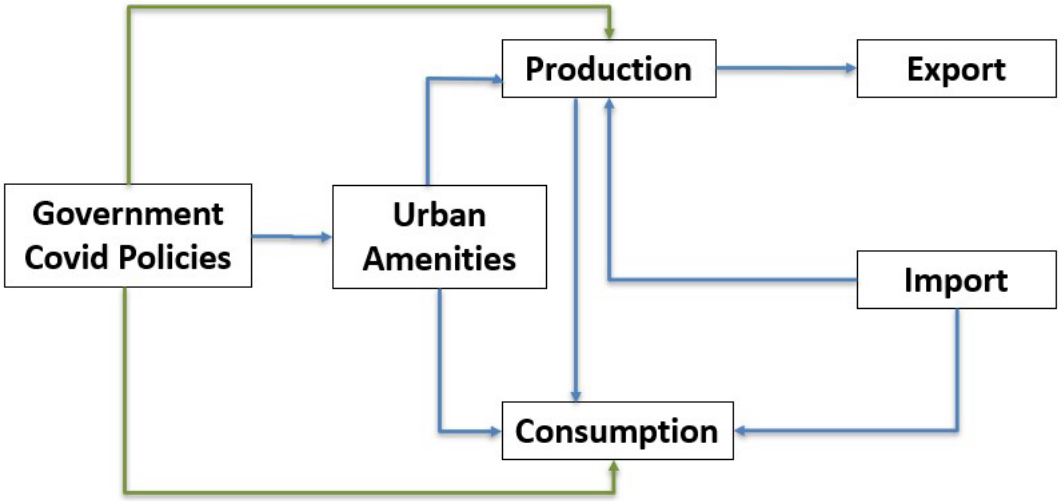
	Agriculture	Mining	Manufacturing	Construction	Services
Johor	0.6	-7.5	5.5	-18.0	2.6
Kedah	2.6	-4.5	6.2	-8.4	1.9
Kelantan	1.0	5.1	2.1	1.2	2.7
Melaka	-0.6	-4.4	3.3	-9.5	2.3
Negeri Sembilan	-0.4	-3.4	7.2	-0.3	2.0
Pahang	-0.1	-13.5	6.1	18.5	-1.4
Pulau Pinang	-2.4	-4.1	12.4	12.9	2.1
Perak	3.1	-3.4	9.2	-6.7	2.4
Perlis	-6.0	-2.3	5.4	0.2	2.3
Selangor	4.9	-3.0	13.1	-6.6	2.2
Terengganu	-5.3	3.5	9.5	2.5	1.2
Sabah	-2.4	2.4	-1.8	7.9	1.8
Sarawak	-3.2	-3.3	11.2	10.2	2.1
FT Kuala Lumpur		-3.1	4.3	-12.1	1.6
FT Labuan	1.3		-1.0	-11.8	1.5

Source: Department of Statistics Malaysia

4. Methodology

The framework for this study is depicted in Figure 6. The resilience in production depends on its two drivers, namely, exports and domestic consumption. Urban amenities feed into and affect both production and domestic consumption activities. The Covid-19 policies of the government are also important determinants of production and consumption. For example, mobility restrictions can reduce both production and consumption activities. The former includes production activities for exporting. Both production and consumption activities will affect the level of imports.

Figure 6: Framework of Study



Source: Author.

The analyses can be carried out through several approaches. One approach is to use the state-level data to decompose growth. This can be undertaken using sectoral GDP data for the states. The state level is the lowest level of data disaggregation for GDP in Malaysia. There are no GDP data available at the district level.

A second approach is to undertake a panel regression analysis of the production function for the manufacturing sector using the following specification:

$$Y_{it} = \beta + \beta K_{it} + \beta L_{it} + \beta I_{it} + \delta \mathbf{Z}_{it} + \varepsilon_{it} \quad (1)$$

Where Y is the value added, K fixed assets, L workers, and I intermediates. The production function is augmented by amenities denoted by the vector variable Z. The list of amenities includes the following:

- Road density – a measure of road transport amenities (road length per capita)
- Areas for shopping and offices – measure of urban amenities for retail and offices

- ICT variables – household access (%) to the internet and computers
- Health amenities – number of hospitals and hospital beds

A third approach uses exports as a dependent variable in the following model:

$$X_{it} = \beta + \delta \mathbf{Z}_{it} + \varepsilon_{it} \quad (2)$$

Where X is the export volume, and the other independent amenities variables are the same as above.

A fourth approach uses district-level data to examine the role of amenities in moderating the impact of the pandemic. As discussed earlier, GDP data is not available at the district level. To overcome this problem, the unemployment rate is used as a dependent variable that is regressed against the amenities variables using the following model:

$$Unemp_{it} = \beta + \beta\ Edu\ K_{it} + \beta\ Health_{it} + \beta\ Digital_{it} + \beta\ Trans\ K_{it} + \beta\ ICT_{it} + \beta\ Childcare_{it} + \varepsilon_{it} \quad (3)$$

Where Unemp is the unemployment rate and the list of amenities variables are as follows:

- Edu – number of primary and secondary schools within 5 km of the household
- Health – number of hospital beds
- Digital – number of digital economy centres
- Trans – road density (length of road per capita)
- ICT – household access (%) to internet and mobile phone
- Childcare – number of childcare centres

The data used for the study are sourced from the Department of Statistics Malaysia (DOSM). State-level data for trade and investment-related variables are available from 2015 to 2021. District-level data are available from 2019 to 2021.

5. Analysis

5.1. State-level analysis

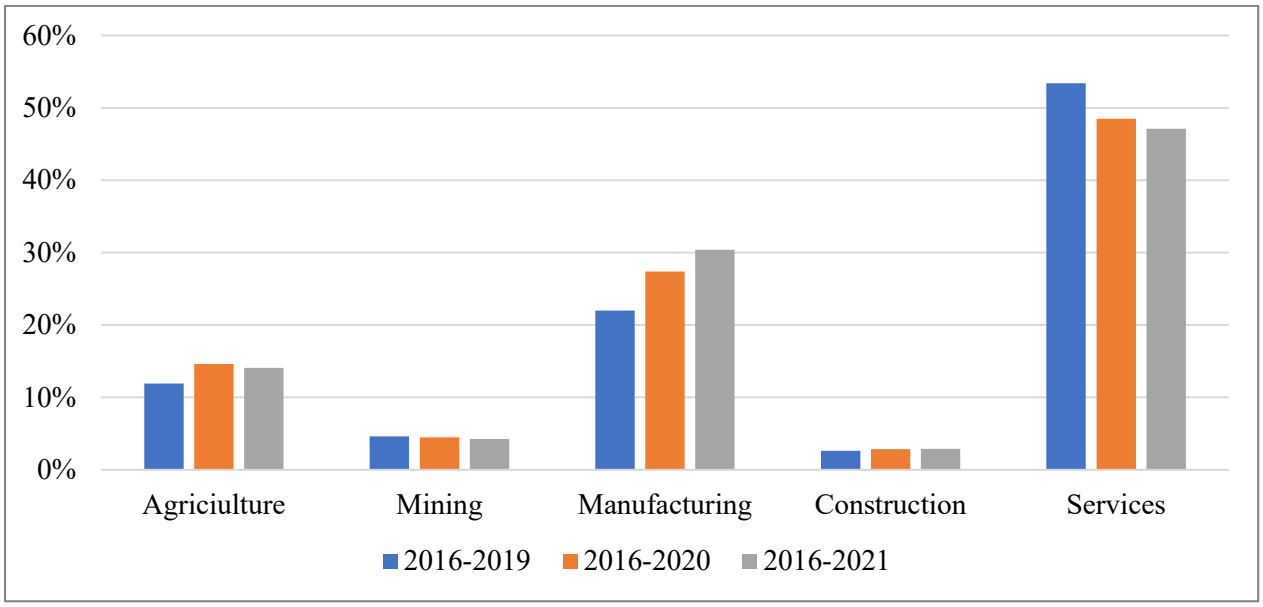
The decomposition of the growth of the sectors for the three different periods provides insights into the growth drivers. The three periods are:

- 2016–2019 (pre-pandemic)
- 2016–2020 (pre-pandemic + pandemic)
- 2016–2021 (pre-pandemic + pandemic + recovery)

The results are summarised in **Figure 7**. Of the five sectors examined, manufacturing clearly increased in importance during the pandemic and recovery periods. The services sector's role

was adversely affected during the pandemic, presumably due to mobility restrictions. The sector had also not fully recovered in 2021.

Figure 7: Regression Decomposition of Sectoral Contribution to Growth



Source: Author.

The fixed-effects panel regression results for the production function are summarised in Table 5. Overall, intermediate inputs and fixed assets are key inputs to production activity at the state level. Only the variable representing the area for shops is positively significant, but this result is fairly weak – it is only statistically significant at the 10% level in the estimation without hospital facilities.

Table 5: State-Level Analysis – Production

Variables	1	2	3
	Value Added	Value Added	Value Added
Labour	0.161	0.321	0.298
	0.26	0.3	0.334
Fixed Assets	0.188**	0.148*	0.139
	0.0822	0.081	0.0855
Intermediate Inputs	0.815***	0.855***	0.864***
	0.0815	0.0803	0.0847
Road Density		-0.105	-0.104
		0.0725	0.0743
Area Shop		0.374*	0.358
		0.211	0.218
Area Office		-0.333	-0.344
		0.219	0.224
Access to Internet		0.366	0.422
		0.374	0.391
Access to Computer		0.0772	0.092
		0.201	0.207
Hospital			0.603
			0.589
Hospital Bed			-0.0624
			0.319
Constant	-2.909	-7.227	-7.717
	2.976	4.346	4.652
Observations	42	42	42
R-squared	1	1	1
Number of states	14	14	14
Standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Source: Author.

When the export variable is regressed against urban amenities, the road transport amenity is positive and statistically significant. This result suggests that export growth is more likely to be higher in districts with high road density. The size of the coefficient over the three different periods indicates that this type of amenity is especially important during the pandemic and recovery periods. Interestingly, the access to internet variable is positive and statistically significant in the pre-pandemic and pandemic periods. However, this variable appears to be less important in the recovery or post-pandemic period. This result could be a reflection of a

reduction in the importance of the internet as businesses returned to normal during the recovery period.

Table 6: State-Level Analysis – Exports

Variables	2016–2019	2016–2020	2016–2021
	Exports	Exports	Exports
Road Density	0.519**	0.532***	0.531***
	-0.201	-0.183	-0.171
Area Shop	0.198	0.198	0.185
	-0.422	-0.356	-0.337
Area Office	-0.409	-0.3	0.0215
	-0.541	-0.529	-0.512
Access to Internet	1.104***	0.712*	0.537
	-0.403	-0.392	-0.399
Access to Computer	-0.295	-0.379	0.32
	-0.553	-0.371	-0.205
Hospital	-0.13	0.655	0.481
	-1.757	-0.887	-0.746
Hospital Bed	-0.771	-0.851	-0.401
	-0.575	-0.617	-0.58
Constant	15.30*	14.98**	5.581
	-8.542	-7.164	-6.392
Observations	60	75	90
R-squared	0.462	0.303	0.431
Number of states	15	15	15
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

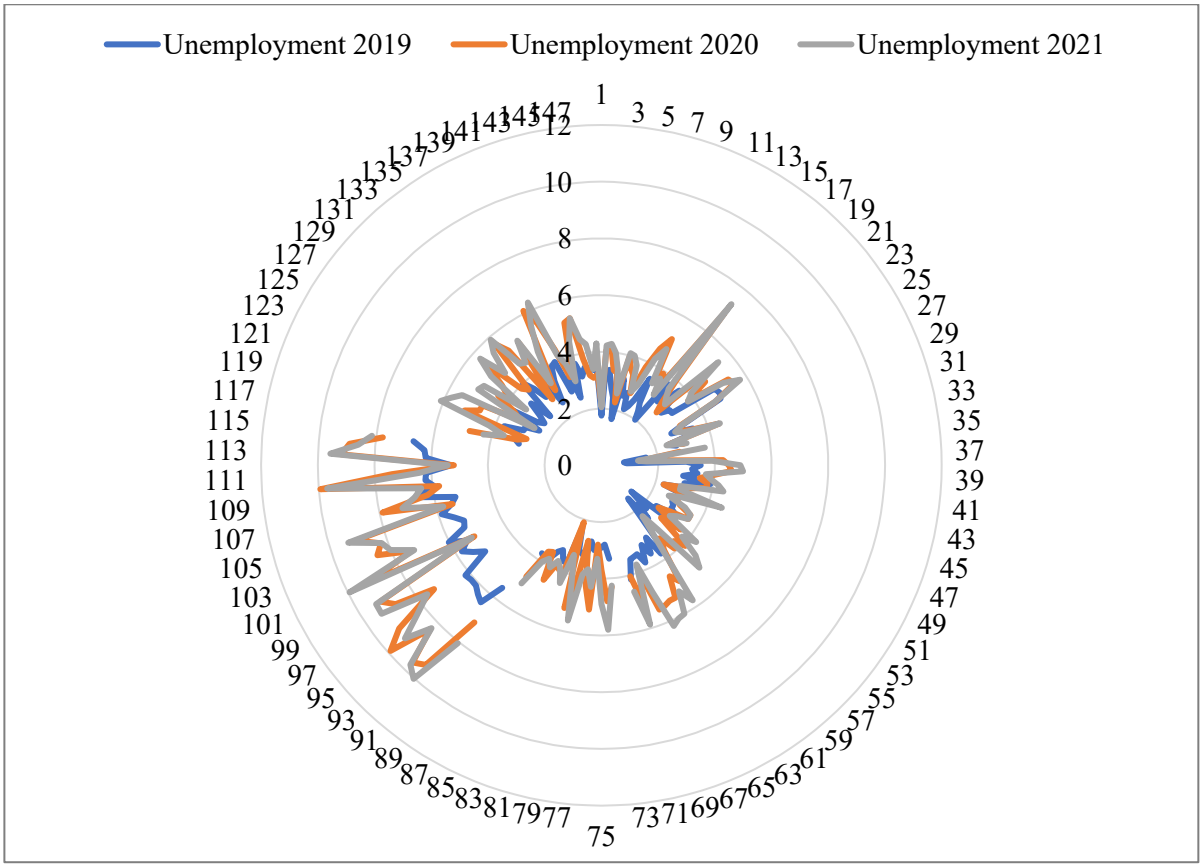
Source: Author.

5.2. District-level analysis

A comparison of the unemployment rates across districts in 2019 (pre-pandemic), 2020 (pandemic) and recovery (2021) is depicted in **Figure 8**. The pandemic clearly brought about

an increase in the unemployment rate in 2020. Comparing the figures in 2020 and 2021, the unemployment rates in 2021 were still high, which indicates that recovery was weak during the endemic period.

Figure 8: Unemployment Rates Across Districts, 2019, 2020, and 2021 (%)



Source: Author.

The panel regression results and the ordinary least squares (OLS) regression estimates for each year are summarised in **Table 7**. Overall, the variable for household access to secondary schools is negatively and significantly correlated with the unemployment rate. As schools are mostly located in suburban residential areas, these results could indicate that unemployment was badly affected in these areas.

The health amenity variable – measured by the number of hospital beds – is positive and statistically significant. This result suggests that health amenities played an important role in moderating the impact of the Covid-19 pandemic on the economic activities of the population. This result is consistent with the importance of health amenities during the pandemic. Household access to the internet is only positive and statistically significant for the pooled

datasets. The yearly OLS estimates have opposite signs. This suggests that the overall effect of ICT amenities is positive.

Table 8 reports the results from using changes in unemployment as a dependent variable. This approach has the merit of testing for causality rather than correlation. The results for 2019–2020 (moving into the pandemic) and 2020–2021 (moving out of the pandemic) provide a comparison of the pandemic and post-pandemic periods. The results seem to be asymmetric – thus, indicating that amenities may have played different roles during the pandemic and recovery periods. Further investigation is warranted in this area.

6. Policy Implications

The Covid-19 pandemic generated economic shocks that resulted from the pandemic per se and the government policies that were implemented to control the spread of the pandemic. Several broad policy implications can be drawn from the empirical findings of this study.

First, trade is an important activity or sector for mitigating the effects of shocks, such as those from the Covid-19 pandemic. The policy implication of this result is that governments should continue to put in place policies that promote economic openness.

Second, amenities do play an important role in supporting the export sector's resilience. In this respect, attention should be paid to further enhancing amenities that support exporting activities, such as transport-related amenities.

Third, the resilience of both production and consumption activities is enhanced by amenities that secure the well-being of workers and the population in general. Health-related amenities play an important role in ensuring that quality of life is maintained and enhanced during times of economic shocks and crises.

Finally, there is heterogeneity in the role of amenities in the different types of economic shocks and during different phases of economic cycles. Policy makers need to identify, plan, and invest in different types of amenities with such asymmetries in mind.

Table 7: District-level Analysis – Unemployment

	Panel-All	OLS-2019	OLS-2020	OLS-2021	OLS-ALL
Variables	**Unemployment Rate**	**Unemployment Rate**	**Unemployment Rate**	**Unemployment Rate**	**Unemployment Rate**
Primary School	0.00117	-0.0077	0.00499	0.00538	6.78E-05
	-0.007	-0.00578	-0.00838	-0.00798	-0.00462
Secondary School	-0.0568***	0.00587	-0.026	-0.0461*	-0.0398***
	-0.0201	-0.0194	-0.0272	-0.0251	-0.0147
No. Hospital Bed	0.000871***	0.000412	0.000774**	0.000750**	0.000687***
	-0.00028	-0.00026	-0.00036	-0.00032	-0.0002
Child Care Centre	0.0033	0.00324	0.00375	0.00361	0.00300*
	-0.00206	-0.00219	-0.00265	-0.00247	-0.00153
Digital Economy Centre	-0.0296	-0.0111	-0.051	-0.0629*	-0.0356*
	-0.0289	-0.0252	-0.0365	-0.0349	-0.02
Road Density	-0.0146	-0.0581	-0.076	-0.033	-0.0548*
	-0.0204	-0.0579	-0.0777	-0.0361	-0.03
Internet Access	0.0190***	-0.0348***	-0.0239**	-0.0519***	0.0109***
	-0.00154	-0.0088	-0.0102	-0.0148	-0.00305
Mobile Phone	-0.00752	0.0234	-0.00777	0.186*	-0.00472
	-0.0116	-0.015	-0.065	-0.103	-0.0187
Constant	4.303***	2.352*	6.728	-8.827	4.469***
	-1.099	-1.343	-5.928	-9.332	-1.723
Observations	353	117	117	119	353
R-squared		0.203	0.185	0.227	0.128
*** p<0.01, ** p<0.05, * p<0.1					

Source: Author.

Table 8: District-Level Analysis – Changes in Unemployment

Variables	diffunemp19to20	diffunemp20to21
Primary School 2019	0.0163***	
	-0.00486	
Secondary School 2019	-0.0337**	
	-0.0159	
Hospital 2019	-0.0262	
	-0.0491	
Hospital Bed 2019	0.000249	
	-0.000221	
Child Care Centre 2019	0.00304*	
	-0.0018	
Digital Economy Centre 2019	-0.0591***	
	-0.021	
Road Density 2019	-0.0226	
	-0.0488	
Internet Access 2019	-0.00455	0.0051
	-0.00933	-0.00717
Mobile Phone 2019	0.00554	0.0148
	-0.0634	-0.0484
Primary School 2020		-0.00177
		-0.00371
Secondary School 2020		-0.00861
		-0.0122
Hospital 2020		-0.0195*
		-0.0116
Hospital Bed 2020		0.000224
		-0.000165
Child Care Centre 2020		0.000187
		-0.0012
Digital Economy Centre 2020		0.0126
		-0.0164
Road Density 2020		-0.0516
		-0.0355
Constant	0.696	-1.437
	-5.702	-4.352
Observations	117	117
R-squared	0.222	0.106

Source: Author.

7. Conclusions

The Covid-19 pandemic had a severe impact on the Malaysian economy. The country's economy could have been more adversely affected had the manufacturing export sector not performed well during the period. The sector also contributed to a quick economic recovery, especially in a few major states such as Pulau Pinang, Selangor, Johor, and Sarawak.

The state-level econometric analysis of production and trade confirms that the manufacturing sector played an important role in supporting the economy during the pandemic and recovery periods. Transport and ICT amenities are likely to play important roles – though the empirical results are not robust. District-level data analyses are more promising, though these approaches lack a direct measure of economic activity, such as GDP. Health amenities are particularly important. Furthermore, there is preliminary evidence to suggest that different types of amenities may have been important during the pandemic and recovery periods.

There are several policy implications from this study. The first emphasises the importance of maintaining an open economy. The second points to the importance of developing amenities that support trade. A third policy implication is the importance of some types of amenities, such as health services, that enhance production resilience and quality of life. Finally, amenities may play different roles depending on the types of shocks and the phases of the economic cycle (crisis or recovery).

The topic of economic resilience and amenities is a relatively new and nascent topic. The study of this topic using data from the Covid-19 pandemic and post-pandemic provides some preliminary evidence on the importance of amenities. Different types of amenities play multi-dimensional roles in supporting and enhancing economic resilience. More research needs to be carried out to support evidence-based policymaking in this area.

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