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Article

The Uneven Short-Run Effects of the COVID-19 Pandemic on Foreign Direct Investment

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Abstract: This study examines short-run economic and business impacts of the COVID-19 pandemic as a global disruption event. The purpose is to build propositions about specific subnational FDI (Foreign Direct Investment) developments in the short-term of global disturbance. We approach the investigation by reviewing FDI outcomes in the year prior and in the first year of the pandemic, at the U.S. national and subnational levels, and through the lens of local characteristics and FDI outcomes in the state of New Hampshire. Our methods include distribution and frequency analyses on two sets of data: secondary data on FDI and trade at the state level, and primary data as direct observations on firm activities in New Hampshire. Our leading method is the evaluation of data aimed at triangulating and consequently generating a set of propositions that explain phenomena observed in relation to short-term effects of disruption. Our methodological tools consist of an in-focus instance of the phenomena in one state, as a particular case for verifying the validity of our propositions, and comparisons with available data across states to establish the reliability of the proposed consequences. Our analysis provides evidence for subnational heterogeneity of global disruption impact. Our interstate trend analysis and unique data on FDI-related activities in New Hampshire reveal how foreign businesses respond to the external shock of global disruption in the short-run. We use our insights to propose that established regional supply chains and differences in local advantages determine varying FDI outcomes across subnational locations. As a result, we set forth three calls-to-action for regional policymakers: the development of initiatives to support strong trade and FDI-outcomes at all times and in preparation for global disruption; the promotion and facilitation of firms' access to markets; and the implementation of actions that encourage the establishment of regional supply chains.

Keywords: COVID-19; global disruption; FDI; short-run effects; national and subnational; market reaction



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1. Introduction

The COVID-19 pandemic has presented organizational decision-makers and policy-makers all over the world with unprecedented challenges (Khlystova et al. 2022). To leverage the long-term economic and social impacts of these challenges, governments have adopted a mix of fiscal and monetary policies, with some actions guided by protectionism and accompanied by partial or complete border closures. The policy response to the health crisis has been “remarkable in its suddenness, magnitude and synchronicity across countries” (Van Assche and Lundan 2020, p. 274). Businesses have been left scrambling trying to respond to the new policy reality. Small- and mid-sized firms have been striving to transform their traditional business models with changes in employment patterns and customer engagement, while large and multinational firms have been reorganizing their global value chains, bringing production closer to distribution, diversifying their supplier base or adopting new technologies (Audretsch et al. 2021; Van Assche and Lundan 2020).

The COVID-19 pandemic has raised new questions about globalization and business resilience, with profound implications on policy and business decisions at global, national,

and state levels (Donthu and Gustafsson 2020). While analysts continue to recognize globalization as an avenue for development and progress, and acknowledge the efficiencies of a networked world economy, events in the past decade point out globalization's outcomes of economic value displacement, increased inequality, unwanted immigration, and widespread disease (Kobrin 2020). The drive for efficiency has led to a concentration of production, knowledge, and innovation in limited geographic areas. The global supply chains have become more complex. As countries went into lockdown due to the pandemic, production was interrupted, national borders were closed, and supply shortages disrupted supply chains. The COVID-19 pandemic uncovered the risks of complex networks of global supply chains and reemphasized the importance of places, more so than flows, for international trade and direct investments (Queiroz et al. 2020).

As a modern global disruption event, the COVID-19 pandemic presents a unique opportunity to study how the world reacts and adapts in conditions of significantly reduced movements of people and products. Our examination provides a singular perspective on the recent pandemic, not so much as a health crisis and economic stalling event, but as a lesson from which knowledge can be drawn about what happens at the local level after global disruption. Through the lens of local characteristics and Foreign Direct Investment (FDI) outcomes in the state of New Hampshire, we offer insights on some locality-based factors that play a role in this phenomenon. We thus add to the existing knowledge on local aspects that are important to FDI outcomes after a global disturbance event.

Recent literature included a range of topics addressing the impact of the pandemic and the varied responses of organizations and governments to the disruption. The physical interruption of activity has emphasized the importance of "place" in business and economic networking and development. A series of studies addressed how the disruption affected subnational localities, such as regions, states, and cities. With a focus on the U.S., extant works evaluated the crisis' magnitudes across states from the perspective of key local issues, such as job losses and recovery (Ettlinger 2021) or state-level fiscal impact (Hinkley 2020). Most subnational literature on U.S. impacts of disruption focused on the immediate impact during the crisis (Ayati et al. 2020) or on the lasting effects and how to deal with them with a view into the future (Washington State Department of Commerce 2021). Our work fills an important gap in the examination of disruption impact areas and their confounding factors. Unlike existing literature on the immediate or long-term aspects, we take the short-term view. We recognize the differing economic and business ecosystems' features that existed at each location at the time the disruption occurred. We propose explanations for the phenomena of how these elements play a role in how FDI outcomes are affected in the short term, which, in turn, likely generate some path-dependency for long term developments. Rather than expanding the investigation to the longer run impacts and behaviors of organizations, we delve deeper into the explanations for short-term manifestations.

Our focus on FDI outcomes, including presence, projects and related activities is also unique. Existing assessments addressed FDI in more focused approaches, such as jobs supported or investments (such as Slaper 2022). Whilst these approaches are valuable, we adopt a more inclusive viewpoint that leads directly to actionable insights. There is value in understanding FDI both in its quantifiable role in local economic growth, like other studies have covered, and in its local manifestations in local foreign subsidiaries, with their associated projects and business activities, like in our study.

The present study contributes to the understanding of the connection between international- and FDI-oriented outcomes and disruption in multiple ways. First, it compares the trade and FDI outcomes in the year prior and in the year of the COVID-19 outbreak. The comparison helps reveal the short-run, immediate economic effects of the pandemic. In this process, the interstate data are examined to understand the short-term trends. Furthermore, to better understand the pandemic disruption effects, comparisons are conducted between the changes associated with the U.S. trade disputes with its major trade partners in the pre-pandemic years and the changes mainly brought about by the COVID-19 pandemic and China's turning inward movement in 2020.

Second, by reviewing the FDI outcomes during the pandemic at both the U.S. national level and the subnational level using the state of New Hampshire as an example, the heterogeneity in the nationwide impacts of the pandemic on FDI is highlighted. Third, the paper uses the insights to develop a set of propositions that connect FDI-related activities with the characteristics of the subnational location. Evidence of the propositions' validity is included and uses unique data on FDI and FDI-related activities conducted by foreign companies in New Hampshire during the pandemic. The state of New Hampshire's economic and FDI data are used to illustrate the distinction between subnational and national levels and to show how various factors at a subnational location can affect the actions and resilience of foreign firms. The article fosters discussion on heterogeneity of subnational locations and how the local advantages and FDI-related activities are in interplay to determine strength of both subnational regions and firms.

2. Theoretical Foundations for Understanding Disruption Effects

Disruption-related issues remain at the forefront of news and analysis, however, research on how foreign direct investment (FDI) is affected by the COVID-19 pandemic remains sparse (Fu et al. 2021). The exiting literature on the topic includes studies of impact in emerging markets (Duan et al. 2020), research on responses of large corporations to revised policies for FDI screening (Sharma 2021), and analysis of how the impact varies across FDI types (e.g., greenfield vs. mergers & acquisitions) and industries (e.g., service vs. manufacturing) (Doytch et al. 2021).

Our study presents new assertions on how the new business realities impact FDI in the U.S. at both national and subnational levels. The perspective on short-run effects is unique. The findings and propositions of this study are significant for both researchers and policymakers who are interested in understanding how disruptions, such as the COVID-19 pandemic, may impact the outcomes of FDI in the short-run. To connect the economic evolution and the development of foreign firms during the pandemic disruption, we set forth a number of propositions that represent new avenues for the international business and economics research agendas, with deep implications for both business resilience and economic development. Our propositions take the perspective of place in relation to business development and resilience, rather than attempting to describe how flow of trade and investments determine business development and resilience. The propositions are built on the premise that subnational location-specific characteristics determine how firms and economies develop and build resilience. For firms, the concept is drawing from internalization theory and expands this theory's application to subnational location and to post-entry firm evolution. In a recent synthesis, da Cruz et al. (2020) showed how internalization theory advanced understanding of multinational growth by proposing a theory of the multinational enterprise. The importance of location was traditionally addressed as the interaction between country-specific advantages and firm-specific advantages. The present paper improves knowledge on international business growth by contrasting national and subnational locations. As reviewed by McCann et al. (2002), the literature attests that the country may not be the appropriate unit of analysis for understanding the foreign company's location choice. FDI location issues are more appropriately examined at the subnational location level (subnational regions or urban levels). The subnational level is where information spillovers, input advantages, labor quality and institutional effects become most relevant. The literature connecting firms' actions and policies at subnational level is rich in evidence. For instance, Pegoraro et al. (2022) showed recently that "regional characteristics can change the narrative on reshoring from a national to a regional focus" (Pegoraro et al. 2022, p. 112) and proposed the implementation of industrial policies at the subnational regional level.

Our work draws from literature on business and supply chain resilience. Post-pandemic, international and multinational companies are expected to make supply chains shorter, more domestic, and more diversified. Nevertheless, before approaching the redesign of global supply chains, executives and policymakers will need to identify the actual

challenges at each location where companies act. Newer opinions, such as [Miroudot \(2020\)](#), suggest that there is little support for the idea that reshoring improves the resilience of supply chains, noting that highly concentrated production leads to vulnerabilities, and supplier diversification redundancies in inventory and production capacity are costly. The authors of such opinions state that supply chain re-localization may not be the main approach to mitigate the post-COVID uncertainty. They give examples of multinational companies that have used their operational network to relocate production during the pandemic, thus taking advantage of operating in multiple markets. New business models rely on agility and adaptation and are based on dynamic capabilities. Rather than rethinking supply chains, decision-makers would be better served to consider the kind of location advantages they need, domestically and overseas. Our work explores both the existence of established regional supply chain networks and local characteristics in understanding how firms' activities and resulting FDI outcomes may differ across subnational locations.

Our paper takes a novel scientific approach to investigating the short-term effects of disruption. First, the approach uses both secondary data on FDI and trade and primary data on FDI outcomes to reach explanations of the phenomena. Second, FDI is defined inclusively across projects and related firm activities, rather than as stock or flow only. This method allows for interpretations based on the realities in place, rather than generalizations across broad data. The resulting propositions and actionable insights speak directly to the economic and business development specialist.

3. Theory Building of Global Disruption's Short-Run Effects on FDI Outcomes

3.1. *The Catalyst for Subnational Interest: Rising Challenges to Globalization in the Pre-Pandemic Era*

The public health crisis caused by the COVID-19 pandemic has been an external shock to the world economy. In the short run, it caused an unprecedented drop in demand and income due to the lockdowns and stay-at-home orders, which further led to a mix of accommodative monetary policies and automatic fiscal stabilizers in many countries. In the long run, the ongoing COVID-19 crisis is likely causing supply chain disruptions that call for more sustained and coordinated monetary and fiscal policies, as well as efforts to promote the movement of goods, services, and investments across borders ([UNCTAD 2020a](#)). Therefore, it is important to examine international trade and FDI situations in the year prior to the outbreak of COVID-19, which serve as benchmarks to reveal the short-run effects of the pandemic in its first year.

The year 2019 witnessed rising risks in the globalization process. On one hand, the number of trade disputes between the U.S. and its major trading partners have soared. These disputes are persistent. According to a CRS report, as of January 2022, the U.S. has been involved either as a complainant or a respondent in a total of 280 trade disputes addressed through the WTO ([Congressional Research Service 2022](#)). In 2019 alone, 54 developments in which the U.S. was a party were entered into the WTO dispute settlement system ([The U.S. International Trade Commission 2019](#)). The U.S. also initiated or responded in 14 cases of trade disputes in 2019 with its NAFTA/ USMCA partners and six of these cases remain active as of December 2020 ([The U.S. International Trade Commission 2020a](#)). As a consequence of the tensions with trading partners, U.S. merchandise exports to the world and imports from the world dropped for the first time since 2016 by 1.2 percent and 1.6 percent compared to 2018, respectively ([The U.S. International Trade Commission 2020a](#)).

On the other hand, the global-wide movements of financial resources across borders, as measured by the FDI inflows, continued to decline since 2015. The global FDI flows totaled \$1.39 trillion in 2019, marking a one percent decrease from \$1.41 trillion in 2018 and the fourth consecutive annual decline. There were country-by-country variations, but the general trend of FDI growth remained sluggish. This is mainly because the FDI flows to developed economies decreased by 6 percent to a record low level of \$643 billion, and FDI flows to developing countries did not grow in 2019. Moreover, both the announced greenfield projects and the cross-border Mergers and Acquisitions (M&As) projects, an in-

indicator of future FDI trends, dropped by 22 percent and 40 percent from the previous year, respectively (UNCTAD 2020b).

3.1.1. Pre-Pandemic FDI Outcomes in the U.S.: Decreased Overall Inflows but International Ties Remained Strong

Although the U.S. continued to be the world’s largest recipient of FDI flows in 2019, the FDI inflows here dropped by 2.9 percent from the 2018 value to \$246.2 billion in 2019, leading the runner-up China by \$105 billion. As shown in Figure 1, this was the fourth consecutive annual decline. Figure 2 illustrates the top sources of FDI flows into the U.S. in 2019. Two-thirds of the inflows came from five markets, namely Germany (17%), Japan (16%), Canada (15%), the United Kingdom (9%) and Bermuda (9%). Figure 3 compares the U.S. FDI inflows from selected markets between 2018 and 2019. While the FDI flows from Canada declined, investments from the European Union, the United Kingdom, and the Asia Pacific (Australia, Japan, etc.) significantly increased. It is interesting to note that, albeit the rising tension in the U.S.-China relationship around the investigations and disputes focusing on China’s multinational companies including ZTE and Huawei, the FDI flows from China into the U.S. grew by 168 percent. Manufacturing continued to receive the largest share of 36% of the FDI flows into the U.S., followed by wholesale trade (13%) and finance and insurance (10%), as shown in Figure 4.

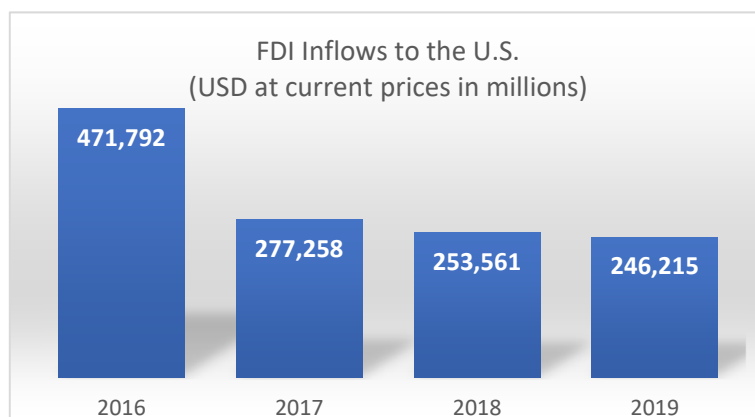


Figure 1. FDI flows into the U.S. (Data source: UNCTADstat).

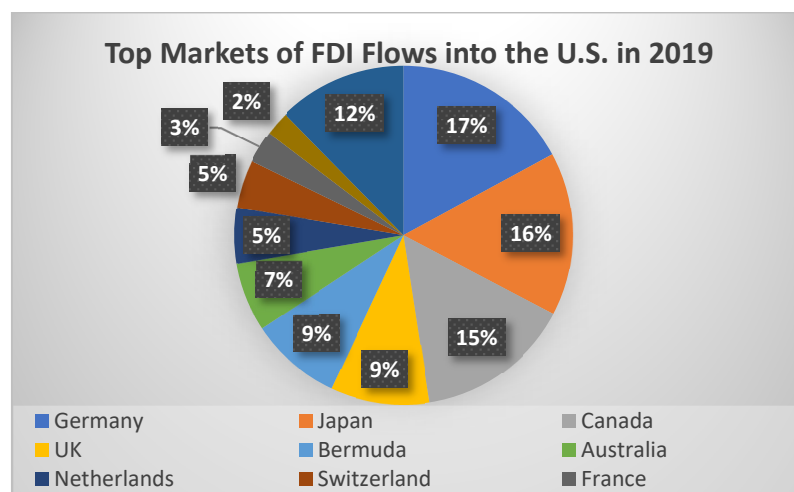


Figure 2. Top Markets of FDI Flows into the U.S. in 2019 (Data source: SelectUSA, Sources of FDI into the United States).

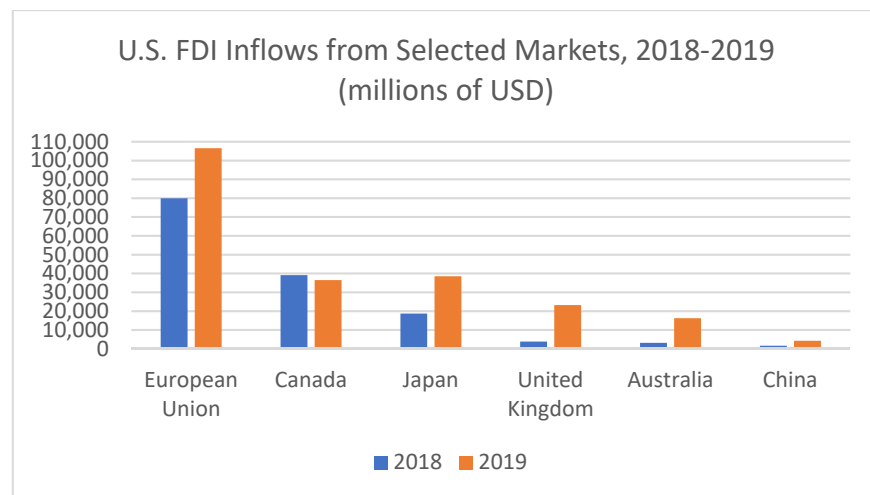


Figure 3. U.S. FDI Inflows from Selected Markets, 2018–2019 (millions of USD) (Data source: U.S. Bureau of Economic Analysis).

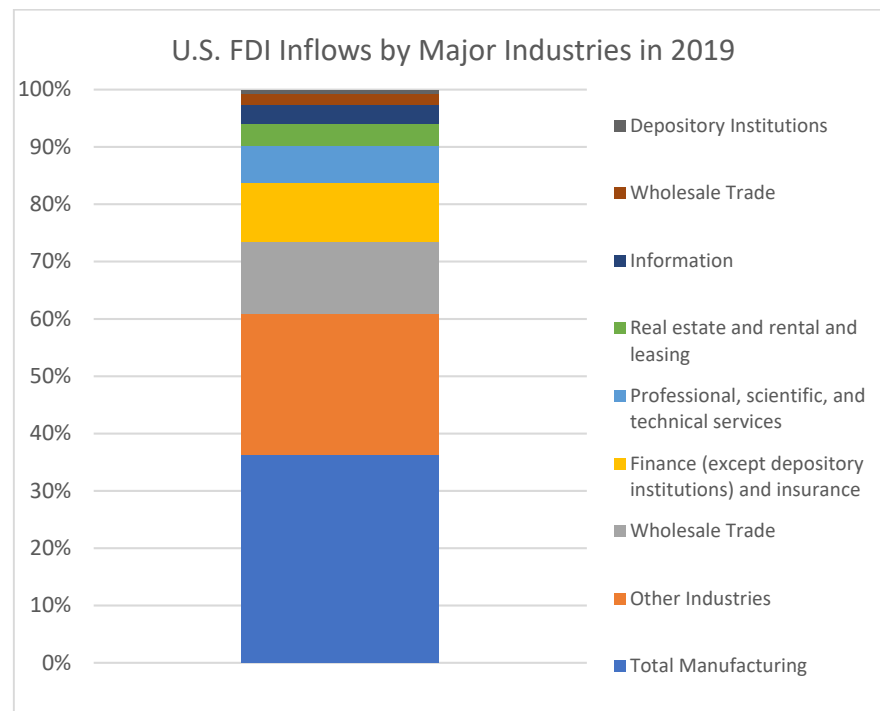


Figure 4. U.S. FDI Inflows by Major Industries in 2019 (Data source: U.S. Bureau of Economic Analysis).

Not only had less foreign capital flow into the U.S. in 2019, but the expenditures by the country’s foreign-owned businesses in activities of Merger & Acquisition (M&A), new establishment, and business expansions also went down by 37.7 percent from the 2018 value (\$312.5 billion) to \$194.7 billion. Figure 5 illustrates that the M&A of existing businesses retained dominance by capturing 98 percent of the total expenditures of foreign-owned businesses. Among all greenfield expenditures, the amount to establish a new U.S. business was higher than that of expanding an existing foreign-owned U.S. business. This structure has been observed for the previous years. It is worth noting that greenfield expenditures are considered “new blood” to an economy and represent the potential for growth in investment. For the U.S., most of the “new blood” was infused into chemical manufacturing

(\$0.6 billion) and utilities (\$0.5 billion) by FDI inflows from Japan (\$1.1 billion) and Canada (\$1.0 billion) (U.S. Bureau of Economic Analysis 2020a).

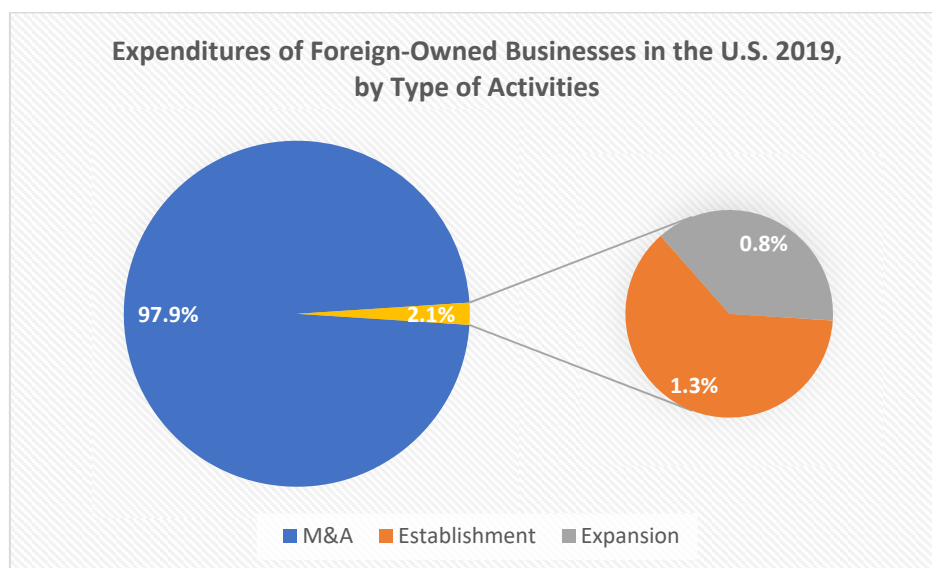


Figure 5. Expenditures of Foreign-Owned Businesses in the U.S. 2019, by Type of Activities (Data source: U.S. Bureau of Economic Analysis).

3.1.2. Pre-Pandemic Subnational FDI Trends: Interstate and New Hampshire In-Focus Perspective

In 2018 the U.S. started a trade war with the world (Bown and Kolb 2022). As discussed above, from 2018 to 2019 the U.S. trade disputes with China as well as the American allies, and the subsequent retaliations by trading partners, had significantly hampered U.S. trade and FDI. In contrast, the situation was more optimistic at the subnational level, because most states experienced increases and outperformed the nation in the FDI activities and outcomes. For example, employment by foreign subsidiaries went up for 40 out of the 47 states (whose data are available from the U.S. Bureau of Economic Analysis) in 2019. The increases ranged from 0.5 percent (California) to 34.5 percent (Vermont) and averaged at 5.4 percent, compared to the nation’s 2.2 percent increase. The Gross Property, Plant, and Equipment of foreign subsidiaries also increased at paces varying from 0.6 percent (Utah) to 36.2 percent (Maryland) and averaging at 8.3 percent in 35 out of the 41 states whose data are available from the U.S. Bureau of Economic Analysis, whereas the national increase in this measure was 6.7 percent.

Different from the national situation of declined activities in 2019, as shown in Table 1, the New Hampshire foreign-owned businesses’ expenditures in activities of M&A, new establishment, and business expansions increased from \$111 million in 2017 to \$123 million in 2019. The investment activities by foreign-owned businesses created 1000 jobs in New Hampshire in 2016 and since then the job creation number went down until 2019 when nearly 500 jobs were created by the FDI activities (see Table 2). Same with the national trend, M&A expenditures had absolute dominance over greenfield investment.

The recent literature reveals that within the U.S., there are considerable heterogeneities across states in both international trade (Wu and Demir 2017) and foreign direct investments (Wu and Rogers 2018). Our analysis of data contributes to this literature by showing differences in the FDI outcomes at the subnational versus national level within the context of the U.S. trade war prior to the pandemic disruption.

Table 1. Expenditures by New Hampshire Foreign-Owned Businesses by Type of Activity, 2014–2019 (million USD).

Year	Expenditures	M&A	New Establishment	Expansion
2019	123	(D)	(*)	(D)
2018	>2	(D)	(*)	2
2017	111	111	(*)	0
2016	196	196	0	0
2015	(D)	(D)	0	0
2014	(D)	(D)	0	(D)

Notes: Data are from U.S. Bureau of Economic Analysis. (*) A nonzero value that rounds to zero. (D) Suppressed to avoid disclosure of data on individual companies.

Table 2. Employment of Foreign-Owned Businesses Acquired, Established, and Expanded in New Hampshire, 2014–2019 (1000 employees).

Year	Employment	M&A	New Establishment	Expansion
2019	A	A	0.0	0.0
2018	0.1	0.1	(*)	0.0
2017	0.4	0.3	(*)	0.0
2016	1.0	1.0	0.0	0.0
2015	0.1	0.1	0.0	0.0
2014	0.9	0.8	0.0	0.1

Notes: Data are from U.S. Bureau of Economic Analysis. (*) Fewer than 50 employees. (A) 1–499 employees.

3.2. Escalation of Globalization Risks in the First Year of Pandemic: National vs. Subnational

After the start of the year 2020, the shock from the COVID-19 pandemic to the global economy further escalated risks in the globalization process. Meanwhile, the trade and economic tensions with the U.S. since 2018 alerted China on its vulnerability in the global value chain. China shifted to a “dual circulation” strategy in May which was seen by many researchers as the beginning of China’s Turning Inward Movement aiming to increase the independence of its domestic supply chains from the overseas markets and technologies (which have been realized mainly via FDI) in the long-term development (Yao 2020). These two events, along with others, inevitably influenced the international movement of FDI in 2020 and perhaps the years to come.

The global FDI collapsed in 2020, falling 42% from \$1.5 trillion in 2019 to an estimated \$859 billion (UNCTAD 2021). Such a low level was last seen in the 1990s and was more than 30% below the investment trough that followed the 2008–2009 global financial crisis. The decline in FDI was concentrated in developed countries, where flows plummeted by 69% to an estimated \$229 billion. The U.S. recorded a 49% drop in FDI, falling to an estimated \$134 billion. The decline took place in wholesale trade, financial services and manufacturing. Cross-border M&A sales of US assets to foreign investors fell by 41%, mostly in the primary sector. Although FDI flows to developing economies decreased by 12% to an estimated \$616 billion, they accounted for 72% of global FDI—the highest share on record. China was the world’s largest FDI recipient, with flows to the Asian giant rising by 4% to \$163 billion. High-tech industries saw an increase of 11% in 2020, and cross-border M&As rose by 54%, mostly in ICT and pharmaceutical industries. China’s outperformance was largely attributed to, as reported by UNCTAD (2021): “A return to positive GDP growth (+2.3%) and the government’s targeted investment facilitation programme helped stabilize investment after the early lockdown,” India, another major emerging economy, also recorded positive growth (13%), boosted by investments in the digital sector (UNCTAD 2021).

The COVID-19 pandemic significantly hampered both the demand and the transportation of goods and services across borders. As illustrated in Figure 6 below, the U.S. total exports (imports) of goods and services dropped by 9.5 (15) percent in the first quarter as the travel bans started to kick off between the U.S., China and Europe, and then sharply

fell by 64.4 (54.1) percent when the cross-border transportations of passengers and goods almost froze in the second quarter of 2020. In the third quarter, the U.S. remained the epicenter of the COVID-19 pandemic but many of its trade partners in Asia and Europe started to observe decreasing COVID cases and thus eased their restrictions on business activities. As these economies started to recover, their demand for American goods and services began to rise. Therefore, the U.S. exports of goods increased by 104.3 percent and service exports almost stopped the declining trend (−0.5 percent). Meanwhile, the U.S. imports of goods and services boosted by 110.2 percent and 24.9 percent, respectively, reflecting the increasing demand of both U.S. businesses for imported resources and parts, and U.S. households for imported goods, as the country continued to reopen its economy (U.S. Bureau of Economic Analysis 2020b). The U.S. trade performance continued to improve in the fourth quarter, with its total exports of goods and services increasing by 22 percent and its total imports increasing by 29.5 percent. The pace was slower than the third quarter, but still outperformed the other times since 2019.

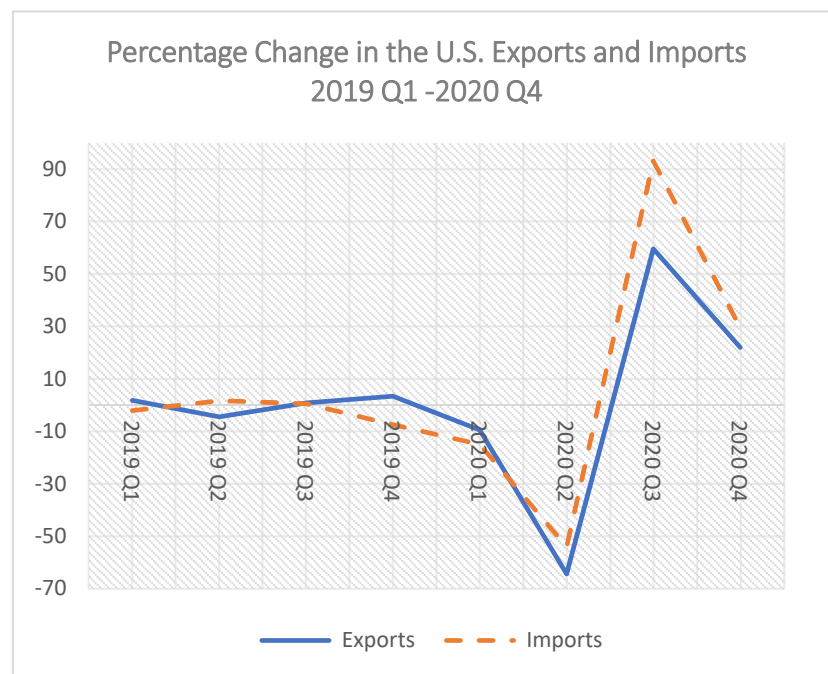


Figure 6. Percentage Change in the U.S. Exports and Imports, 2019 Q1–2020 Q4 Data source: U.S. Bureau of Economic Analysis.

Unlike the pre-pandemic year in which most states outperformed the nation in all measures of FDI outcomes, the interstate trend showed a mixed picture at the subnational level in 2020. On one hand, 33 out of the 47 states (whose data are available from the U.S. Bureau of Economic Analysis) moved in the same downward direction with the nation in terms of the employment by foreign subsidiaries. The declines ranged from 0.03 percent (North Carolina) to 6.7 percent (Kansas) and averaged at 2.9 percent, worse than the nation’s 1.9 percent decrease. On the other hand, the Gross Property, Plant, and Equipment of foreign subsidiaries went down by 0.5 percent for the country, but it went up in 26 of the 41 states whose data are available from the U.S. Bureau of Economic Analysis fr. The increases ranged from 0.04 percent (Minnesota) to 9.3 percent (Washington) and averaged at 3.6 percent.

For our subnational focus perspective, we note how the international movements in the state of New Hampshire differed from the national trends in 2020 during the pandemic. As shown in Figure 7, both New Hampshire’s merchandise imports and exports declined from their 2019 values. However, compared with the 34.3 percent drop in imports, the state’s exports only dropped by 7 percent and remained higher than its pre-pandemic

values. The annual merchandise trade deficit of New Hampshire declined to \$1.48 billion in 2020, the lowest value in the past six years.

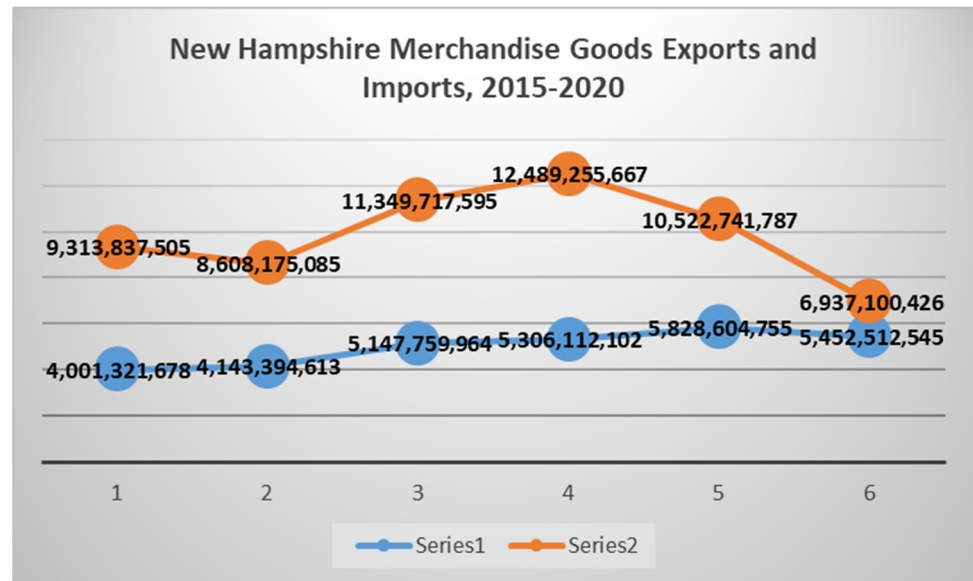


Figure 7. New Hampshire Merchandise Goods Exports and Imports, 2015–2020 Data source: Foreign Trade Division, U.S. Census Bureau.

Figure 8 reveals further details about the monthly dynamics of New Hampshire’s imports and exports of goods in 2020. Specifically, the downhill of imports started in February 2020 and the sharpest drop occurred in April immediately after the issuance of the Stay-at-home order as a response to the COVID-19 outbreak. This seems to have triggered a downward shift of the state’s imports of goods from around \$700 million per month between November 2019 and March 2020, to around \$500 million per month since April 2020 and throughout the summer. Starting the third quarter, especially since August, within the context of reopening the state’s economy, the demand of New Hampshire residents and businesses for overseas resources and goods has been climbing up to a higher level of around \$600 million per month, reaching \$618.7 million in October.

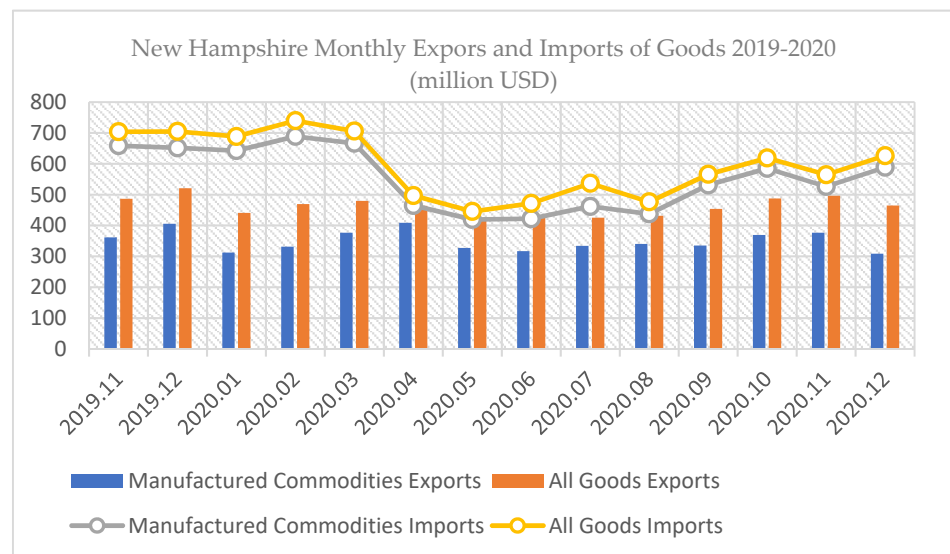


Figure 8. New Hampshire Monthly Exports and Imports of Goods 2019–2020 (million USD) Data source: U.S. Bureau of Economic Analysis, U.S. International Trade in Goods and Services, various months.

In contrast, the New Hampshire exporters were more stable and demonstrated stronger resilience during the pandemic. The state's exports of goods increased every month from \$440.7 million in January to \$479.7 million in March during the time when the COVID first broke out in China and Europe. It dropped by 12.6 percent from March to May after the COVID outbreak in the U.S., but has been since then steadily recovering, reaching 487.1 million in October, the highest value this year. Due to the downward shift in the level of imports, the state's month-added merchandise trade deficit contracted from \$270.7 million in February to \$28.9 million in May 2020. It then expanded to \$131.6 million in October but was still way below the pre-pandemic level.

The pre-pandemic heterogeneity of FDI is well documented, with states such as California and New York ranking high in FDI-supported jobs, and other states, like Florida and Kentucky, recording fast FDI job growth rates (Global Business Alliance 2020). New Hampshire is a state with a high concentration of FDI jobs (FDI jobs as a share of total private-sector employment). This situation explains some of the findings we report on in the subsequent sections showing strong representation of foreign subsidiaries with good interconnections with local firms and diversity in business activities. In states with similar conditions, market motivations and supply chain characteristics may determine foreign firms to take similar actions in the short run of disruption. In states with a varying presence of foreign subsidiaries, strategic priorities may differ. Drawing from the FDI and trade data, we identify significant differences in the national vs. subnational starting conditions and immediate outcomes of the COVID-19 pandemic as a global disruption. As a result, we set forth:

Proposition 1. *In the short-term following global disruption, FDI outcomes at the start of disruption will determine post-disruption international-oriented activities at a subnational location.*

Based on our first proposition, we expect that existing FDI and trade in U.S. states likely impacts short-term FDI outcomes post disruption. For example, the state of Washington, with high representations of aerospace exports, has recorded sharp decreases in exports, both due to the pandemic and non-retaliatory tariffs and events prior to the pandemic. Other exports in this state remained more stable in the short-term of the pandemic disruption. The predominant sources of FDI remained largely unchanged for this state: the U.K, Canada, Japan and China (Washington State Department of Commerce 2021). In Illinois, a state with relatively high economic activity (Barklie et al. 2022), key projects have attracted FDI during the pandemic in software, business and financial services, and industrial equipment. Previously strong sources of FDI continued to add to the state economy: the U.K., Germany, Japan, Canada, and France (Illinois Department of Commerce & Economic Opportunity 2022). In Indiana, sources of FDI are changing (Slaper 2022). Unlike in New Hampshire and Washington, Japan has been the country-of-origin of most FDI in Indiana. Countries-of-origin relevant to the FDI in New Hampshire and Washington, such as Germany, the U.K., and Canada are also represented in Indiana. India is also represented, which is different from New Hampshire and Washington. Indiana has had slightly decreasing FDI pre-pandemic (from its main sources) and did not record a sharp decrease in foreign investments and jobs post-pandemic. The least represented sources of FDI have been growing. Thus, FDI in Indiana may have been on a trend of diversification that continued in the short-term post-disruption and may continue in the long term. The source diversification trend situation may have led to a change in the foreign companies' strategic priorities and activities in the short term of disruption, in support of our first proposition.

3.3. FDI-Related Activities during the COVID-19 Pandemic: The Subnational Location Perspective

Drawing from our data analysis of international movements and FDI, we suggest that local specific characteristics are behind distinct FDI outcomes at a locality and, furthermore, that local characteristics influence post-disruption economic and business recovery at that location. Specifically, the interconnection between domestic and foreign firms and

the existence of supply chains that are strong regionally are among the key factors that determine sources of subnational economic strength and business resilience in the locality. Geographic advantages such as border effects may also determine recovery.

The sudden shock of the pandemic gave businesses limited room for full adaptations but provided an impetus for companies to take immediate short-run responses. These responses show new business priorities, but also a continuation of pre-disruption activities. Despite the lower-than-normal levels of business activity during the first year of the pandemic, foreign firms engaged in a number of noteworthy projects and activities with a significant meaning for the state. We reviewed business activity involving foreign businesses in New Hampshire from the start of the pandemic (mid-March, 2020) to the end of the year 2020. Most activities were in electronics, information technology and financial services. Some activities also took place in the energy and life sciences sectors. The tables below show a few defining features of these initiatives (see Tables 3 and 4).

Table 3. Key foreign business activity during the COVID pandemic.

<input type="checkbox"/>	25 Notable investment and expansion projects or activities were initiated by or involved foreign firms
<input type="checkbox"/>	5 Acquisitions involved foreign and NH-based companies
<input type="checkbox"/>	7 Production or service expansion investments or new contracts
<input type="checkbox"/>	10 Distribution agreements or actions connected foreign and NH-based companies

Table 4. By the numbers: scale and impact of foreign firms’ activities.

<input type="checkbox"/>	More than 1/2 of the expansion agreements are multiyear arrangements
<input type="checkbox"/>	Each acquisition is valued at more than \$100 millions
<input type="checkbox"/>	At least 25% of agreements are specifically related to supply chain management

The origins of companies engaged in activities were diverse, despite the pandemic conditions and the relatively reduced intensity of business activity. Countries that have traditionally been sources of direct investment inflows (Canada, UK, European countries) for the state, have continued to provide FDI outcomes for the state, as shown in Table 5.

Table 5. Partnerships, acquisitions and contracts involving NH and foreign businesses.

Companies from the Following Countries Initiated Activities That Involved NH Firms:	NH Companies Initiated Activities That Involved Foreign Firms from the Following Countries:
<input type="checkbox"/> Canada: 4	
<input type="checkbox"/> Denmark: 1	
<input type="checkbox"/> France: 1	<input type="checkbox"/> Ireland: 1
<input type="checkbox"/> Germany: 1	<input type="checkbox"/> Israel: 1
<input type="checkbox"/> Russia: 1	<input type="checkbox"/> Nigeria: 1
<input type="checkbox"/> South Korea: 1	<input type="checkbox"/> Switzerland: 1
<input type="checkbox"/> Sweden: 2	
<input type="checkbox"/> UK: 8	

As detailed in Table 6, foreign firms’ activities were new contracts, projects and investments, projects and investments with existing partners or expansions of current facilities. The activities counted are not mutually exclusive. Each instance represents an activity in which a foreign company was engaged during the pandemic, either on its own or in partnership with another company (N.H., U.S. or non-U.S. based). One instance may represent more than one classification in the new or existing category.

Table 6. New versus existing investments of foreign firms in N.H. or with N.H. businesses.

New	Existing
<input type="checkbox"/> New investments or contracts for expansion of distribution in N.H. or access to N.H. and markets in the Northeast: 8	<input type="checkbox"/> Existing capacity use or expansion: 7
<input type="checkbox"/> New investments or contracts for N.H. firms’ expansion of distribution internationally: 6	<input type="checkbox"/> Strengthening of existing business partnership: 1
<input type="checkbox"/> New acquisitions: 5	<input type="checkbox"/> New contracts with existing partners: 4

All initiatives involving investments would be defined as strategic-e.g., long term actions to establish operations in New Hampshire; U.S. firm acquiring foreign assets in order to gain considerable more market power in the U.S. market; or foreign company operating in N.H. acquiring companies for specific strategic purposes.

Our brief observations for our in-focus location show diversity in activities in the small state of New Hampshire. We do not expect the same characteristics to be present across U.S. locations. We anticipate that, as a short-run effect of global disruption, FDI-related strategic activities will be unequally affected across subnational locations and relative to the national level. The unequal effect of the disruption phenomenon may be due in part to the fact that access and proximity to markets are strong determinants of business activities in times of disruption. The motivations behind New Hampshire business activities involving foreign firms during the pandemic appeared to have been the same as in other times. Whilst the pandemic has hindered and at some point, even stopped business operations in the state, strategic initiatives continued to be in play. Some of the patterns of expansion matched findings from extant literature (Wright 2020). The rationales listed below show a variety of purpose and large scale, multiple-year commitments. These rationales include the following. First, foreign companies’ access to the local market and market reach in the region appeared to have been a determinant motivation for some activities. In several instances, agreements with foreign companies allowed New Hampshire companies to expand their distribution outside the state or outside the U.S. Interactions between foreign and local firms not only strengthened the market position of the foreign companies but also gave domestic companies access to international markets. In all cases, the new initiatives offered entrance into significant markets in terms of scale and direct applicability of the companies’ competencies. Second, in all acquisition cases, the purchase added to the company’s market segments, new products and capabilities. In most cases, foreign N.H. and non-N.H. companies acquired U.S. companies. In two of the instances, the purchase was a direct acquisition of a local company by a foreign company looking to operate in the state. Third, about one-third of the business actions in the state were direct outcomes of foreign business strategies to access or expand reach into the U.S. market, initiated or accompanied by contracts or investments in other states. These findings support the concept that market proximity and access are predominant motivations of firms’ activities at a particular subnational location, during disruption. Hence, we put forward the following expectation:

Proposition 2. *In the short-run of global disruption, FDI-related activities are likely to remain strong at subnational locations that offer superior access to markets.*

Market-seeking FDI is not surprising, as the U.S. has the largest consumer market in the world, with a GDP of over \$23 trillion and more than 330 million people (Santander 2022). Our data and second proposition confirm the importance of market access as a source of business and economic resilience in the local economy. Access to markets differs across U.S. states. For example, an analysis of the relationship between a U.S. city’s core industry and the city’s vulnerability to the pandemic found that local economies with industries that depend on the movement of people, such as Las Vegas, faced high unemployment

in the aftermath of the pandemic (Klein and Smith 2021). Foreign companies relying on access to markets where the movement of people is important may thus have seen some of their advantages degraded in the short term after the pandemic onset. Conversely, expansion and market-seeking are strong motivators of post-disruption FDI in other states, with similar dynamics or even stronger access to markets than New Hampshire. In the U.S. Southeastern states, FDI as acquisitions have been increasing as compared to other types of FDI. In alignment with what we found for New Hampshire, in the short term of disruption, some international companies have continued to acquire locally as part of larger expansion initiatives across states (Guarnieri et al. 2021).

Our unique state-specific firm-level activity data also highlight the importance of local ties with foreign firms. The business activity involving foreign firms in N.H. was generated mostly by actions targeting U.S. expansion or an increase in market presence. The international reach of companies also generated activities in our state. To a lesser extent, an activity involving foreign firms in N.H. was part of local or regional business moves (see Table 7).

Table 7. The scope of FDI and FDI or supply chain-related activities affecting NH.

<input type="checkbox"/>	Investments and activities focused on the state of NH: 3
<input type="checkbox"/>	Investments and activities for the New England region or the East coast: 5
<input type="checkbox"/>	Investments and activities at U.S. national scale: 8
<input type="checkbox"/>	Investments and activities aimed at international (outside US) expansion: 9

New capability development and research & development appear to be a significant motivation behind foreign firms' subnational actions during the COVID-19 pandemic. Our New Hampshire data shows that the majority of expansion and other activities added to the initiating company's portfolio of products and innovations. In some cases, the initiatives complemented existing product lines and opened more possibilities for the commercialization of innovations. There were also distinguishable actions to strengthen the supply chain. These actions were accompanied by clear goals of improving networking and pulling more or specific product types through the chain. The amount of FDI outcomes and FDI-related activities at a subnational location during disruption may depend on the foreign firms' abilities to manage value chains.

According to McKinsey Global Institute (2020a), supply chains are being disrupted with greater frequency. Part of that is due to the fact that multinationals are more exposed. As value chains have grown in length and complexity, companies based in relatively stable countries now operate and source from many more places with higher risk profiles. The previous era of globalization created intricately interconnected supply chains, data flows, financial flows, people flows, and idea flows—all of which offer more "surface area" for risk to penetrate.

The factors of production that are central to a given industry will influence how a particular unexpected shock affects it. Capital-intensive value chains face the possibility of heavy losses if their specialized plants and equipment are damaged by conflict or natural disasters. Pandemics are a particular threat to labor-intensive industries such as textiles and apparel. Looking at industries in which foreign businesses operate in the state of New Hampshire, we see that most of these companies are in finance, retail and manufacturing (Wright and Wu 2018). Whilst it is likely that these foreign firms have been affected by the pandemic, the value chains are likely to resist fairly strongly.

Wright and Wu (2018) showed that the majority (31%) of foreign manufacturers of durable goods in N.H. are making computer and electronic products. The McKinsey investigation (McKinsey Global Institute 2020a) finds that this industry relies on global innovation. However, other industries where N.H. foreign manufacturers are significantly represented (such as fabricated metal products, 9% of foreign manufacturers) are relying on regional processing. For non-durable goods, N.H. foreign manufacturers are represented more ex-

tensively in chemicals (around 50%), an industry with declining global innovation reliance, and also in food and beverage (27%), an industry with expanding but still predominantly regional supply chains. These data may indicate that supply chains and foreign firms are more resistant to global disruption at this subnational location.

Based on our in-focus state illustration, we propose that the industry sectors and their supply chain features impact the short-term effects of disruption. It is expected that various industries attract FDI across U.S. states: innovation centers, high-tech, aerospace and defense technologies on the West Coast, life sciences and pharma on the East Coast, automotive and consumer product manufacturing in the Midwest, and chemicals in the Southeast (Smith 2021). Each of these industry sectors rely on various levels of local, regional, and global processing and innovation, thus realizing varying extents of supply chain network reach. Subsequently, international companies across subnational regions will likely behave differently in their approach to adding to their portfolio of products, and to generating capacity and improved networking in their supply chains. Based on this reasoning, we imply:

Proposition 3. *Established regional supply chains will reduce the short-run effects of global disruption on FDI-related activities at a subnational location.*

In support of this hypothesis, following global disruption, geographic advantages of a subnational location are likely to impact short-run FDI- and supply chain-related resilience actions. Sharing a national border with a key source of FDI and global value chain activities site will lead to low vulnerabilities of transportation and logistics networks. In a 2019 McKinsey survey of global executives, almost 16% percent recognized transportation as a top cause of supply chain disruptions (McKinsey Global Institute 2020a). The regionalization of trade and supply chains may mitigate transportation and logistics vulnerabilities. This study also showed that the trade occurring in the same region has been on an increase since 2012, with intraregional representing more than half of trade in Asia and Europe.

Gale (2020) noted that 45% of executives are currently re-evaluating supply chains and concluded that the next year will be marked by “changes to the supply chain, industry consolidation and a smaller manufacturing footprint.” Even before the pandemic, only 13% of globally traded goods are exported from low-wage to high-wage countries, as referenced by McKinsey. This suggests that companies are no longer seeking low-cost locations for their operations. The unencumbered flow of materials and data plays an important role in FDI-related development. Based on geographical location, our example state of New Hampshire is uniquely positioned for trade and supply chain networks with Canada, a key location where FDI outcomes in the state originates. Canada is a significant source of FDI and FDI-related investments on the state, including in manufacturing and high-tech (Wright and Wu 2018).

Border effects on FDI outcomes are likely to be similar for other U.S. states. The strong political and economic relationship between the U.S. and Canada contributes to the efficiency of cross-border trade. Canadian markets are some of U.S. companies’ largest customers and distributors (Inbound Logistics 2021). Conversely, many Canadian firms look at bordering U.S. states as access points to U.S. markets. Just like in New Hampshire, leaders in these states enjoy business and economic benefits from maintaining consistency in relationships with Canadian supply chain providers and partners. Branch locations or fulfillment centers could be part of networked expansion and increased capacity building in supply chains. Physical location is important. Along with location, across U.S. states, industries and supply chain activities distributions may determine varying levels of negative impact of disruption. For instance, the pandemic and ensuing trade breaks in the state of Washington have led to significant declines in aerospace and aerospace-related exports. Washington State has an extended overseas footprint. Partially due to reliance on complex global processing and supply chains, the disruption in this state had a significant short term negative effect on FDI (Washington State Department of Commerce 2021).

4. Subnational Business and Public Policy Implications

The disruption caused by the COVID-19 pandemic had led to the idea that companies could shift to more domestic or geographically close production and sourcing. The [McKinsey Global Institute \(2020a\)](#) report estimates that “production of some 16 to 26 percent of global trade, worth \$2.9 trillion to \$4.6 trillion, could move across borders in the medium term” as a “combination of reverting to domestic production, nearshoring, and shifting to different offshore locations.” Moving the physical footprint of supply chains is one of the options for building resilience. COVID-19 seems to be the latest impetus for the regionalization of trade and production networks and the focus on proximity to consumers.

Company executives and policymakers will have to act on becoming more prepared and more able to limit the effects of global disruption on local economic and business activity and strength. Companies operating internationally and integrating in cross-border supply chains do not have to sacrifice efficiency and have options for supply chain upgrading. Our examination is a call-to-action for subnational efforts that can support international firms as providers of local FDI-related investments. As more companies are building more redundancy into supplier networks, the time may be ideal for promoting subnational locations to foreign businesses looking to regionalize their supply chains in proximity to the U.S. markets. In our in-focus illustration, New Hampshire’s geographical location creates a passageway to lucrative markets on the east coast.

Our subnational location illustration points out that policy- and decision-makers should take advantage of geographic advantages such as proximity to large markets and other countries to offer not only closeness to U.S. markets for international companies, but also to build a corridor for gaining proximity to a more localized supply chain network. The resistance to global disruption shocks may be nuanced across industry sectors. For example, as shown in [Wright and Wu \(2018\)](#), foreign manufacturing and wholesale businesses hold a significant proportion in the overall foreign business activity in New Hampshire (over 30% in 2018). Strong international business presence at all supply chain stages in electronics and machinery could be used to promote New Hampshire to potential supply chain partners in these industries. The growing and innovative life sciences sector presents a good prospective for attracting new international business. The IT sector development could also benefit from inflow and outflow of foreign direct investment. Multiple projects in the last couple of years illustrate expansion efforts in this sector despite the pandemic.

Our propositions support the idea that local actions can limit the impact of global disruption, before it starts and immediately after. For instance, New Hampshire decision-makers and policy-designers could prioritize the seamless flow of data as another way to increase the resilience of supply chains for companies doing business in the state or with domestic or local foreign firms. The strength of the higher education state system could be a vehicle for developing models for transparency, analytics and digital platforms. The timing may be opportune for subnational locations’ leading professionals to consider optimal ways to upgrade the business climate at their locations. Analysts note that, looking ahead, international businesses will reshape their business portfolios, reflect on partnerships and plan to change how they do things ([McKinsey Global Institute 2020b](#)). Our examination describes how subnational locations are different in local and spatial advantages. A business climate that assists companies’ resilience actions will likely attract such actions and reinforce the strength of the overall local economy. Other economic development levers can be used to bolster actions oriented towards supporting positive trade and FDI-outcomes at all times, facilitating access to markets and encouraging regional supply chains. For example, in 2019, New Hampshire ranked second in the “Best States” ranking ([U.S. News 2019](#)), with very high scores for safety, opportunity and education. These aspects give the state an edge for supporting resilient business development and for attracting foreign direct investment that reinforces stability and sustainability.

In alignment with the existing literature and adding to it, we propose that establishing strong regional supply chains and market operations will have to be given significant consideration in public policy. These actions are likely to be supported by the generation of

flexibility and agility as priorities for local governments and foreign firms in the near future. A platform for dialogue between foreign firms and public institutions could serve as a space where stronger trade and FDI outcomes are supported, supply chains are strengthened, and new ways to access markets are developed. Such a platform could be a place for networking, communication and collaborations among foreign firms and local entities, encouraging firms to exchange ideas for resilience. Dialogue would allow firms and local governments to cooperate and be better prepared for risks. Networking is likely to support subnational governments in increasing their profile and reputation for cooperative activity (Lundan and Cantwell 2020).

In sum, our examination of short-term effects of disruption suggests that state-level policymakers need to support strong FDI presence and trade flows, access to markets for international companies, and effective supply chain networks that connect local and regional business partners and take advantage of the physical location's strengths, such as national borders and existing infrastructure. One of the pandemic's effects is an acceleration of automation (OECD 2020). Local economic development can support short-term resilience to disruption by creating innovation opportunities and new incentives for use of technologies that strengthen networking and risk management. An uptake in automation can help maintain productivity in the short-term and contribute to structural resilience of market access and supply chains links.

To improve overall local economic resilience, subnational policies should focus on the modernization of local business climate by incentivizing FDI-related activities that are resilient. Modernization tactics should draw from the characteristics of the location and focus on creating advanced access to markets and regional supply chains, as well as encouraging technologies that insulate local industries from the negative effects of global disruption. This could include sharing programs for technology solutions to small-size foreign subsidiaries to encourage sustained presence at the location, promotion of artificial intelligence and digital platforms with predictive algorithms for production and distribution planning, and incentives for establishing local branches, fulfillment centers and last mile logistics.

Local economic and business actions reinforce each other. Business and economic development occurs at the intersection of transformations that firms bring into their business models and progress that policymakers implement for the good of the society. The literature recognized the value of setting up practices and priorities that support and strengthen modernization potential by encouraging innovation and sustained investments (Vovk et al. 2021). International companies are uniquely positioned to transfer into their locations of operation diversity of technologies, innovations, and dynamic capabilities. Localities stand to gain from the spillover effects of FDI. The transformation of subnational localities to improve response to disruption in the short term should include the development of infrastructures for effective communication, transparency, and governmental-business coordination that facilitates action to minimize negative effects. Local policymakers recognize the co-evolution of economies and international business. Our study offers suggestions on the appropriate areas where actions should focus, specifically positioning locations as springboards for local, regional and international markets and for supporting the development of regional supply chains. Innovation centers and digital infrastructure can play a big role in both. Re-localization of production and supply chain activities is also a trend that local economic development professionals should take time to understand in the context of their location's opportunities. Strengthening the location for FDI outcomes may also necessitate new funds and stewardship for creating effective redundancies in local supply chains, as a way to prepare them for the next disruption.

5. Conclusions

This study examines the short-term economic and business consequences of the COVID-19 public health crisis. It uses both secondary data on FDI and trade at the state level, and primary data on FDI outcomes defined inclusively across projects and related

firm activities, to interpret the phenomena based on the realities in place instead of generalizations. It reviews the FDI outcomes in the pre-pandemic era within the context of the U.S. trade war, and in the first year of the pandemic along with China's turning inward movement. Our findings reveal considerable disruption on the trade and FDI at the U.S. national level, but our interstate trend analysis and unique data on FDI-related activities in New Hampshire provide evidence for subnational heterogeneity of global disruption impact. We further propose that established regional supply chains and distinct local characteristics determine the varying FDI outcomes across sub-national locations.

Our study recognizes that the short-term disruption effects superimpose on existing conditions, as well as long-term and past trends. With singular applicability to foreign direct investment outcomes, we expect that international business activities at a location such as large projects, existing partnerships, and expansionary moves will be determined by previous outcomes, FDI levels and trade intensity. Prevailing trade and investment links facilitate continuation of activities and new notable outlays and distribution plans. A motivation to stay close or to access markets appears to generate sustained interest in using local actions as ways to penetrate local markets further or in initiating investment and activities with regional and national reach. We propose that aspects that give regional supply chains resilience mitigate the short-term negative effects of the disruption on foreign direct investment outcomes. These may include industry characteristics relying on regional rather than global processing and sharing a national border.

Our propositions and their supporting evidence from observations in the state of New Hampshire provide several actionable insights to researchers and professionals. First, local policymakers must ensure a business climate that is conducive to foreign direct investment and trade flows at all times. Foreign firms should be well integrated in the local business and supply chain networks. FDI outcomes should be always supported, as existing investments, projects, and distribution links give firms a strong grounding in the location's economic environment. Second, foreign firms' decision makers should look to integrate their businesses into the local economy, build ties with local partners, and develop dynamic capabilities that are location-based and draw from the opportunities at the locality. Strong opportunities to build resilience include proximity to markets or high potential to access markets (both domestic and international), key local projects (such as in infrastructure, utilities, emergent industries), innovation chances, and regional supply chains with strong logistics and networking prospects.

We advise that the actions that business and economic development professionals should take to establish a strong presence and enhance supply chain links are not only appropriate for mitigating the short-term effects of disruption, but also for preparing for future disruption. The recent large-scale interruptions generated by the COVID-19 pandemic hold lessons on how "place", i.e., locality, is as important for analyzing and pursuing foreign direct investment outcomes as "flow", i.e., movement of investments and related activities across national borders. Our observations for the in-focus state of New Hampshire show that the resilience of the foreign firm at a location depends on its access not just to local market, innovation, and supply, but to regional and international opportunities from that location, as well. The status of FDI outcomes and trade connections is important at the onset, during and shortly after disruption.

The current study supports a general understanding and views expressed in extant literature about the heterogeneity of FDI across locations, and the uneven impact of the pandemic. In addition, our work expands the investigation of FDI, not as stock and inflows but as presence and related activities and shows that these outcomes are determined by specific local characteristics and opportunities. Coupled with a unique short-term perspective, the examination moves further the research agenda and practical knowledge of FDI experts.

Future investigations can develop deeper understanding on disruption effects in the aftermath of drastic global interruptions, with particular attention to the subnational level. These effects and the actions that leaders take to overcome them likely set the path for

the longer-term resilience of local economies and the firms within them. Research can evaluate the same aspects we covered in this paper across U.S. states to develop a more complete picture of FDI outcomes and their determinants in the context of global disruption. In addition, future research can assess other local characteristics and advantages that can equally reinforce local resistance to shocks of both economies and firms. Further scientific investigations can also measure to what extent short-term effects determine long-term strength of local advantages and potential changes in business priorities.

The ideas reviewed in the present research show plurality of business and economic development possibilities now that the vulnerabilities of international supply chains and globalization have been exposed by the COVID-19 pandemic. It is expected that not only foreign firms will be under pressure to resolve the issues revealed, but also governments. We argue that firms and governments co-evolve and create the basis for sustainable economic growth. Multinational enterprises can be positioned as international and local knowledge integrators. Innovation and resilience in the future are likely to be the result of systematic knowledge-based interactions among the private and public sectors, combining local and international intelligence.

The way of the future is for foreign firms to embed in established local networks and to build new relationships and connections that did not exist previously. Foreign subsidiaries that are already local centers of excellence or knowledge can champion or share resilience and agility actions. The post-pandemic recovery and local economic development are tied to the development of new governance arrangements involving a broad coalition of local governments, foreign and domestic firms, and other stakeholders, in a process of co-evolution and intentional progress.

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