Online Appendix: Trade Disruptions and Reshoring

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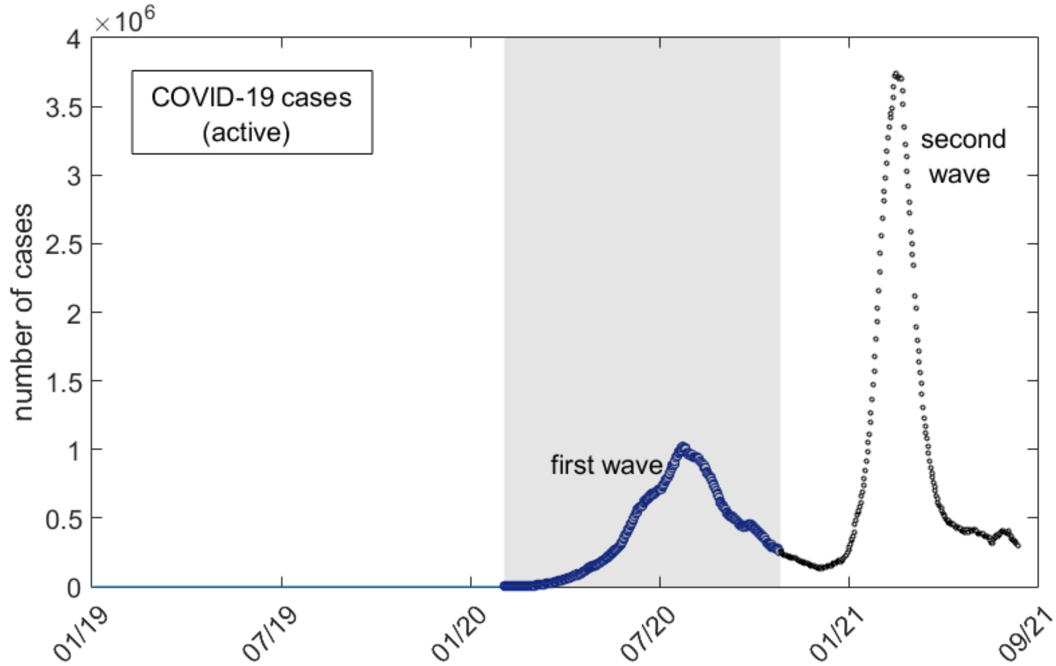
A Appendix: Figures and Tables

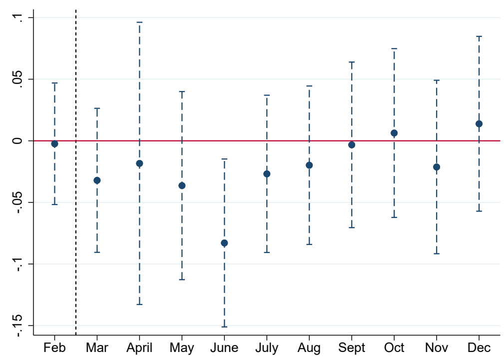
Figure A.1: Evolution of Active COVID-19 Cases in India



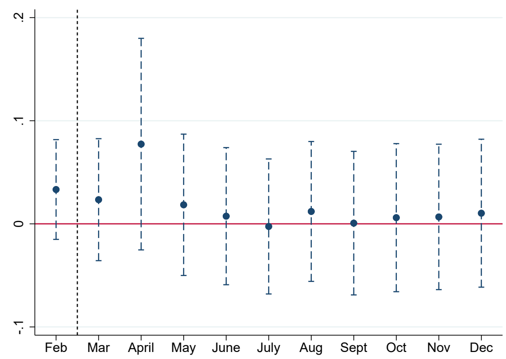
Notes: The figure plots the evolution of active COVID-19 cases in India, in monthly frequency from January 2019 till December 2021. The shaded area represents the period from the beginning of lockdown in India till December, 2020.

Figure A.2: Effect of Control Variables on Plant Sales and Input Sourcing

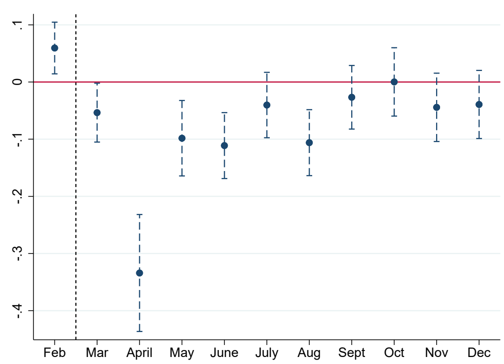
(a) Inter-state Sales: By Inputs Fraction



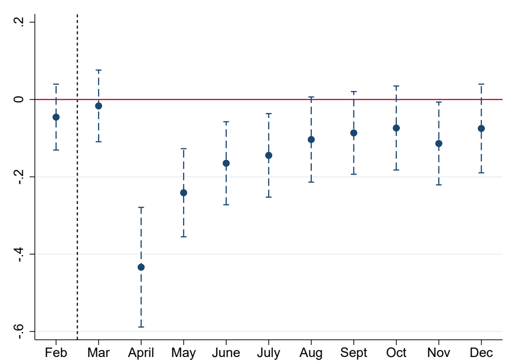
(b) Intra-state Sales: By Inputs Fraction



(c) Inter-state Inputs: By Sales Fraction

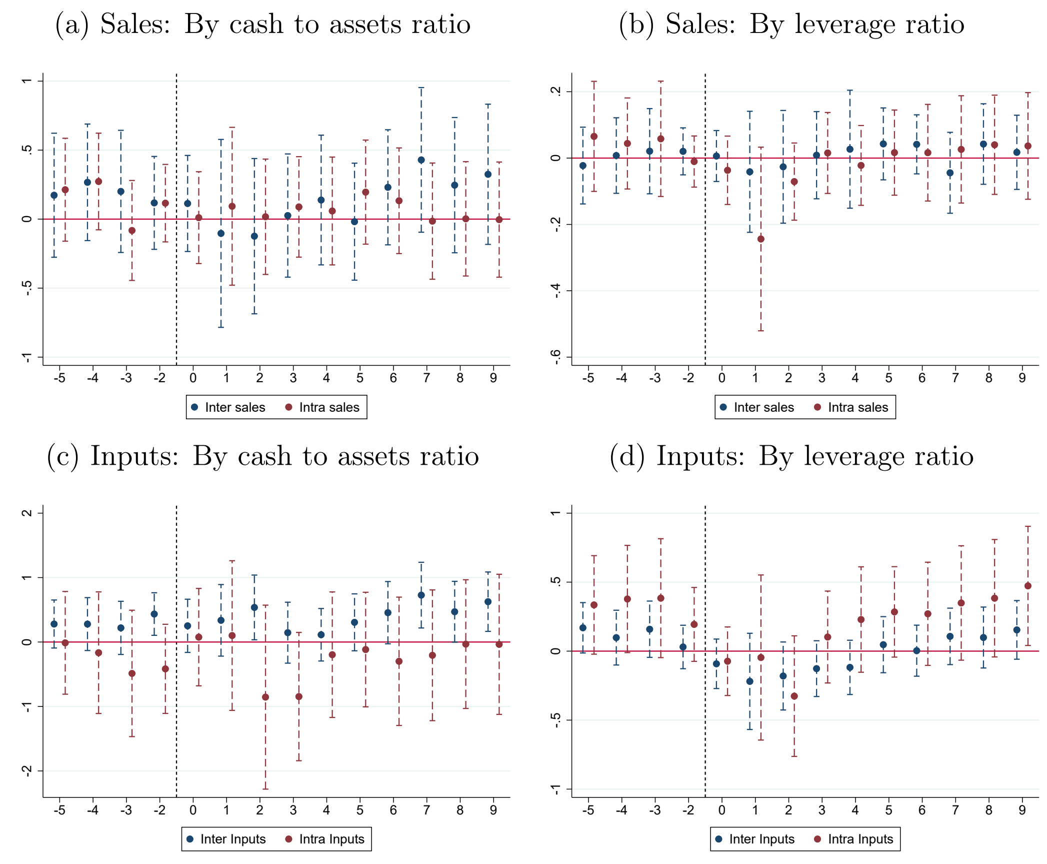


(d) Intra-state Inputs: By Sales Fraction



Notes: The figures in Panels (a) and (b) plot the monthly coefficients on $\mathbb{X}^{c}_{ir,my}$ (Equation 2) for the heterogeneous impact on log of inter-state sales and intra-state sales respectively, by plant-level Inter-state Inputs Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level Inter-state Sales Fraction (2019) for every month in 2020. The regressions include a set of plants for which total sales information is available for every month. The figures in Panels (c) and (d) plot the monthly coefficients on $\mathbb{X}^{c}_{ir,my}$ (Equation 2) for the heterogeneous impact on log of inter-state inputs and intra-state inputs respectively, by plant-level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. All specifications include plant×month and sector×month×year fixed effects. We additionally control for heterogeneous impacts of plant-level Inter-state Inputs Fraction (2019) for every month in 2020. The regressions include a set of plants for which total inputs information is available for every month. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

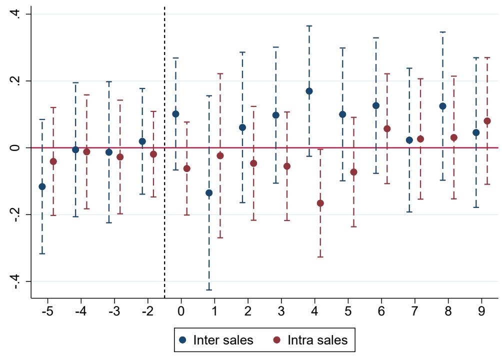
Figure A.3: Effect of Plants' Financial Condition On Trade (Longer pre-trends)



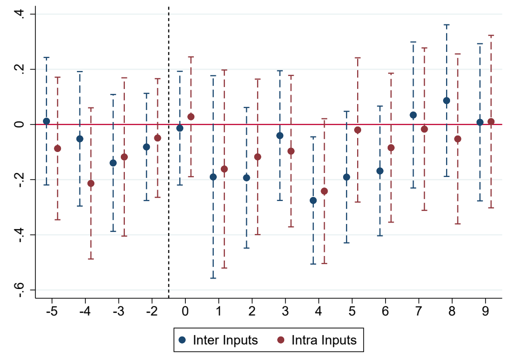
Notes: The figures in Panels (a) and (c) plot the monthly coefficients for the heterogeneous impact on log of inter- and intra-state sales and inter- and intra-state inputs, respectively, by plant-level cash to assets ratio for four months before February 2020 (-5=October 2019, -4=November 2019, -3=December 2019, -2=January 2020) and every month after February 2020 (0=March 2020, 1=April 2020 and so on till 9=December 2020), with -1=February 2020 as the base month. Similarly, the figures in Panels (b) and (d) plot the monthly coefficients for the heterogeneous impact on log of inter- and intra-state sales and inter- and intra-state inputs, respectively, by plant-level leverage ratio for the same months with -1=February 2020 as the base month. We additionally control for time varying heterogeneous impacts of plant-level Inter-state Sales Fraction (2019), Inter-State Inputs Fraction (2019), total within-country sales of the plant in 2019 (size), indicator variable for a plant belonging to multi-plant firm and those lying in border districts, for every month. The regressions in Panels (a)-(b) and (c)-(d) include a set of plants in a state for which total sales and inputs are available for every month, respectively. All specifications include plant, state×sector×month and sector×month×year fixed effects. We control for monthly seasonality by Inter-state Sales Fraction (2019), Inter-state Inputs Fraction (2019) and all other control variables indicating various plant attributes. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.4: State Administrative Border Effect on Plant Reshoring (Longer pre-trends)

(a) Sales: By Inter-state Sales Fraction × Border



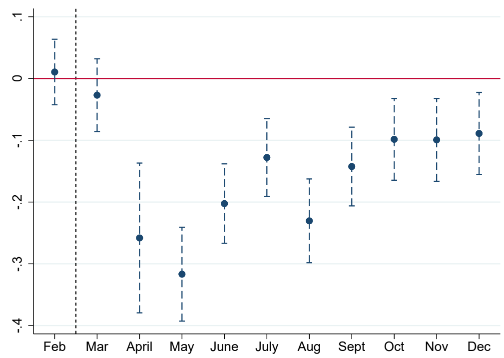
(b) Inputs: By Inter-state Inputs Fraction × Border



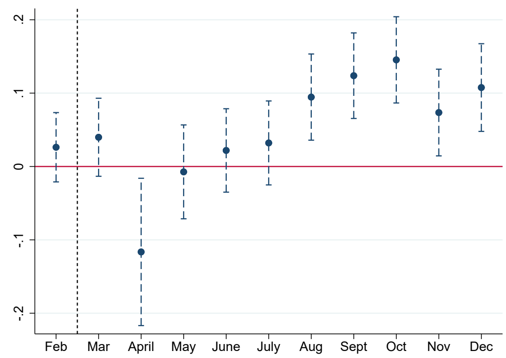
Notes: Panel (a) plots the monthly coefficients for the heterogeneous impact on log of inter-state sales and intra-state sales by plant-level Inter-state Sales Fraction (2019) varying by whether the plant is located on the border of a state, for four months before February 2020 (-5=October 2019, -4=November 2019, -3=December 2019, -2=January 2020) and every month after February 2020 (0=March 2020, 1=April 2020 and so on till 9=December 2020), with -1=February 2020 as the base month. Similarly, Panel (b) plots the monthly coefficients for the heterogeneous impact on log of inter-state inputs and intra-state inputs by plant-level Inter-state Inputs Fraction (2019) varying by whether the plant is located on the border of a state, for every month with February 2020 as the base month. We control for: heterogeneous effect of plant-level inter-state Inputs and Sales Fraction (2019), the heterogeneous border effect of plant-level inter-state Inputs (Sales) Fraction (2019) when examining the effect on sales (inputs). The regressions in Panels (a) and (b) include a set of plants in a state for which total sales and total inputs are available for every month, respectively. All specifications include plant, state×sector×month and sector×month×year fixed effects. We control for monthly seasonality by Inter-state Sales Fraction (2019), Inter-state Inputs Fraction (2019) and whether a plant is located in a border district and their double interactions. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.5: Reshoring (Plants): Robustness (Unbalanced Plants)

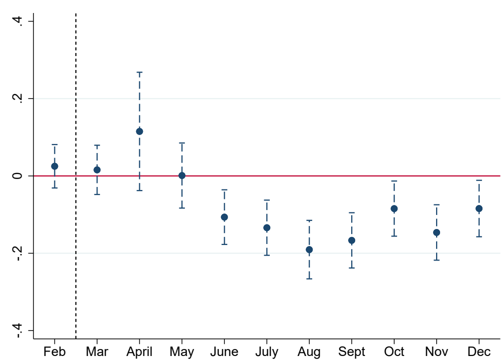
(a) Inter-state Sales: By Sales Fraction



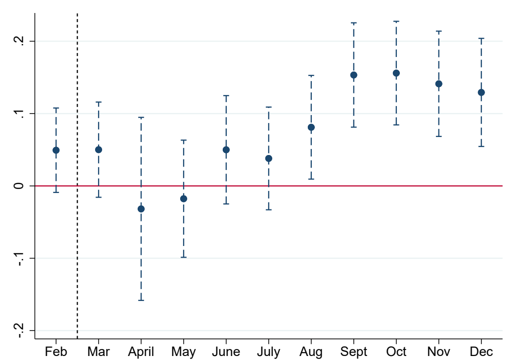
(b) Intra-state Sales: By Sales Fraction



(c) Inter-state Inputs: By Inputs Fraction



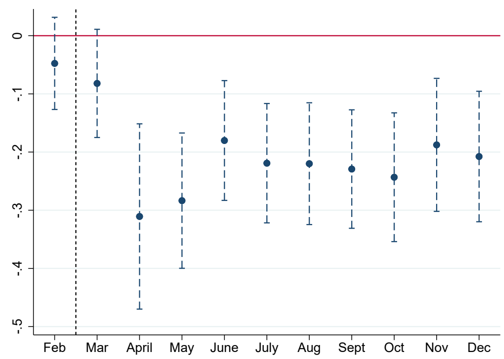
(d) Intra-state Inputs: By Inputs Fraction



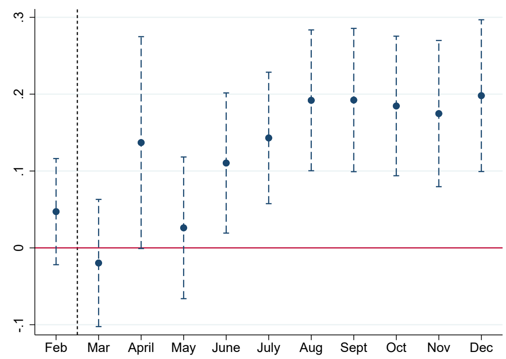
Notes: The figures in Panels (a) and (b) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state sales and intra-state sales respectively, by plant-level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level Inter-state Inputs Fraction (2019) for every month in 2020. The regressions include a set of plants for which total sales information is available for more than six months in 2019. The figures in Panels (c) and (d) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state inputs and intra-state inputs respectively, by plant-level Inter-state Inputs Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level Inter-state Sales Fraction (2019) for every month in 2020. The regressions include a set of plants for which total inputs information is available for more than six months in 2019. All specifications include plant$\times$month and sector$\times$month$\times$year fixed effects. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.6: Reshoring (Plants): Robustness (Controlling for District Time Effects)

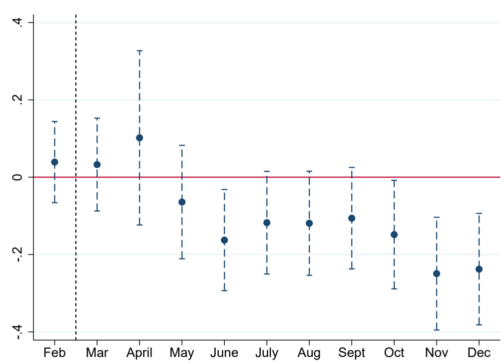
(a) Inter-state Sales: By Sales Fraction



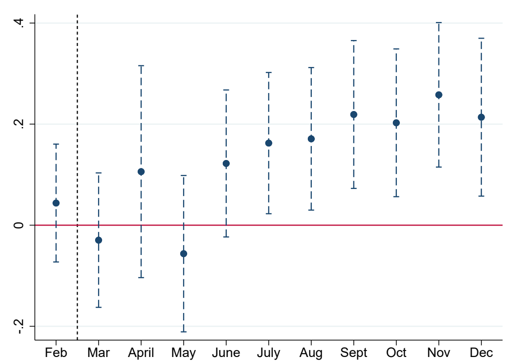
(b) Intra-state Sales: By Sales Fraction



(c) Inter-state Inputs: By Inputs Fraction



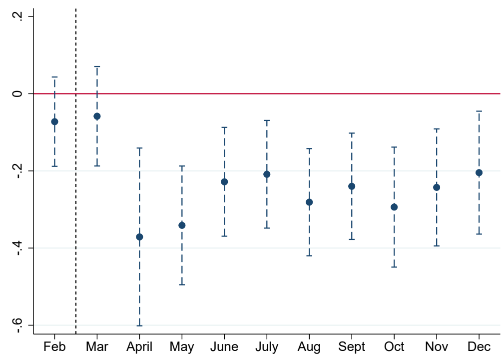
(d) Intra-state Inputs: By Inputs Fraction



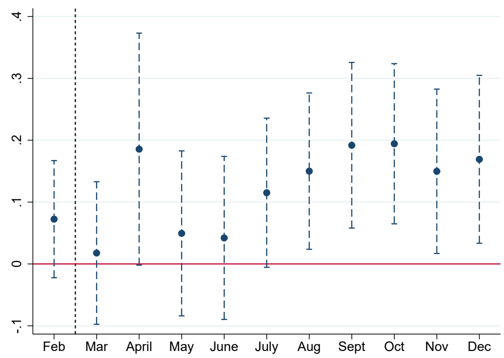
Notes: The figures in Panels (a) and (b) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state sales and intra-state sales respectively, by plant-level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level Inter-state Inputs Fraction (2019) for every month in 2020. The regressions include a set of plants for which total sales information is available for every month. The figures in Panels (c) and (d) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state inputs and intra-state inputs respectively, by plant-level Inter-state Inputs Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level Inter-state Sales Fraction (2019) for every month in 2020. The regressions include a set of plants for which total inputs information is available for every month. All specifications include plant$\times$month, sector$\times$month$\times$year and district$\times$month$\times$year fixed effects. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.7: Reshoring (Plants): Robustness (Controlling for State-Industry Time Effects)

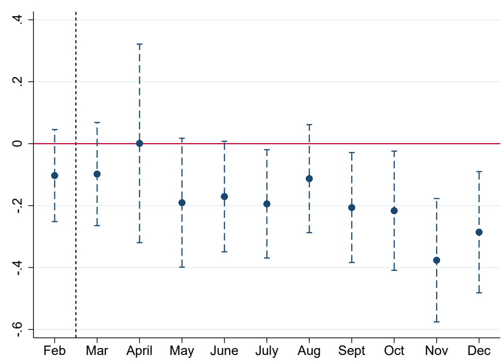
(a) Inter-state Sales: By Sales Fraction



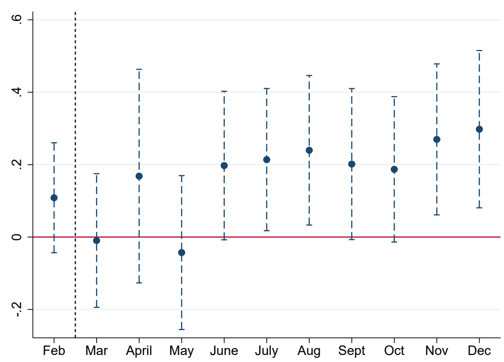
(b) Intra-state Sales: By Sales Fraction



(c) Inter-state Inputs: By Inputs Fraction



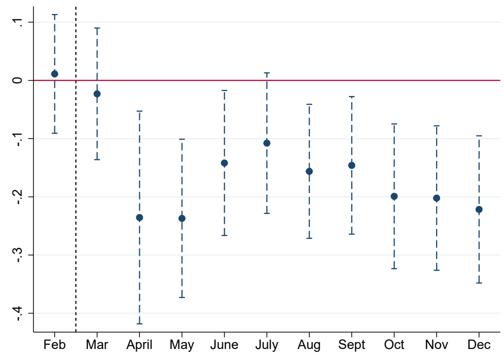
(d) Intra-state Inputs: By Inputs Fraction



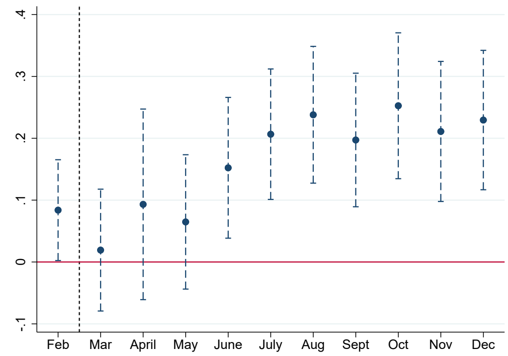
Notes: The figures in Panels (a) and (b) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state sales and intra-state sales respectively, by plant-level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level Inter-state Inputs Fraction (2019) for every month in 2020. The regressions include a set of plants for which total sales information is available for every month. The figures in Panels (c) and (d) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state inputs and intra-state inputs respectively, by plant-level Inter-state Inputs Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level Inter-state Sales Fraction (2019) for every month in 2020. The regressions include a set of plants for which total inputs information is available for every month. All specifications include plant$\times$month, sector$\times$month$\times$year and state$\times$sector$\times$month$\times$year fixed effects. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.8: Reshoring (Plants): Robustness (Dropping Exporters and Importers)

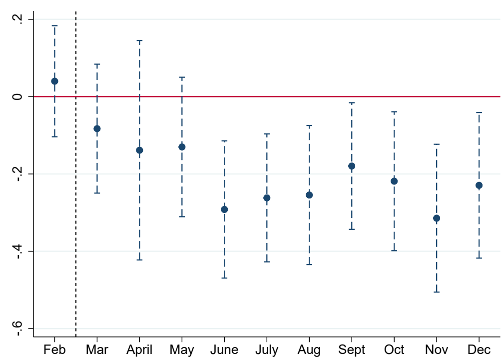
(a) Inter-state Sales: By Sales Fraction



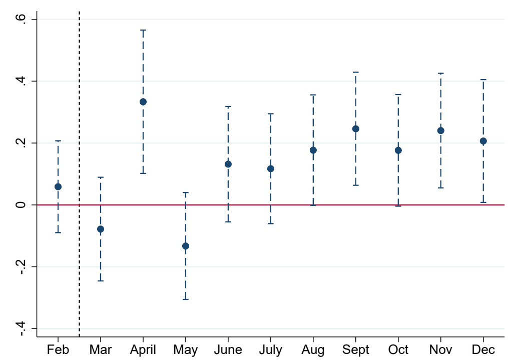
(b) Intra-state Sales: By Sales Fraction



(c) Inter-state Inputs: By Inputs Fraction



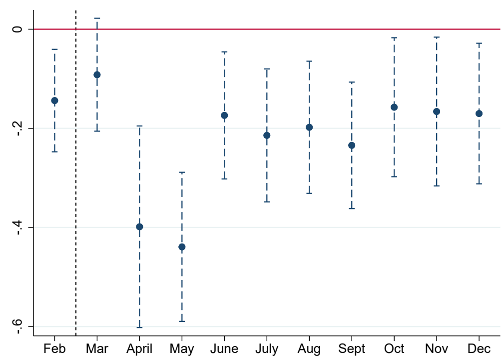
(d) Intra-state Inputs: By Inputs Fraction



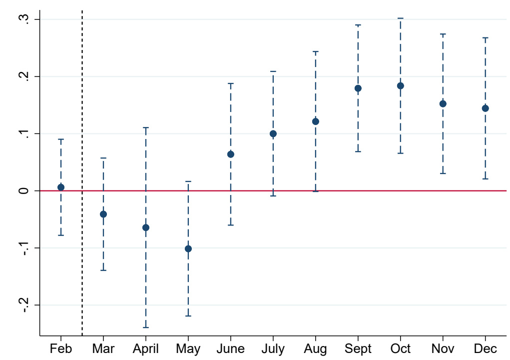
Notes: The figures in Panels (a) and (b) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state sales and intra-state sales respectively, by plant-level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level Inter-state Inputs Fraction (2019) for every month in 2020. The regressions include a set of plants for which total sales information is available for every month. The figures in Panels (c) and (d) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state inputs and intra-state inputs respectively, by plant-level Inter-state Inputs Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level Inter-state Sales Fraction (2019) for every month in 2020. The regressions include a set of plants for which total inputs information is available for every month. Plants which exported any of their sales in 2019 are dropped from the analyses in Panels (a) and (b). Plants which imported any of their inputs in 2019 are dropped from the analyses in Panels (c) and (d). All specifications include plant$\times$month and sector$\times$month$\times$year fixed effects. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.9: Reshoring (Plants): Robustness (Additional Plant and Firm Level Controls)

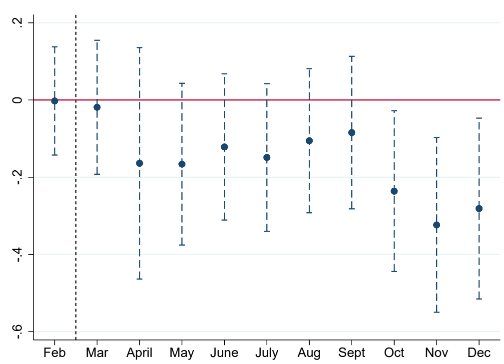
(a) Inter-state Sales: By Sales Fraction



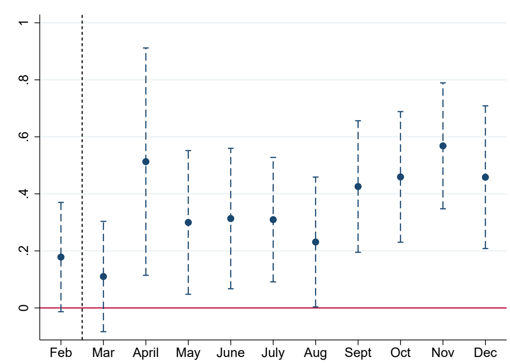
(b) Intra-state Sales: By Sales Fraction



(c) Inter-state Inputs: By Inputs Fraction

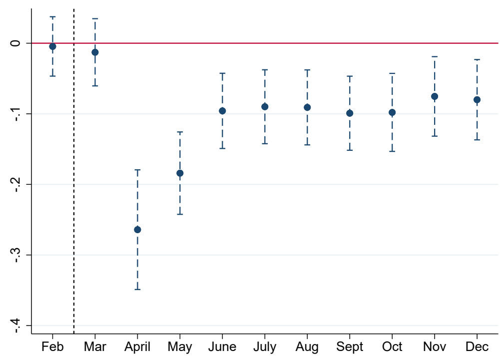


(d) Intra-state Inputs: By Inputs Fraction

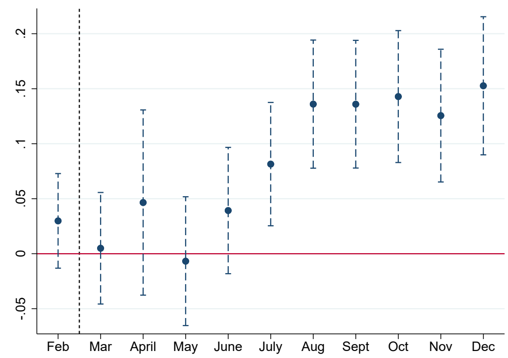


Notes: The figures in Panels (a) and (b) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state sales and intra-state sales respectively, by plant-level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The regressions include a set of plants for which total sales information is available for every month. The figures in Panels (c) and (d) plot the monthly coefficients ($\gamma_2^{\tau,c}$ in Equation 2) for the heterogeneous impact on log of inter-state inputs and intra-state inputs respectively, by plant-level Inter-state Inputs Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The regressions include a set of plants for which total inputs information is available for every month. We control for heterogeneous impacts of plant-level Inter-state Inputs Fraction (2019) for every month in 2020 (Panels (a) and (b)) and plant-level Inter-state Sales Fraction (2019) for every month in 2020 (Panels (c) and (d)). All specifications additionally control for heterogeneous impacts of indicator variables for plants belonging to multi-plant firms and those lying in border districts, total within-country sales of the plant in 2019 (size), firm-level cash-assets ratio and leverage for every month in 2020. All specifications include plant×month and sector×month×year fixed effects. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

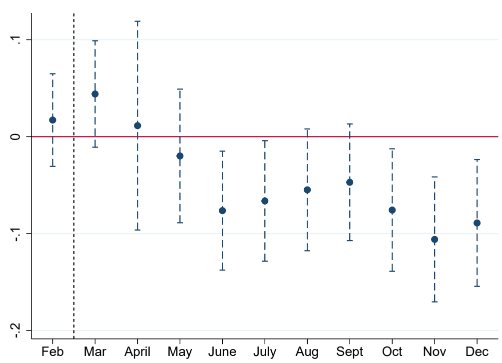
Figure A.10: Reshoring (Plants): Robustness (Above Median Fraction)



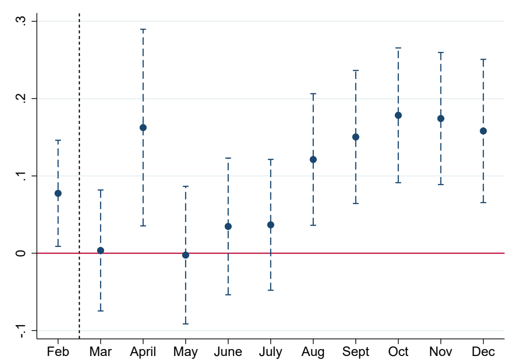
(a) Inter-state Sales: By Sales Fraction



(b) Intra-state Sales: By Sales Fraction



(c) Inter-state Inputs: By Inputs Fraction

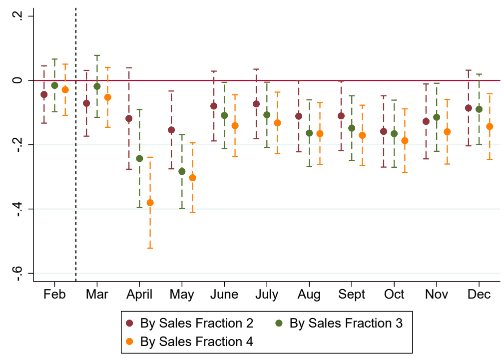


(d) Intra-state Inputs: By Inputs Fraction

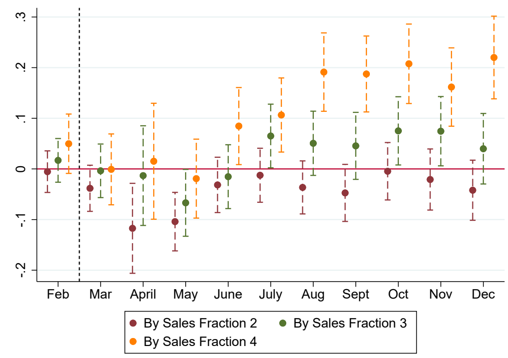
Notes: The figures in Panels (a) and (b) plot the monthly coefficients for the heterogeneous impact on log of inter-state sales and intra-state sales respectively, by an indicator variable, that takes a value of one for above median measure of plant-level Inter-state Sales Fraction (2019) and zero otherwise, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level indicator variable for above median Inter-state Inputs Fraction (2019) for every month in 2020. The regressions include a set of plants for which total sales information is available for every month. The figures in Panels (c) and (d) plot the monthly coefficients for the heterogeneous impact on log of inter-state inputs and intra-state inputs respectively, by an indicator variable, that takes a value of one for above median measure of plant-level Inter-state Inputs Fraction (2019) and zero otherwise, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We additionally control for heterogeneous impacts of plant-level indicator variable for above median level Inter-state Sales Fraction (2019) for every month in 2020. The regressions include a set of plants for which total inputs information is available for every month. All specifications include plant×month and sector×month×year fixed effects. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.11: Reshoring (Plants): By Exposure Bins

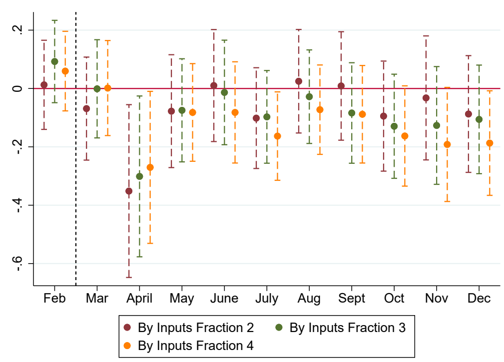
(a) Inter-state Sales: By Bins of Sales Fraction



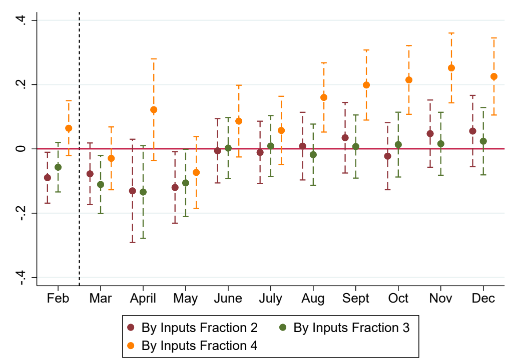
(b) Intra-state Sales: By Bins of Sales Fraction



(c) Inter-state Inputs: By Bins of Inputs Fraction



(d) Intra-state Inputs: By Bins of Inputs Fraction



Notes: We define four bins based on Inter-state Sales and Inputs Fraction values in 2019 for each of them separately – $\{< 0.25, 0.25 - 0.5, 0.5 - 0.75, \geq 0.75\}$. The figures in Panels (a) and (b) plot the monthly coefficients for the heterogeneous impact on log of inter-state sales and intra-state sales respectively, by indicator variables, that take a value of one for plant-level Inter-state Sales Fraction (2019) lying in a given bin for that plant and zero otherwise (relative to bin 1), for every month in 2020 with January 2020 as the base month, accounting for change between the same months in 2019. To elaborate, we plot the coefficients $\gamma_2^{\tau,c}$ (sales fraction bin 2), $\gamma_3^{\tau,c}$ (sales fraction bin 3), $\gamma_4^{\tau,c}$ (sales fraction bin 4) – in Equation A.1:

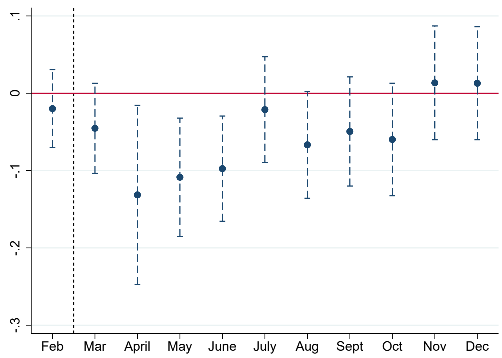
$$ln(z^c_{ijr,my}) = \sum_{\tau \in (m2020)} \gamma_1^{\tau,c}(\mathbb{1}_m \times \mathbb{1}_{2020}) + \sum_{\tau \in (m2020)} \sum_{B \in (2,3,4)} \gamma_B^{\tau,c}(\mathbb{1}_m \times \mathbb{1}_{2020} \times \mathbb{1}[f^{B,c}_{ir}])$$

$$+ \sum_{B \in (2,3,4)} (\mathbb{1}_{2020} \times \mathbb{1}[f^{B,c}_{ir}]) + \delta^c_{ir,m} + \delta^c_{j,my} + \mathbb{X}^c_{ir,my} + \varepsilon^c_{ijr,my} \qquad \text{(A.1)}$$

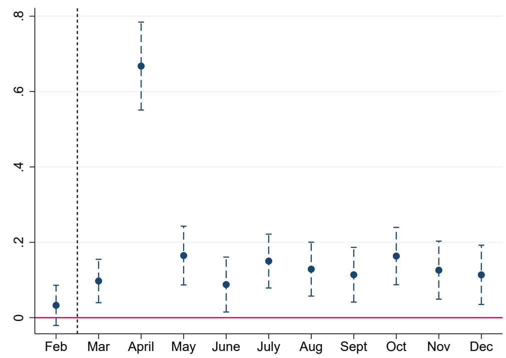
We additionally control for heterogeneous impacts of plant-level Inter-state Inputs Fraction (2019) for every month in 2020. The regressions include a set of plants for which total sales information is available for every month. Similarly, Panels (c) and (d) plot the same monthly coefficients for the heterogeneous impact on log of inter-state inputs and intra-state inputs respectively based on the bins for Inter-state Inputs Fraction. We additionally control for heterogeneous impacts of Inter-state Sales Fraction (2019) for every month in 2020. The regressions include a set of plants for which total inputs information is available for every month. All specifications include plant×month and sector×month×year fixed effects. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.12: Reshoring in Shipments (Products) due to *SHE*

(a) Inter-State: By Scope for Home Expansion



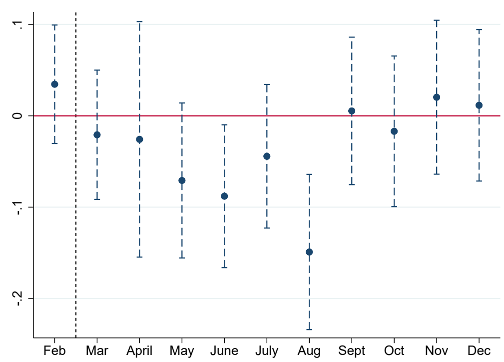
(b) Intra-State: By Scope for Home Expansion



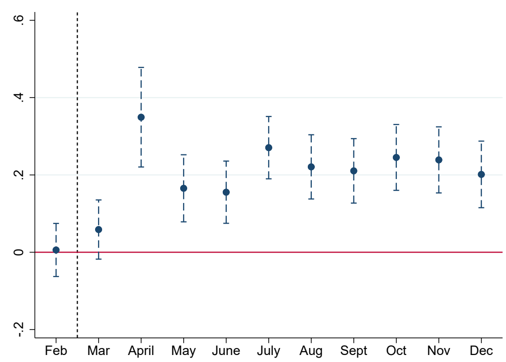
Notes: The count of E-Way Bills is used as a proxy for quantity in these regressions. The figures in Panels (a) and (b) plot the monthly coefficients (π_2^τ in Equation 6) for the heterogeneous impact on log of inter-state and intra-state E-Way sale bills of a product originating in a state by product-state level Scope for Home Expansion (2019) respectively, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The product-state level Scope for Home Expansion (2019) is defined as the minimum of Inter-state Sales Fraction (2019) and Inter-state Receivables Fraction (2019). The regressions include a set of products in a state for which total sales information is available for every month. All specifications include product×state×month, product×month×year and state×month×year fixed effects. The standard errors are clustered at product-state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.13: Reshoring (Products): Robustness (Unbalanced Products)

(a) Inter-state Sales: By Scope for Home Expansion



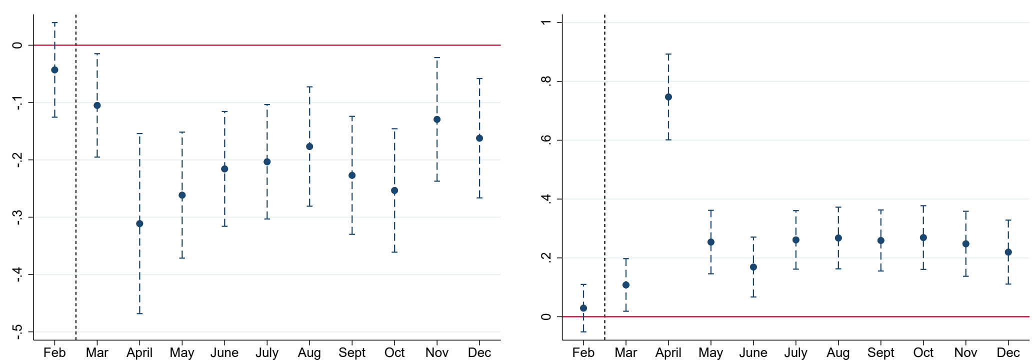
(b) Intra-state Sales: By Scope for Home Expansion



Notes: Panels (a) and (b) plot the monthly coefficients (π_2^τ in Equation 6) for the heterogeneous impact on log of inter-state and intra-state sales of a product from a state respectively, by the product-state level Scope for Home Expansion (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The product-state level intra-state Scope for Home Expansion (2019) is defined as the minimum of Inter-state Sales Fraction (2019) and Inter-state Receivables Fraction (2019). The regressions include a set of products for which total sales information is available for more than six months in 2019. All specifications include product×state×month and product×month×year fixed effects. The standard errors are clustered at product×state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.14: Reshoring (Products): Robustness (Variation in Stringency Across States)

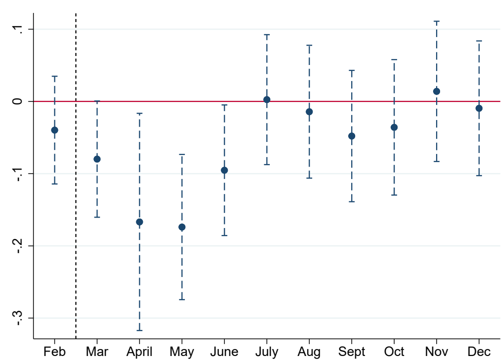
(a) Inter-state Sales: By Scope for Home Expansion (b) Intra-state Sales: By Scope for Home Expansion



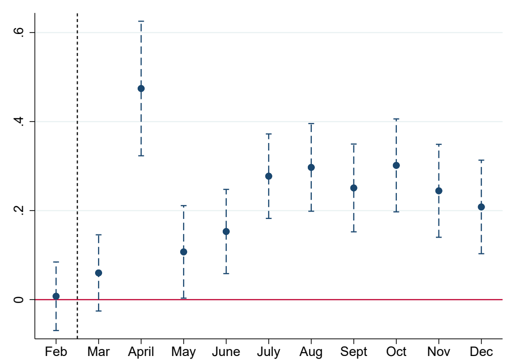
Notes: Panels (a) and (b) plot the monthly coefficients (π_2^τ in Equation 6) for the heterogeneous impact on log of inter-state and intra-state sales of a product from a state respectively, by the product-state level Scope for Home Expansion (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The product-state level Scope for Home Expansion (2019) is defined as the minimum of Inter-state Sales Fraction (2019) and Inter-state Receivables Fraction (2019). The regressions include a set of products in a state for which total sales information is available for every month. All specifications include product×state×month, product×month×year and state×month×year fixed effects. The standard errors are clustered at product-state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.15: Reshoring (Products): Robustness (Non-Essential Products)

(a) Inter-state Sales: By Scope for Home Expansion



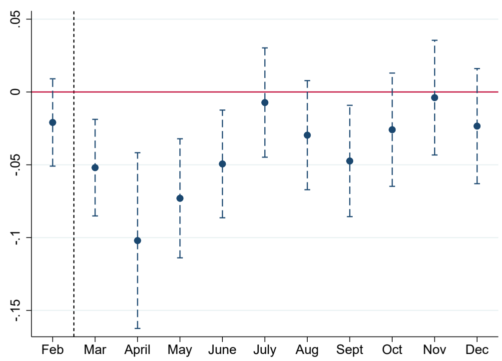
(b) Intra-state Sales: By Scope for Home Expansion



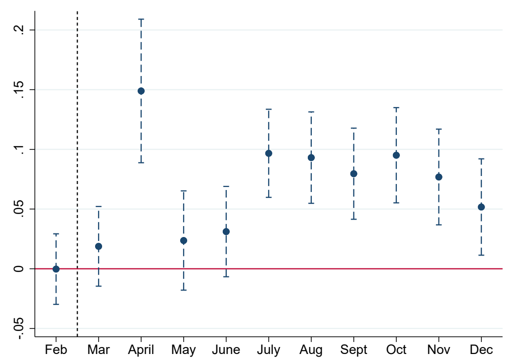
Notes: The figures in Panels (a) and (b) plot the monthly coefficients (π_2^τ in Equation 6) for the heterogeneous impact on log of inter-state and intra-state E-Way sale bills of a product originating in a state by product-state level Scope for Home Expansion (2019) respectively, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The product-state level intra-state Scope for Home Expansion (2019) is defined as the minimum of Inter-state Sales Fraction (2019) and Inter-state Receivables Fraction (2019). The regressions include a set of non-essential (non-food, non-medical) products in a state for which total sales information is available for every month. All specifications include product×state×month and product×month×year fixed effects. The standard errors are clustered at product-state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.16: Reshoring (Products): Robustness (Above Median Product Attributes)

(a) Inter-state Sales: By Above Median Scope for Home Expansion



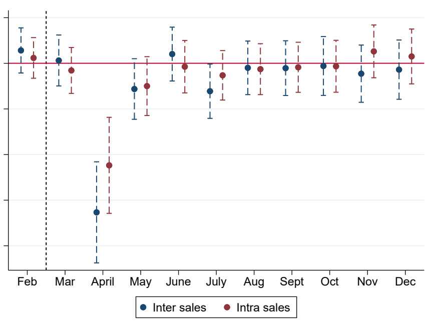
(b) Intra-state Sales: By Above Median Scope for Home Expansion



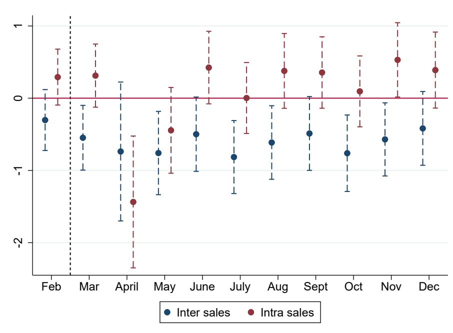
Notes: The figures in Panels (a) and (b) plot the monthly coefficients for the heterogeneous impact on log of inter-state and intra-state sales of a product originating in a state by an indicator variable at product-state level which takes a value of one for above median Scope for Home Expansion (2019) and zero otherwise, respectively, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The product-state level intra-state Scope for Home Expansion (2019) is defined as the minimum of Inter-state Sales Fraction (2019) and Inter-state Receivables Fraction (2019). The regressions include a set of products in a state for which total sales information is available for every month. All specifications include product×state×month and product×month×year fixed effects. The standard errors are clustered at product-state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.17: Other Product Attributes: Role in Explaining Reshoring

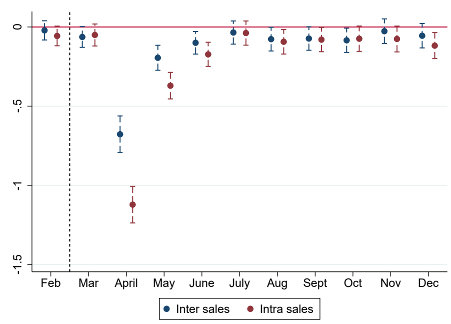
(a) By Product Differentiation



(b) By Production Fragmentation



(c) By Grubel Lloyd Index



*Notes:*The figures plot the monthly coefficients for the heterogeneous impact on log of inter-state and intra-state sales of a product originating in a state by whether a product is classified as a differentiated one (Panel (a)), by the degree of its production fragmentation (Panel (b)) at HS 4-digit level and by Grubel-Lloyd (GL) index (Panel (c)) at HS (4-digit)–state level, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019 (π_3^τ in Equation A.2 for product differentiation and fragmentation and Equation A.3 for the GL index) using the below specifications:

$$\begin{aligned} ln(z_{kr,my}) &= \sum_{\tau \in (m2020)} \pi_2^\tau (\mathbb{1}_m \times \mathbb{1}_{2020} \times SHE_{kr,2019}) + \sum_{\tau \in (m2020)} \pi_3^\tau (\mathbb{1}_m \times \mathbb{1}_{2020} \times G_k) \\ &+ \mathbb{1}_{2020} \times SHE_{kr,2019} + \mathbb{1}_{2020} \times G_k + \delta_{kr,m} + \delta_{k2,my} + \varepsilon_{kr,my} \end{aligned} \tag{A.2}$$

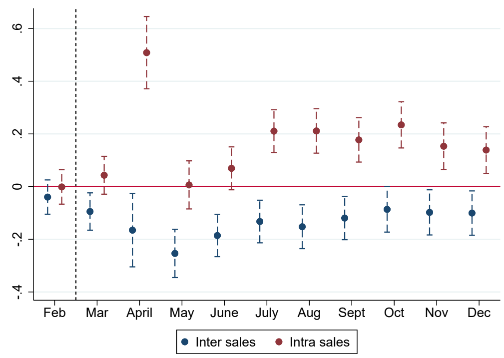
where $G_k \in \{Diff, Fragment\}$. Here, $Diff$ refers to the product differentiation index provided by Rauch (1999) and $Fragment$ refers to the degree of fragmentation in the manufacturing of a product provided by Fort (2017).

$$\begin{aligned} ln(z_{kr,my}) &= \sum_{\tau \in (m2020)} \pi_2^\tau (\mathbb{1}_m \times \mathbb{1}_{2020} \times SHE_{kr,2019}) + \sum_{\tau \in (m2020)} \pi_3^\tau (\mathbb{1}_m \times \mathbb{1}_{2020} \times GL_{kr,2019}) \\ &+ \mathbb{1}_{2020} \times SHE_{kr,2019} + \mathbb{1}_{2020} \times GL_{k,2019} + \delta_{kr,m} + \delta_{k,my} + \varepsilon_{kr,my} \end{aligned} \tag{A.3}$$

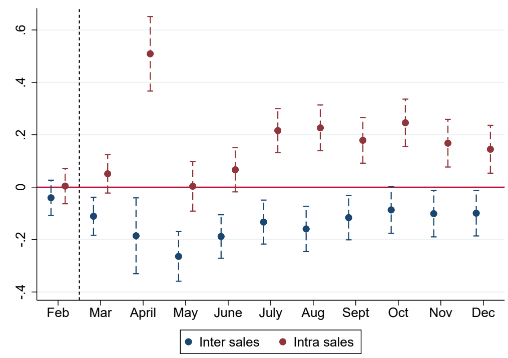
where $GL_{kr,2019}$ refers to the GL Index for product k in region r in 2019. The regressions include a set of products in a state for which total sales information is available for every month. All specifications control for the heterogeneous impact on the outcome variables by product-state level Scope for Home Expansion and product×state×month fixed effects at HS 4-digit level. Fixed effects for product×month×year at HS 2-digit level are used for product differentiation and fragmentation while product×month×year at HS 4-digit level are used for the GL Index since the former measures are at the product level while the GL index is constructed at product-state level. The standard errors are clustered at product-state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.18: Reshoring (Products): Robustness (Controlling for Other Product Attributes)

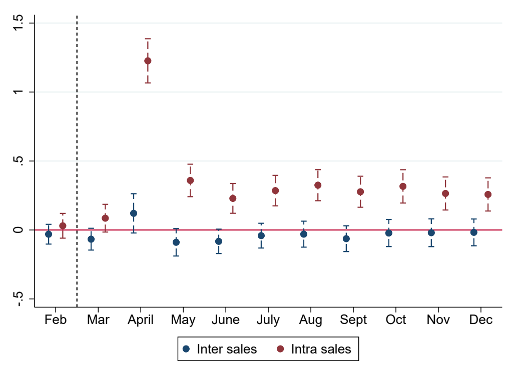
(a) By SHE (Controlling for Product Differentiation)



(b) By SHE (Controlling for Production Fragmentation)

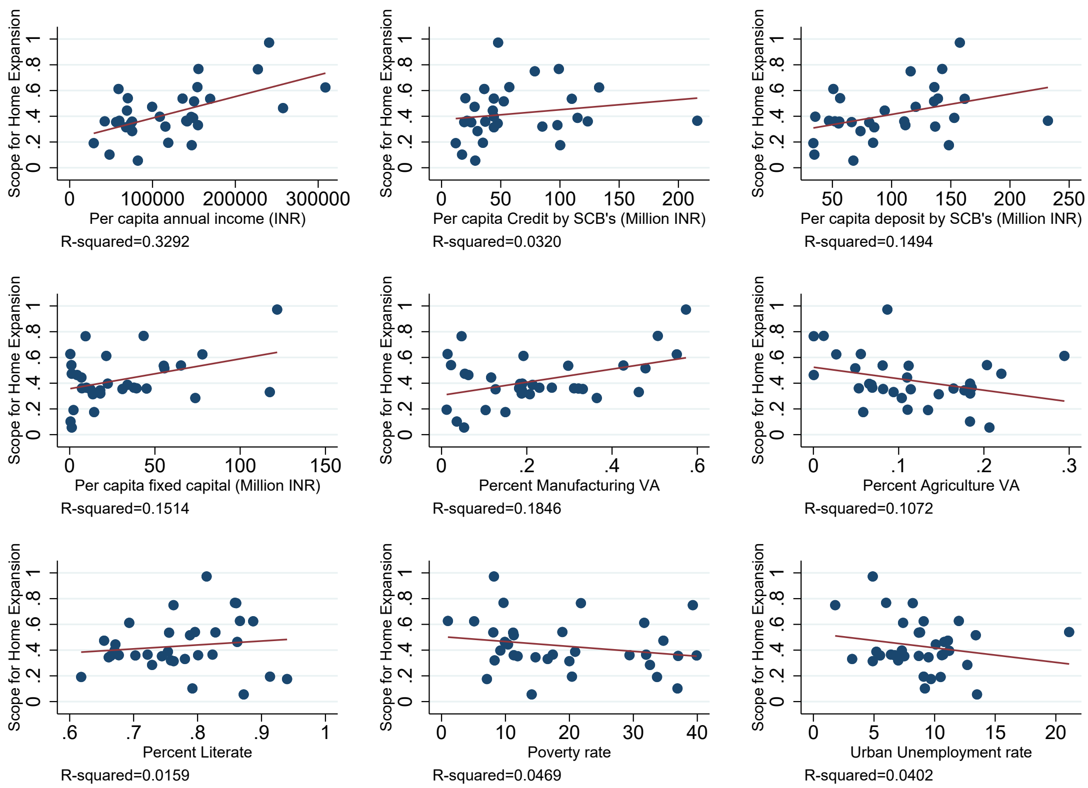


(c) By SHE (Controlling for GL Index)



Notes: Panels (a), (b) and (c) plot the monthly coefficients for the heterogeneous impact on log of inter-state and intra-state sales of a product originating in a state by $SHE_{kr,2019}$ for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019 after controlling for the effect of product differentiation, product fragmentation and the GL index, respectively (π_2^τ in Equations A.2 and A.3). The regressions include a set of products in a state for which total sales information is available for every month. All specifications control for product×state×month fixed effects at HS 4-digit level. Fixed effects for product×month×year at HS 2-digit level are used when controlling for product differentiation and fragmentation (Panel (a) and (b)) while product×month×year at HS 4-digit level are used when controlling for GL Index (panel (c)) since the former measures are at the product level while the GL index is constructed at product-state level. The standard errors are clustered at product-state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure A.19: State-level *SHE* vs. Other State Characteristics



Notes: The figures plot average scope for home expansion at state level (obtained by taking a value weighted average of *SHE* across all products within a state) against various state economic indicators. Per capita income refers to Per-capita Net State Domestic Product (Constant Prices) in 2018-19 in INR. Poverty Rate is calculated using 2011-12 National Sample Survey on Consumption Expenditure. Percent literate are from 2011 Census and relate to the population aged seven years and above. Sector wise value added is calculated from Gross Value Added - Agriculture and Manufacturing (at Constant Prices) in 2018-19. Urban unemployment rate is calculated using 2018-19 Periodic labor Force Survey (Usual Status). Deposits and credit (INR million) are by Scheduled Commercial Banks in India in 2019 and are divided by population to get per capita values. Fixed capital (INR million) captures the depreciated value of fixed assets owned by the factory as on the closing day of the accounting year 2019 (Annual Survey of Industries). It is divided by population to obtain per capita values. The R-square for association between variables in each scatter plot is provided below the relevant panel. The adjusted R-Square with all state-level economic variables as controls and *SHE* as the dependent variable is 0.42.
Source: Reserve Bank of India

Table A.1: Reshoring (Sales and Inputs, Plants): Without Sector × Month × Year Fixed Effects

Dependent variable:	log(Inter Sales)		log(Intra Sales)		log(Inter Inputs)		log(Intra Inputs)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\gamma_1^{\tau,c}$	$\gamma_2^{\tau,c}$	$\gamma_1^{\tau,c}$	$\gamma_2^{\tau,c}$	$\gamma_1^{\tau,c}$	$\gamma_2^{\tau,c}$	$\gamma_1^{\tau,c}$	$\gamma_2^{\tau,c}$
Feb 2020	0.01	–0.01	–0.02	0.06**	–0.03	0.05	–0.00	0.11***
	(0.03)	(0.03)	(0.02)	(0.03)	(0.04)	(0.04)	(0.02)	(0.04)
Mar 2020	–0.39***	0.01	–0.37***	–0.00	–0.41***	0.11***	–0.32***	0.04
	(0.03)	(0.04)	(0.02)	(0.03)	(0.04)	(0.04)	(0.02)	(0.04)
Apr 2020	–1.13***	–0.34***	–1.28***	0.06	–1.09***	0.24***	–0.85***	0.18***
	(0.06)	(0.06)	(0.04)	(0.05)	(0.08)	(0.09)	(0.03)	(0.07)
May 2020	–0.19***	–0.21***	–0.32***	–0.02	–0.35***	0.07	–0.20***	–0.03
	(0.04)	(0.04)	(0.02)	(0.04)	(0.05)	(0.05)	(0.02)	(0.05)
June 2020	0.08**	–0.12***	–0.07***	0.04	0.06	–0.09*	–0.02	0.13***
	(0.04)	(0.04)	(0.02)	(0.03)	(0.04)	(0.05)	(0.02)	(0.05)
July 2020	0.07**	–0.14***	–0.09***	0.10***	0.03	–0.08*	–0.03*	0.10**
	(0.04)	(0.04)	(0.02)	(0.03)	(0.04)	(0.05)	(0.02)	(0.05)
Aug 2020	0.11***	–0.15***	–0.06***	0.19***	0.09**	–0.11**	–0.04*	0.21***
	(0.04)	(0.04)	(0.02)	(0.03)	(0.04)	(0.05)	(0.02)	(0.05)
Sep 2020	0.22***	–0.17***	0.03	0.21***	0.18***	–0.11**	0.04**	0.24***
	(0.04)	(0.04)	(0.02)	(0.03)	(0.04)	(0.05)	(0.02)	(0.05)
Oct 2020	0.24***	–0.11***	0.07***	0.24***	0.23***	–0.13***	0.09***	0.25***
	(0.04)	(0.04)	(0.02)	(0.04)	(0.05)	(0.05)	(0.02)	(0.05)
Nov 2020	0.15***	–0.19***	–0.02	0.21***	0.24***	–0.24***	0.00	0.26***
	(0.04)	(0.04)	(0.02)	(0.04)	(0.05)	(0.05)	(0.02)	(0.05)
Dec 2020	0.25***	–0.17***	0.08***	0.24***	0.28***	–0.17***	0.08***	0.23***
	(0.04)	(0.04)	(0.02)	(0.04)	(0.05)	(0.05)	(0.02)	(0.05)
Plant-Month FE	✓		✓		✓		✓	
Additional Controls ($\mathbb{X}^c_{ir,my}$)	✓		✓		✓		✓	
N	142084		145488		130274		87908	

Notes: Columns (1)-(2), (3)-(4), (5)-(6) and (7)-(8) show results from the estimated Equation 2. Columns with heading $\gamma_1^{\tau,c}$ show the overall impact on the dependent variable in each month in the year 2020 with January 2020 as the base, relative to change between the same months in 2019. Columns (2) and (4) with heading $\gamma_2^{\tau,c}$ show the heterogeneous impact on the dependent variable, by plant level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. Columns (6) and (8) with heading $\gamma_2^{\tau,c}$ show the heterogeneous impact on the dependent variable, by plant level Inter-state Inputs Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. Columns (1)-(4) and (5)-(8) include a set of plants for which total sales and total inputs information is available for every month, respectively. Additional controls: Columns (1)-(4) include interaction of each month in 2020 with plant Inter-state Inputs Fraction (2019); Columns (5)-(8) include interaction of each month in 2020 with plant Inter-state Sales Fraction (2019). The number of observations (N) are the effective observations used in estimation after including all the fixed effects. Clustered standard errors (at plant level) in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.2: Impact on Plant Sales and Inputs: By Inter-state Dependence

Dependent variable:	log(Sales)			log(Inputs)		
	(1)	(2)	(3)	(4)	(5)	(6)
Reg. Dependence=	Inter-state Sales Fraction ×			Inter-state Inputs Fraction ×		
Feb 2020	0.01	0.00	–0.00	–0.01	0.02	–0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Mar 2020	–0.03**	–0.03**	–0.05**	–0.05***	0.01	–0.02
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Apr 2020	–0.20***	–0.26***	–0.38***	–0.27***	–0.02	–0.17***
	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)	(0.05)
May 2020	–0.13***	–0.14***	–0.17***	–0.14***	–0.10***	–0.18***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
June 2020	–0.05***	–0.05***	–0.06***	–0.07***	–0.04**	–0.11***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
July 2020	0.01	0.00	–0.00	–0.06***	–0.03	–0.06**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Aug 2020	–0.04**	–0.04**	–0.05**	–0.04**	–0.01	–0.04
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Sep 2020	–0.02	–0.03	–0.05**	–0.01	–0.01	–0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Oct 2020	0.03*	0.03	0.01	–0.01	–0.00	–0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Nov 2020	–0.07***	–0.07***	–0.06**	–0.06***	–0.05**	–0.06**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Dec 2020	–0.04**	–0.04**	–0.03	0.01	–0.00	–0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Plant-Month FE	✓	✓	✓	✓	✓	✓
Additional Controls ($\mathbb{X}^c_{ir,my}$)		✓	✓		✓	✓
Sector-Month-Year FE			✓			✓
N	222048	205944	164736	216696	163344	122712

Notes: The dependent variable in column (1)-(3) is the log of total sales for a plant. The coefficients in columns (1)-(3) show the heterogeneous impact on total sales, by plant level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The regressions include a balanced set of plants for which total sales information is available for every month. The dependent variable in column (4)-(6) is the log of total inputs for a plant. The coefficients in columns (4)-(6) show the heterogeneous impact on total inputs by plant level Inter-state Inputs Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The regressions include a balanced set of plants for which total inputs information is available for every month. Additional controls: interaction of each month in 2020 with plant Inter-state Input Fraction (2019) in columns (2)-(3), interaction of each month in 2020 with plant Inter-state Sales Fraction (2019) in columns (5)-(6). The number of observations (N) are the effective observations used in estimation after including all the fixed effects. Clustered standard errors (at plant level) in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.3: Average Scope for Home Expansion across Products (HS 2-digit)

HS Code (1)	Product Description (2)	SHE_{kr} (3)
	Bottom Ten Products: Scope for Home Expansion	
43	Furskins and Artificial Fur	0.13
22	Beverages and spirits	0.31
45	Natural Cork, Shuttlecock Cork	0.32
37	Photographic & Cinematographic Films	0.35
31	Fertilisers	0.35
36	Propellants, Explosives, Fuses, Fireworks	0.36
78	Unwrought Lead – Rods, Sheets & Profiles	0.36
19	Preparations of cereals, flour, starch or milk;	0.37
15	Prepared Edible fats; Animal or Vegetable waxes	0.37
80	Unwrought Tin – Rods, Sheets & Profiles	0.38
	Top Ten Products: Scope for Home Expansion	
90	Optical, photographic, medical or surgical instruments	0.60
52	Cotton materials, Synthetics & Woven fabrics	0.61
46	Plaiting Materials, Basketwork	0.61
86	Vehicles, Aircraft, Vessels and transport equipment	0.62
29	Organic Chemicals	0.62
13	Gums, Resins, Vegetable SAP & Extracts	0.63
50	Textiles and Textile Articles	0.65
64	Shoes & Footwear Products	0.65
61	Articles of Apparel & Clothing, knitted or crocheted	0.66
62	Articles of Apparel & Clothing, not knitted or crocheted	0.67

Notes: The table provides the list of bottom and top ten products by Scope for Home Expansion (SHE_k) at HS 2-digit level. The above values are the mean of Scope for Home Expansion values derived at (HS 4-digit) product×region level at the HS 2-digit level.

Table A.4: Gains in Sales from Reshoring and Scope for Home expansion: Heterogeneity across States

State	(1) CF Scenario I	(2) CF Scenario II	(3) CF Scenario III	(4) Average $SHE_{kr,2019}$
Sikkim	2.578	2.577	1.419	0.972
Dadra and Nagarhaveli	2.556	2.530	1.393	0.749
Chandigarh	2.493	2.490	1.371	0.765
Puducherry	2.438	2.357	1.298	0.768
Goa	2.011	1.770	0.974	0.624
Madhya Pradesh	1.953	1.875	1.032	0.612
Himachal Pradesh	1.689	1.318	0.726	0.538
Uttarakhand	1.659	1.437	0.791	0.516
Andaman and Nicobar	1.640	1.640	0.903	0.627
Meghalaya	1.631	0.907	0.500	0.353
Haryana	1.617	1.550	0.853	0.536
Arunachal Pradesh	1.430	1.430	0.788	0.474
Chhattisgarh	1.306	0.793	0.437	0.358
Delhi	1.295	1.236	0.681	0.464
Jammu and Kashmir	1.267	1.127	0.620	0.444
Jharkhand	1.228	0.703	0.387	0.355
Andhra Pradesh	1.105	0.878	0.484	0.397
Odisha	1.038	0.480	0.264	0.285
Nagaland	1.015	1.015	0.559	0.541
Telangana	1.006	0.821	0.452	0.395
Gujarat	0.861	0.611	0.336	0.331
Rajasthan	0.804	0.586	0.323	0.345
Karnataka	0.803	0.645	0.355	0.387
Tamil Nadu	0.800	0.522	0.288	0.361
Uttar Pradesh	0.778	0.558	0.307	0.361
West Bengal	0.766	0.635	0.349	0.314
Punjab	0.747	0.582	0.320	0.320
Maharashtra	0.747	0.504	0.278	0.365
Assam	0.611	0.480	0.264	0.365
Mizoram	0.508	0.508	0.280	0.194
Kerala	0.334	0.232	0.128	0.175
Bihar	0.314	0.250	0.138	0.191
Manipur	0.182	0.182	0.100	0.102
Tripura	0.085	0.085	0.047	0.055

Notes: The coefficient value in columns (1) and (2) in Table 2 are used for counterfactual estimation for each state with Aggregate Sales Share (%) varying across states for the different categories of products. Scenario I is the full reshoring case with sales growth equal to zero for both types of products. Scenario II is the case with reshoring only for above-median $SHE_{kr,2019}$ products. Scenario III captures the effect due to scope for home expansion alone. Column (4) shows the product sales weighted average value of $SHE_{kr,2019}$ for a state in 2019.

B Appendix: Additional Results

B.1 Plant Level Evidence for Trade Collapse

We describe our empirical strategy to identify trade collapse at plant level and discuss the results below.

B.1.1 Empirical Strategy

As described earlier, the sudden lockdown in March 2020 led to an immediate disruption in inter-state trade and economic activity. We measure the impact of this disruption on inter- vs intra-state sales (inputs) of a plant using an event-study design around the lockdown and plant-level monthly data from January 2019 to December 2020. We estimate the below specification:

$$ln(z^c_{ijr,my}) \quad = \sum_{\tau \in (m2020)} \alpha_1^{\tau,c}(\mathbb{1}_m \times \mathbb{1}_{2020}) + \mathbb{1}_{2020} + \delta^c_{ir,m} + \varepsilon^c_{ijr,my} \qquad \text{(B.1)}$$

where $z^c_{ijr,my}$ is the outcome variable for plant i belonging to sector j in state r in month m and year y for category $c \in \{Sales, Inputs\}$. Our plant level outcome variables include total sales (inputs) and inter- to intra-state sales (inputs) ratio.[1] $\mathbb{1}_m$ is a dummy variable that takes a value equal to one if the observation belongs to month m, and zero otherwise. $\mathbb{1}_{2020}$ is a dummy that takes a value of one for year 2020, and zero otherwise. The set $m2020$ refers to the months in February–December 2020. We account for plant-level seasonality in outcomes through plant×month fixed effects, $\delta^c_{ir,m}$. Our coefficient of interest $\alpha_1^{\tau,c}$ on $(\mathbb{1}_m \times \mathbb{1}_{2020})$ captures the month-wise impact on plant outcomes for month m in year 2020, relative to the baseline month of January 2020, over and above any change between the same months in 2019. Standard errors are clustered at plant level.

This estimation strategy is akin to estimating excess or deficit sales or inputs in 2020 vs 2019 (Wallace et al., 2023). Here, we first estimate the percent change in plant outcome between month m in year 2020 and January 2020 and that between month m in year 2019 and January 2019, and then take a difference between these

[1] The nature of the data precludes us from observing the products sold by a plant, unlike in Behrens et al. (2013) and Bricongne et al. (2012). Therefore, our empirical strategy to estimate trade collapse at plant-level cannot account for the nature of the product directly.

two differences.[2] The treatment is the lockdown in the country that began on March 25, 2020 and the treatment period is March–December 2020.

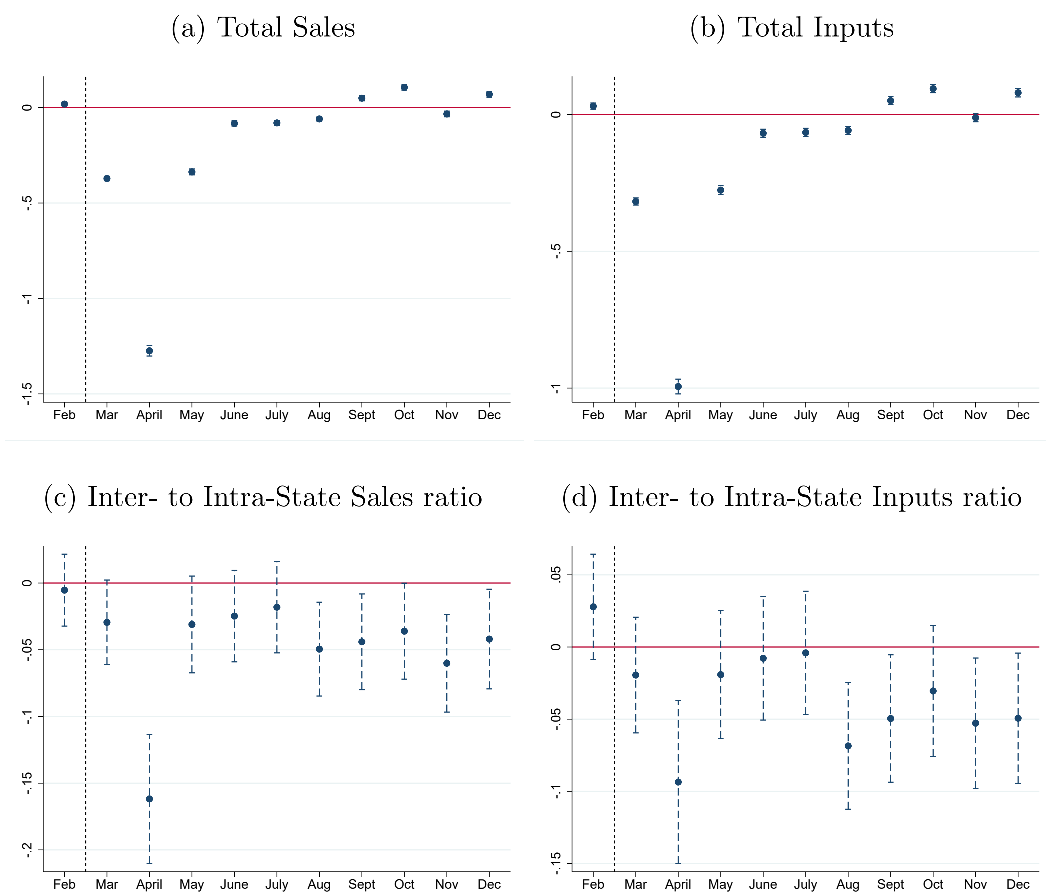
B.1.2 Results: Inter-state Trade Collapse

We begin by documenting the decline in overall economic activity after the lockdown and its gradual recovery. Figure B.1, Panel (a) plots the estimated monthly impact in 2020 on log of total plant sales, while Panel (b) plots it on log of total plant inputs (given by α_1^τ in Equation B.1). The percentage change is given by $exp(\alpha_1) - 1$. We find a 30 percent fall in total sales in March 2020 (the lockdown occurred on March 25, 2020) followed by a 70 percent fall in April 2020 from that in January 2020, relative to the change between the same months in 2019 (i.e., over and above any seasonal effects). The total sales partially recovered in May 2020 as the restrictions eased but continued to suffer until August 2020 (lower by 6%). From September 2020 onward we see a recovery in total sales to the pre-lockdown levels (in line with the official quarterly GDP statistics). We see a similar pattern for inputs (Panel (b)) with the most drastic fall in April 2020 (63%) and recovery from September 2020 onward. In both the figures, we see no significant effect in February 2020, when there was no lockdown in the country.

Next, we test for trade collapse. We plot the coefficients ($\alpha_1^{\tau,c}$) with log of inter- to intra-state sales ratio and inputs ratio as the dependent variables in Figure B.1, Panel (c) and (d), respectively. We find a collapse in inter-state trade for a period much beyond the initial lockdown. There is a fall in inter- to intra-state sales ratio by 15 percent in April 2020. The coefficient bounces back initially, but then continues to remain negative (5%) and significant from August 2020 onward. Clearly, these results show that the inter- to intra-state sales ratio declines immediately post-lockdown and the decline persists even after the initial shock subsides. We find a similar pattern for the inter- to intra-state inputs ratio in Panel (d). We check the robustness of the trade collapse results to an alternate estimation strategy in Appendix Section B.1.3, which controls for changes in sectoral demand over time and find that these results continue to hold.

[2] To elaborate, $\alpha_1^{\tau,c}$ = (Percent change in plant outcome between month m in 2020 and January 2020) - (Percent change in plant outcome between month m in 2019 and January 2019).

Figure B.1: Economic Impact of Lockdown on Plants: Inter-State Trade Collapse



Notes: The figures in Panels (a) and (b) plot the monthly coefficients ($\alpha_1^{\tau,c}$ in Equation B.1) for the impact on log of total plant sales and inputs respectively, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The figures in Panels (c) and (d) plot the monthly coefficients ($\alpha_1^{\tau,c}$ in Equation B.1) for the impact on log of inter- to intra-state plant sales and inputs ratio respectively, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The dependent variables are Winsorized at 1% and 99%. Panel (a) includes a balanced set of plants for which total sales information is available for every month in our data. Panel (b) includes a balanced set of plants for which total inputs information is available for every month in our data. Panel (c) includes a balanced set of plants for which both inter- and intra-state sales are observed every month. Similarly, Panel (d) includes a balanced set of plants for which both inter- and intra-state inputs are observed every month. All specifications include plant×month and year fixed effects. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

B.1.3 Alternate Test for Trade Collapse

As an alternative strategy, we also measure trade collapse using a slightly modified specification given by:

$$
\begin{aligned}
ln(z^c_{ijtr,my}) = \beta^c_0 &+ \sum_{\tau\in(m2020)} \beta^{\tau,c}_1(\mathbb{1}_m \times \mathbb{1}_{2020}) + \sum_{\tau\in(m2020)} \beta^{\tau,c}_2(\mathbb{1}_m \times \mathbb{1}_{2020} \times \mathbb{1}(Inter_t)) \\
&+ \mathbb{1}_{2020} \times \mathbb{1}(Inter_t) + \mathbb{1}_{2020} + \delta^c_{itr,m} + \delta^c_{j,my} + \varepsilon^c_{ijtr,my} \qquad \text{(B.2)}
\end{aligned}
$$

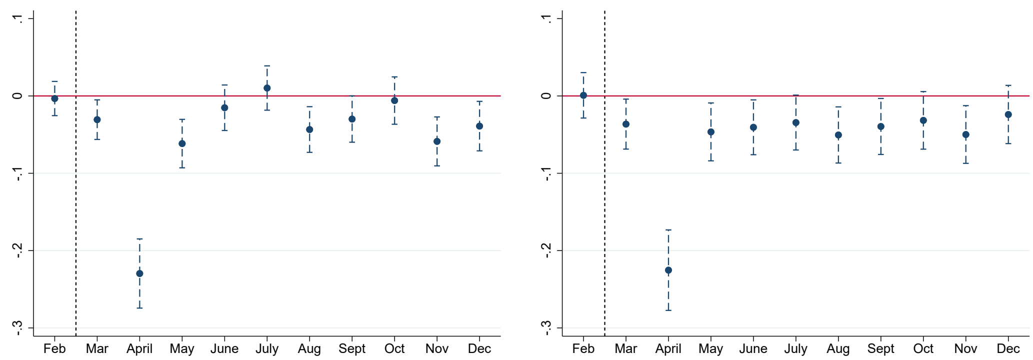
where $z^c_{ijtr,my}$ is the outcome of $c \in \{sales, inputs\}$ differentiated by sales type $t \in \{inter - state, intra - state\}$ for plant i belonging to sector j in state r in month m and year y. The variable $\mathbb{1}(Inter_t)$ takes a value of one if type t belongs to inter-state, else it is zero. Compared to Equation B.1, here we have an additional interaction term $\mathbb{1}_m \times \mathbb{1}_{2020} \times \mathbb{1}(Inter_t)$ that captures the differential impact on inter-state sales (or inputs) after the lockdown. Once again, January 2020 serves as the baseline month. The coefficient $\beta^{\tau,c}_1$ captures the average impact on intra-state sales in time period τ i.e., month m in 2020 over January 2020, relative to the same months in 2019, while $\beta^{\tau,c}_2$ captures the heterogeneous impact on the inter-state sales (or inputs). For instance, in the regression with sales as an outcome variable, if inter-state sales fall more than intra-state sales in a month, then $\beta^{\tau,sales}_2$ will be negative.

We also include plant×type×month fixed effects, $\delta_{itr,m}$, which account for plant-type level unobserved heterogeneity and plant-type monthly seasonality in outcomes, the two important confounding factors for identifying the trade collapse. In addition, we include controls for sector×month×year fixed effects denoted by $\delta_{j,my}$ to control for differential change in demand across plants in different sectors post-lockdown. Thus, our identification uses within-plant variation in a given month-year across its intra-state and inter-state sales (or inputs). Lastly, if the impact is driven by the lockdown then we should observe no differential pre-trends between intra- and inter-state sales (or inputs) in February and the corresponding $\beta^{Feb2020,c}_2$ should be insignificant.

We plot the coefficients $\beta^{\tau,c}_2$ that capture the differential impact of lockdown on inter-state sales and inputs relative to the intra-state outcomes in Panels (a) and (b) of Figure B.2, respectively. Panel (a) shows that the initial fall (April 2020) in inter-state sales is 21 percent larger. The difference reduces but remains negative and significant for the rest of the year except a few months. We see a similar impact on inputs in Panel (b). The initial fall in inter-state inputs is larger by 21 percent in April 2020 and continues to remain subdued by 5 percent for the rest of the year.

Figure B.2: Domestic Trade Collapse: Alternate Specification

(a) Sales (b) Inputs



Notes: The figures plot the coefficients $\beta_2^{\tau,c}$ from the estimated Equation B.2. Panel (a) plots the monthly coefficients for the impact on log of inter-state plant sales versus intra-state plant sales, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. Panel (b) plots the monthly coefficients for the impact on log of inter-state plant inputs versus intra-state plant inputs, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The regressions include a balanced set of plants for which total sales (Panel (a)) and total inputs (Panel (b)) information is available for every month. All specifications include plant×type×month fixed effects and sector×type×month×year fixed effects, where type is inter- or intra-state value at the plant level. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

B.2 Reshoring: Products with High Outside State Dependence

We also estimate the heterogeneous impact of inter-state sales dependence on product outcomes to show the robustness of plant level results on reshoring. We estimate Equation 6 with inter-state sales and intra-state sales as the dependent variables and $f^{sales}_{kr,2019}$ as the explanatory variable instead of $SHE_{kr,2019}$ using the below equation.

$$\begin{aligned} ln(z_{kr,my}) &= \sum_{\tau\in(m2020)} \pi_1^\tau(\mathbb{1}_m \times \mathbb{1}_{2020}) + \sum_{\tau\in(m2020)} \pi_2^\tau(\mathbb{1}_m \times \mathbb{1}_{2020} \times f^{sales}_{kr,2019}) \\ &+ \mathbb{1}_{2020} \times f^{sales}_{kr,2019} + \mathbb{1}_{2020} + \delta_{kr,m} + \delta_{k,my} + \mathbb{X}_{kr,my} + \varepsilon_{kr,my} \qquad \text{(B.3)} \end{aligned}$$

here, $\mathbb{X}_{kr,my}$ includes a vector of time-varying product×state level controls. These controls are of the form $\sum_{\tau\in(m2020)} \phi^\tau(\mathbb{1}_m \times \mathbb{1}_{2020} \times X_{kr})$ and the relevant double interactions. Here, X_{kr} = Inter-state Receivables Fraction, which is defined as the fraction of sales for a product within a state sourced from outside states in 2019.

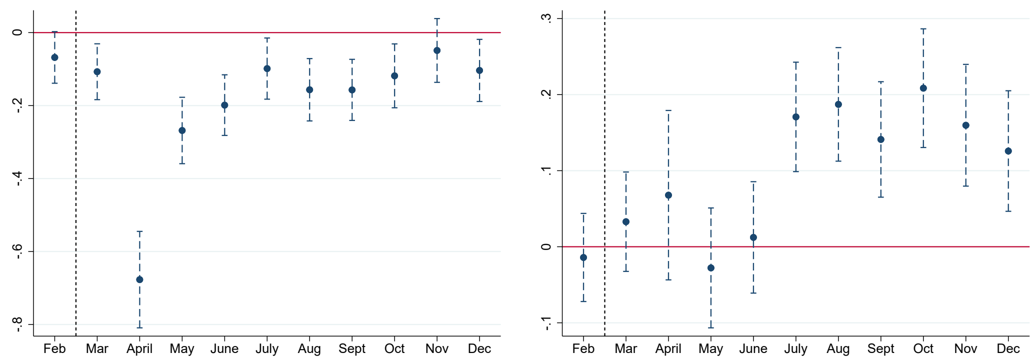
We then plot the estimates for π_2^τ coefficients in Panels (a) and (b) of Figure B.3 for inter-state and intra-state sales, respectively. There is a sharp fall in inter-state sales at the start of the pandemic during April 2020 for products with a higher inter-state sales dependence. The decline persists until December 2020 as most of the coefficients continue to be negative and significant, though the magnitude becomes smaller over time. The average point estimate of -0.15 translates into a 4 percent decline in the inter-state sales for a one-standard-deviation increase in Inter-state Sales Fraction. We find no impact on the intra-state sales initially (March–June 2020). However, we see an increase in intra-state sales from July–December 2020 (coefficients are positive and significant) for products that have higher initial inter-state dependence. Quantitatively, the coefficients are around 0.15 and translate into a $0.15 \times 0.27 \times 100 = 4$ percent increase in the intra-state sales for a one-standard-deviation increase in Inter-state Sales Fraction. Thus, decline in inter-state sales is offset by an increase in the intra-state sales in the recovery phase, for products that had a greater reliance on outside states for sales.[3] In addition, we find that the above change in sales value is driven by the change in quantity (results available on request).

[3] More detailed estimates, i.e., for both π_1^τ along with that for π_2^τ (when product time fixed effects are excluded), are reported in Appendix Table B.1. All the results presented in this section go through for this specification as well.

Figure B.3: Reshoring in Product Sales: By Inter-state Sales Fraction

(a) Inter-State Sales

(b) Intra-State Sales



Notes: The figures in Panels (a) and (b) plot the monthly coefficients (π_2^τ in Equation 6) for the heterogeneous impact on log of inter-state and intra-state sales of a product originating in a state by product-state level Inter-state Sales Fraction (2019) respectively, for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. All panels additionally control for the heterogeneous impacts of product-state level Inter-state Receivables Fraction (2019) for every month in 2020. The regressions include a set of products in a state for which total sales information is available for every month. All specifications include product$\times$state$\times$month and product$\times$month$\times$year fixed effects. The standard errors are clustered at product$\times$state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

The above product level results mimic the reshoring documented using plant data, both in timing and persistence. While the relative collapse in inter-state product sales was immediate, the intra-state product sales increased a few months later for products more dependent on outside states for sales, possibly reflecting the time taken to shift sales from inter- to intra-state. Notably, all the regressions at product level control for product$\times$month$\times$year fixed effects. Therefore, our results are not driven by products whose demand is also likely to fall more after the lockdown, like durable goods (Levchenko et al., 2010).

Table B.1: Reshoring (Sales, Product level): Without Product $\times$ Month $\times$ Year Fixed Effects

Dependent variable:	log(Inter Sales)		log(Intra Sales)		log(Inter Sales)		log(Intra Sales)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Heterogeneity Fraction=	Inter-state Sales Fraction				Scope for Home Expansion			
	π_1^τ	π_2^τ	π_1^τ	π_2^τ	π_1^τ	π_2^τ	π_1^τ	π_2^τ
Feb 2020	0.05**	−0.05	−0.00	0.00	0.06***	−0.03	0.04***	0.02
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.01)	(0.03)
Mar 2020	−0.40***	−0.11***	−0.48***	0.00	−0.38***	−0.08**	−0.45***	0.02
	(0.02)	(0.04)	(0.02)	(0.03)	(0.02)	(0.03)	(0.01)	(0.03)
Apr 2020	−2.65***	−0.93***	−3.09***	0.10	−2.25***	−0.17**	−2.50***	0.49***
	(0.06)	(0.08)	(0.06)	(0.07)	(0.04)	(0.08)	(0.04)	(0.08)
May 2020	−0.65***	−0.38***	−0.83***	−0.18***	−0.60***	−0.26***	−0.67***	−0.07
	(0.03)	(0.05)	(0.03)	(0.04)	(0.02)	(0.05)	(0.02)	(0.05)
June 2020	−0.12***	−0.24***	−0.30***	−0.03	−0.09***	−0.17***	−0.20***	0.07*
	(0.03)	(0.04)	(0.03)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)
July 2020	−0.09***	−0.16***	−0.28***	0.12***	−0.08***	−0.12***	−0.22***	0.19***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.02)	(0.04)	(0.02)	(0.04)
Aug 2020	−0.02	−0.23***	−0.22***	0.12***	0.00	−0.16***	−0.16***	0.17***
	(0.03)	(0.04)	(0.03)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)
Sep 2020	0.13***	−0.19***	−0.06**	0.09**	0.13***	−0.14***	−0.01	0.15***
	(0.03)	(0.04)	(0.03)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)
Oct 2020	0.20***	−0.16**	−0.01	0.17***	0.22***	−0.09**	0.05**	0.21***
	(0.03)	(0.04)	(0.03)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)
Nov 2020	0.07**	−0.13***	−0.09***	0.10***	0.06***	−0.12***	−0.05***	0.14***
	(0.03)	(0.04)	(0.03)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)
Dec 2020	0.19***	−0.15***	0.02	0.09**	0.19***	−0.12***	0.07***	0.11***
	(0.03)	(0.04)	(0.03)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)
Product-State-Month FE	✓		✓		✓		✓	
Additional Controls ($\mathbb{X}_{kr,my}$)	✓		✓					
N	315280		315882		315280		315882	

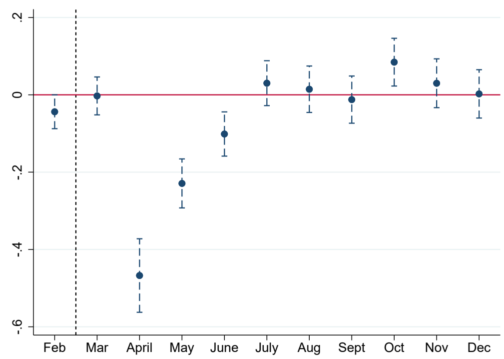
Notes: Columns (1)-(2), (3)-(4), (5)-(6) and (7)-(8) show results from the estimated Equation 6 after dropping product$\times$month$\times$year fixed effects. Columns with heading π_1^τ show the overall impact on the dependent variable in each month in the year 2020 with January 2020 as the base, relative to change between the same months in 2019. Columns (2) and (4) with heading π_2^τ show the heterogeneous impact on the dependent variable, by product level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. Columns (6) and (8) with heading π_2^τ show the heterogeneous impact on the dependent variable, by product level Scope for Home Expansion (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. We include a set of products in a state for which total sales information is available for every month. Additional controls: Columns (1)-(4) include interaction of each month in 2020 with product Inter-state Receivables Fraction (2019). All specifications include plant-month and year fixed effects. The number of observations (N) are the effective observations used in estimation after including all the fixed effects. Clustered standard errors (at product-state level) in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

B.3 Impact on Total Product Sales

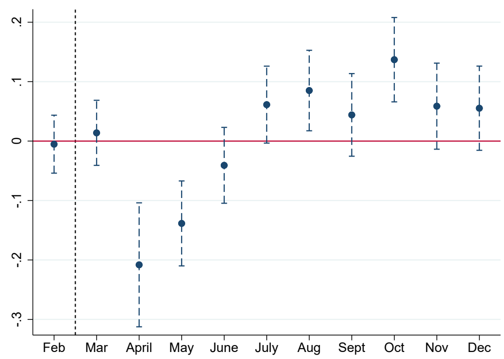
We plot the impact on total product sales by inter-state sales dependence and *SHE* in Figure B.4, Panels (a) and (b) respectively, by estimating Equation 6 with total product sales as the dependent variable. Comparing the two panels we find that total sales fall relatively more in April 2020 for products having higher inter-state sales dependence and *SHE*. This is because the relative fall in inter-state sales is higher than the relative gain in intra-state sales for these products immediately post-lockdown. However, the relative decline in total sales is lower in Panel (b) (point estimate is -0.2) than in Panel (a) (point estimate is -0.5). Therefore, the total sales of products with high $SHE_{kr,2019}$ suffer less immediately after the lockdown. This is primarily on account of higher intra-state sales that help improve total sales for high $SHE_{kr,2019}$ products (Panel (b) in Figure 8). In fact, Figure B.4, Panel (b) shows that products with higher $SHE_{kr,2019}$ witness a relatively higher increase in total sales in the later months of 2020. The point estimates give $0.1 \times 0.26 \times 100 = 2.6$ percent increase in total sales for one-standard-deviation increase in $SHE_{kr,2019}$ until the end of 2020. Similar increase is absent for products that only have high inter-state dependence (Panel (a)). It again demonstrates the relevance of *SHE* measure in aiding reshoring.

Figure B.4: Impact on Total Product Sales

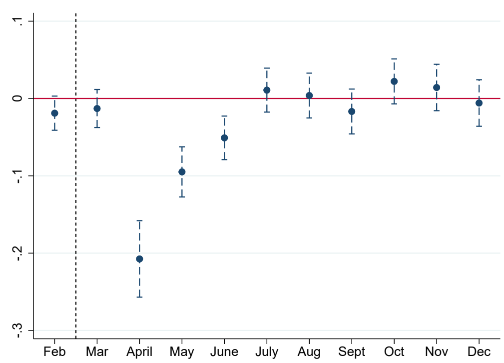
(a) By Inter-state Sales Fraction



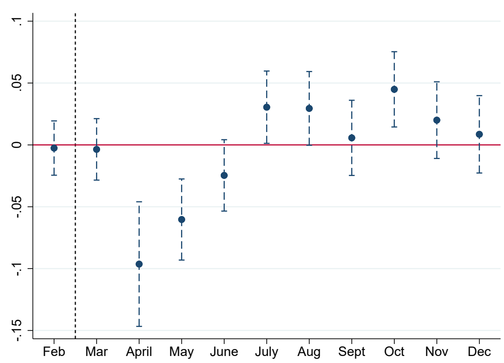
(b) By Scope for Home Expansion



(c) By Above Median Inter-state Sales Fraction



(d) By Above Median Scope for Home Expansion



Notes: The dependent variable in all panels is total product sales. The figure in Panel (a) plots the monthly coefficients (π_2^τ in Equation B.3) for the heterogeneous impact on log of total sales of a product originating in a state by product-state level Inter-state Sales Fraction (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The regression additionally controls for the heterogeneous impacts of product-state level Inter-state Receivables Fraction (2019). The figure in Panel (b) plots the monthly coefficients (π_2^τ in Equation 6) for the heterogeneous impact on log of total sales of a product originating in a state by product-state level Scope for Home Expansion measure (2019), for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. Panel (c) also plots coefficients π_2^τ in Equation B.3 but instead of $f_{kr,2019}^{sales}$ in Equation B.3 we use an indicator variable $\mathbb{1}(f_{kr,2019}^{sales} > f_{Md}^{sales})$ and plot its coefficients. Panel (d) also plots coefficients π_2^τ in Equation 6 but instead of $SHE_{kr,2019}$ in equation 6 we use an indicator variable $\mathbb{1}(SHE_{kr,2019} > SHE_{Md})$ and plot its coefficients. The regressions include a balanced set of products in a state for which total sales information is available for every month. All specifications include product×state×month and product×month×year fixed effects. The standard errors are clustered at product-state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

B.4 Role of Industrial Concentration

Spatial concentration across industries can potentially impact reshoring. For instance, lower concentration can make reshoring difficult as there would be many producers in the market. At the same time, higher concentration can reflect certain industrial characteristics like those where scale economies are important or technology intensive industries where unmet consumer demand within the home market may be smaller. Thus, concentration can have ambiguous effects on reshoring. We conduct three tests to explore whether spatial concentration matters for reshoring. Each test employs a different approach to construct the spatial concentration measure.

First, we use plant-level total sales (sum of inter- and intra-sales) in 2019 in E-way Bills plant data to construct Herfindahl-Hirschman Index (HHI) at 5-digit NIC-state level. This gives a pre-shock measure of spatial concentration in production. We use the below specification to test for heterogeneity in reshoring on account of spatial concentration:

$$\begin{aligned} ln(z^c_{ijr,my}) = & \sum_{\tau \in (m2020)} \gamma_2^{\tau,c}(\mathbb{1}_m \times \mathbb{1}_{2020} \times f^c_{ir,2019}) \\ & + \sum_{\tau \in (m2020)} \gamma_3^{\tau,c}(\mathbb{1}_m \times \mathbb{1}_{2020} \times HHI_{jr,2019}) \\ & + \sum_{\tau \in (m2020)} \gamma_4^{\tau,c}(\mathbb{1}_m \times \mathbb{1}_{2020} \times f^c_{ir,2019} \times HHI_{jr,2019}) + \mathbb{1}_{2020} \times f^c_{ir,2019} \\ & + \mathbb{1}_{2020} \times HHI_{jr,2019} + \delta^c_{ir,m} + \delta^c_{j,my} + \mathbb{X}^c_{ir,my} + \varepsilon^c_{ijr,my} \end{aligned} \tag{B.4}$$

where $z^c_{ijr,my}$ is the outcome variable of interest, inter- or intra-state sales, for plant i belonging to sector j in state r for category c in month m of year y (here $c = Sales$). $HHI_{jr,2019}$ is the Herfindahl-Hirschman Index for industry j in state r in 2019. The other control variables and fixed effects are the same as in our main specification 2 in the paper.

The results are reported in Figure B.5. Panel (a) plots $\gamma_2^{\tau,c}$ which show the direct effect of inter-state sales dependence on inter- and intra-state sales. The estimates remain similar to the baseline results in the paper (Figure 2). Panel (b) plots the coefficients on the triple interaction terms ($\gamma_4^{\tau,c}$) and allows to check whether two firms with the same inter-state sales dependence, $f^c_{ir,2019}$, but operating in states with different industrial concentration reshore differently or not. All triple interaction terms in this regression are insignificant and show no difference in reshoring based on industrial concentration in the state. There is sufficient variation in the HHI measure with an average of 0.77 and standard deviation of 0.29, showing that these results indeed capture no effect of concentration on reshoring.

Our next indicator captures the industry concentration of sales within the home market vs. other states. We define Industrial Intra-state Sales Fraction (2019) as the ratio of total intra-state sales of an industry over the total production of that industry in a given state in the E-way Bills data. We estimate a similar specification as Equation B.4 for testing heterogeneity based on industrial intra-state sales fraction (instead of *HHI*) and report the estimates in Figure B.5, Panels (c) and (d). Our results corresponding to the coefficient on $f^c_{ir,2019}$ remain robust in Panel (c). $\gamma_4^{\tau,c}$ coefficients corresponding to the triple interaction terms are insignificant (Panel (d)).

We further assess the robustness of *SHE* results to spatial concentration. At the product-level we do not observe the firm identity and cannot construct the HHI measure from E-way Bills data. We instead use the Annual Survey of Industries (ASI) from 2018-19 to construct pre-shock measure of product-state level HHI at 4-digit HS. This *HHI* measure has a mean value of 0.62 with a standard deviation value of 0.32. We estimate the below equation:

$$\begin{aligned} ln(z_{kr,my}) = & \sum_{\tau \in (m2020)} \pi_2^\tau (\mathbb{1}_m \times \mathbb{1}_{2020} \times SHE_{kr,2019}) \\ & + \sum_{\tau \in (m2020)} \pi_3^\tau (\mathbb{1}_m \times \mathbb{1}_{2020} \times HHI_{kr,2019}) \\ & + \sum_{\tau \in (m2020)} \pi_4^\tau (\mathbb{1}_m \times \mathbb{1}_{2020} \times SHE_{kr,2019} \times HHI_{kr,2019}) \\ & + \mathbb{1}_{2020} \times SHE_{kr,2019} + \mathbb{1}_{2020} \times HHI_{kr,2019} + \delta_{kr,m} + \delta_{k,my} + \varepsilon_{kr,my} \end{aligned} \tag{B.5}$$

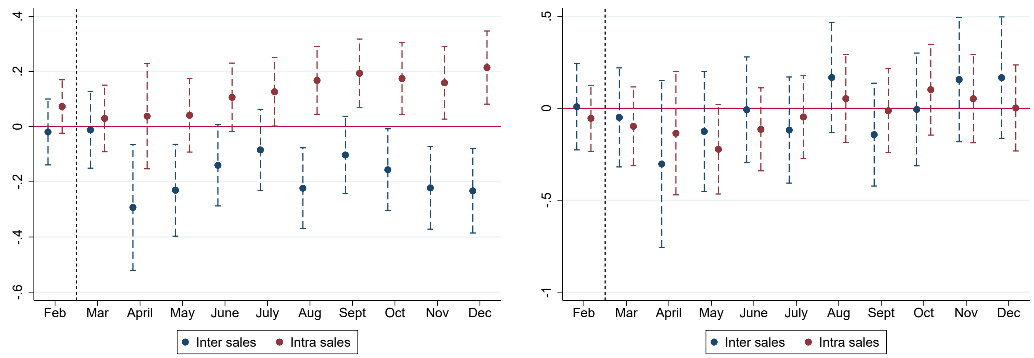
We report the results in Figure B.6. The direct effect of *SHE* on sales $((\pi_2^\tau))$ remains robust (Panel (a)). We find no persistent effect due to *SHE*$\times$ HHI as the interaction terms (π_4^τ) mostly remain insignificant in Panel (b).

These tests collectively provide evidence that spatial concentration does not significantly alter the observed reshoring patterns. This could be due to the ambiguity regarding the expected impact of spatial concentration on plant reshoring. Furthermore, the lack of explanatory power of spatial concentration may be attributed to the fact that it continues to be a supply side measure and does not incorporate the demand side effects as encapsulated under the *SHE* measure.

Figure B.5: Plant Reshoring and Industry Concentration (Heterogeneity by Sales Fraction and HHI)

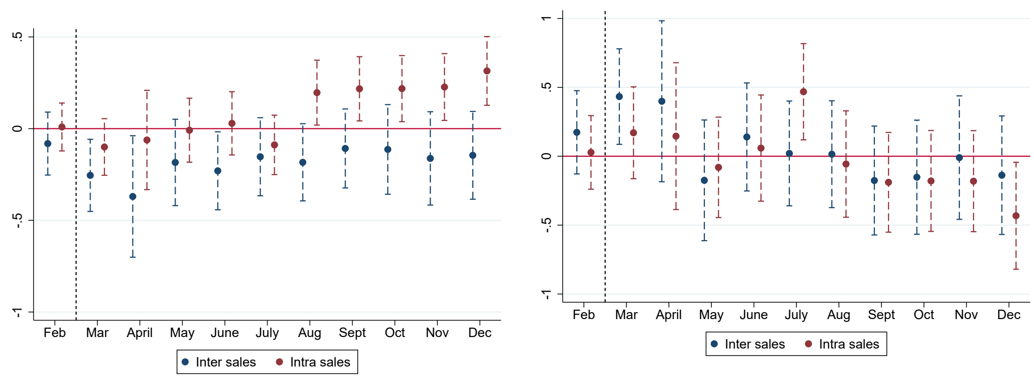
(a) Sales: By Inter-state Sales Fraction (controlling for HHI)

(b) Sales: By Inter-state Sales Fraction × HHI



(c) Sales: By Inter-state Sales Fraction (controlling for Industrial Intra-Sales Fraction)

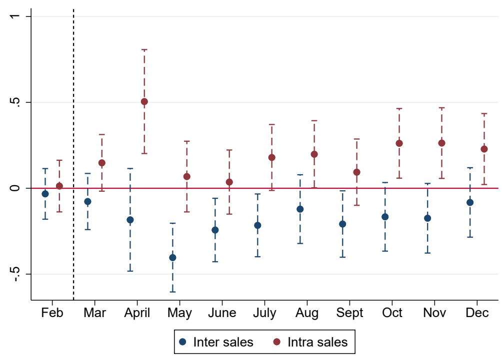
(d) Sales: By Inter-state Sales Fraction × Industrial Intra-Sales Fraction



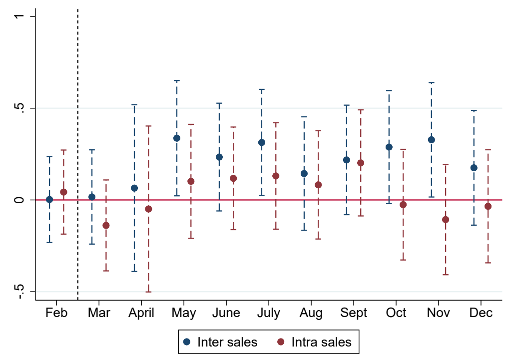
Notes: The figures in Panels (a) and (b) plot the monthly coefficients $\gamma_2^{\tau,c}$ and $\gamma_4^{\tau,c}$ in Equation B.4 for the impact on log of inter-state sales and intra-state sales by plant-level Inter-state Sales Fraction (2019) and the heterogeneity in this impact by industry-state level Herfindahl-Hirschman Index (HHI) constructed using total plant sales data from 2019, respectively. The figures in Panels (c) and (d) plot the monthly coefficients $\gamma_2^{\tau,c}$ and $\gamma_4^{\tau,c}$ in Equation B.4 for the impact on log of inter-state sales and intra-state sales by plant-level Inter-state Sales Fraction (2019) and the heterogeneity in this impact by industry-state level Intra-state Sales Fraction, again constructed using total plant sales data from 2019. All specifications include plant×month and sector×month×year fixed effects. We additionally control for heterogeneous impacts of plant-level Inter-state Inputs fraction (2019) for every month in 2020. The regressions include a set of plants for which total sales information is available for every month. The standard errors are clustered at plant level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

Figure B.6: Product Reshoring and Concentration (Heterogeneity by *SHE* and HHI)

(a) Sales: By SHE (controlling for HHI)



(b) Sales: By SHE × HHI



Notes: The figures in Panels (a) and (b) plot the monthly coefficients π_2^τ and π_4^τ in Equation B.5 for the impact on log of inter-state and intra-state sales of a product originating in a state by product-state level Scope for Home Expansion and the heterogeneity in this impact by Herfindahl-Hirschman Index (HHI) 2019, respectively. These are plotted for every month in 2020 with January 2020 as the base month, relative to change between the same months in 2019. The product-state level Scope for Home Expansion (2019) is defined as the minimum of Inter-state Sales Fraction (2019) and Inter-state Receivables Fraction (2019). The product-state level HHI is constructed using data from Annual Survey of Industries (ASI) 2019 at HS 4 digit level. The regressions include a set of products in a state for which total sales information is available for every month. All specifications include product×state×month and product×month×year fixed effects. The standard errors are clustered at product-state level and 95% confidence intervals are plotted. The vertical line corresponds to the first national lockdown in India.

B.5 Additional Discussion: *SHE*

This section provides additional results on the *Scope for Home Expansion (SHE)* measure. We first discuss the functional form choice for the *SHE* measure in Equation 5. The rationale behind using the minimum function is rooted in capturing the binding constraint in reshoring possibility. To illustrate, let's consider a case of a particular product produced in a given state. This product has 20 units of inter-state sales and 40 units of sales within the home state in 2019. Additionally, 10 units are sourced from outside the state. Thus, according to our construction $f^{sales}_{kr,2019} = 20/(20+40) = 1/3$ and $f^{receivables}_{kr,2019} = 10/(10+40) = 1/5$. Now, if this state wants to reshore its production, it can only do so by redirecting sales of 10 units from inter-state towards the home state – as the local demand that opens up is only 10 (which was earlier sourced from outside the home state). Hence, it cannot absorb the entire 20 units of production that were being sold inter-state. Our measure indicates that this product-state pair has the below scope for home expansion:

$$SHE_{kr,2019} = min[1/3, 1/5] = 1/5$$

where the min function captures this discontinuity due to the binding constraint operating either from the demand side (as in the example above) or from the supply side. Other functional forms are not suitable here if they cannot capture this specific nature of the binding constraint. Let us elaborate this with the mean function:

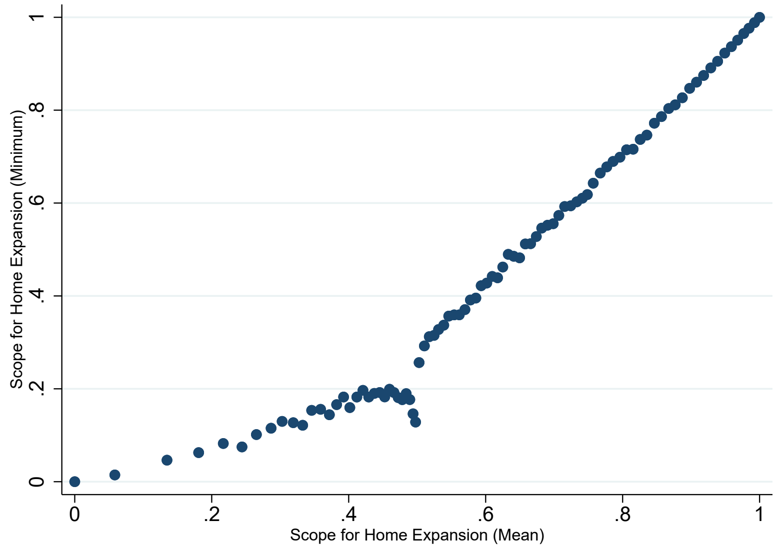
$$SHE^{avg}_{kr,2019} = mean[1/3, 1/5] = 8/30 = 1.33/5.$$

The above measure constructed using the mean function is not a good proxy of how much reshoring can be done as in our example the constraint on the extent of reshoring comes from home demand. Intuitively, demand equates supply at the minimum of these two, and not at the average of demand and supply. While the above example delineates why the minimum function might be more appropriate for calculating *SHE*, if $f^{sales}_{kr,2019}$ and $f^{receivables}_{kr,2019}$ are similar in magnitude, then both minimum and mean functions would be highly correlated. The resulting *SHE* calculated using minimum or mean could therefore be similar in such cases.

In our data, we find that correlation between the *SHE* calculated using these two functions is 0.93. The binscatter plot in Figure B.7 shows divergence between min and mean functions for min-based $SHE_{kr,2019}$ values less than 0.2. As discussed above, when $f_{kr,2019}^{sales}$ and $f_{kr,2019}^{receivables}$ are disparate, the smaller fraction of the two will be binding in the minimum function. For larger values of min-based $SHE_{kr,2019}$, the min and mean functions yield similar SHE values, as both fractions are likely to be similar and large.

Second, we calculate the correlation of *SHE* measure with product elasticity to examine if there is any association between the two measures. We use the elasticity measure provided by Fontagné et al. (2022) and report the correlation with the *SHE* measure at 4-digit HS product-state level in Appendix Figure B.8, Panel (a). We find a weak relationship between the two measures with a correlation equal to 0.06. If we instead calculate average *SHE* at the product level across states and correlate with trade elasticity, the correlation increases to 0.22 (Panel (b)).

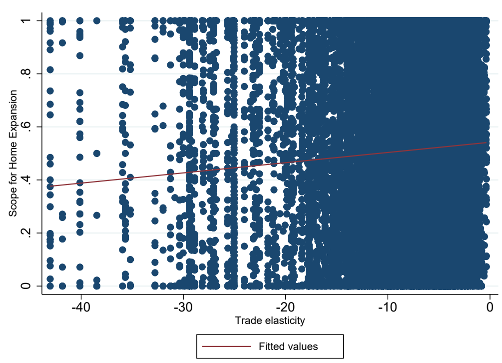
Figure B.7: *SHE* calculated using Mean vs. Min Function



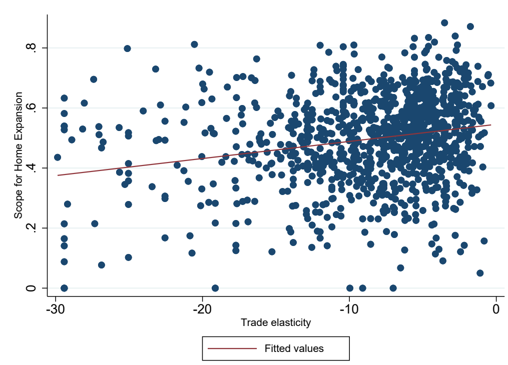
Notes: The figures gives the binscatter plot between *SHE* calculated using minimum and mean functions.

Figure B.8: *SHE* vs. Product Elasticity: Correlation

(a) *SHE* vs. Trade Elasticity



(b) *Average* Product *SHE* vs. Trade Elasticity



Notes: Panel (a) plots Scope for Home Expansion at (HS 4-digit) product×state level against Trade Elasticity. Panel (b) plots the elasticity against the average of Scope for Home Expansion for a given product. We use product level trade elasticity measure provided by Fontagné et al. (2022).

C Appendix: Model

We consider a model of firm input choice from intra-state and inter-state product varieties as in Gopinath and Neiman (2014). The firm uses all intra-state varieties and chooses an optimal number of inter-state varieties, as for the latter they have to pay fixed costs to import. Consider a home-state firm i which manufactures a unique good i and uses the following production technology:

$$Y_i = A_i L_{p,i}^{1-\mu} X_i^{\mu} \tag{C.1}$$

where A_i is the productivity of firm i, $L_{p,i}$ is the labor used for production and X_i is the intermediate input. $1-\mu$ and μ gives the share of labor and intermediate inputs in the production cost. X_i consists of intra-state inputs Z_i and inter-state inputs M_i, combined together through a CES aggregator:

$$X_i = \left[Z_i^{\rho} + M_i^{\rho} \right]^{\frac{1}{\rho}}. \tag{C.2}$$

$1/(1-\rho)$ is the elasticity of substitution between intra-state and inter-state varieties. Both Z_i and M_i are based on CES aggregation of intra-state and inter-state varieties, respectively:

$$Z_i = \left[\int_j z_{ij}^{\theta} dj \right]^{\frac{1}{\theta}} \quad , \quad M_i = \left[\int_{k \in \Omega_i} m_{ik}^{\theta} dk \right]^{\frac{1}{\theta}}. \tag{C.3}$$

We assume elasticity of substitution to be same and equal to $1/(1-\theta)$ over the bundles. z_{ij} is the set of intra-state inputs j and m_{ik} is the set of inter-state inputs k. Firm i only imports a set Ω_i of the available inter-state varieties. Adding varieties to the inter-state input bundle is costly and a function of fixed costs given by:

$$F(|\Omega_i|) = f|\Omega_i|^{\lambda} \tag{C.4}$$

where $f > 0, \lambda > 0$. The fixed costs are increasing in number of inter-state varieties imported and paid in terms of labor units, $L_{f,i}$.

Finally, output from each firm i is used for final good production as well as intermediate input by other firms:

$$Y_i = g_i + z_i = g_i + \int_j z_{ji} dj. \tag{C.5}$$

The aggregate final good $G = \left[\int_j g_i^\theta di\right]^{\frac{1}{\theta}}$ is the CES aggregator over all goods produced domestically.

All firms in the economy are monopolistically competitive and take the input prices as given to solve their production problem. Firm i takes wages w, set of intra-state prices p_j, and inter-state prices as given. It chooses labor $L_{p,i}$, the intra-state nputs z_{ij}, the number of inter-state inputs Ω_i and their amount m_{ik}. The price of inter-state inputs is p_m and is the same for all varieties, which also makes m_i same across all $k.p_m$ is inclusive of the per-unit iceberg trade cost as well as price increase that accommodates uncertainty in arrival of good. If the uncertainty goes up, p_m goes up. For instance, in the baseline case assume zero uncertainty and trade costs. In this case one has to ship one unit of inter-state input to receive one unit. In case uncertainty increases, it requires shipment of more than one units to receive one unit for production. The unit cost function of the firm is given by:

$$C_i = \frac{1}{\mu^\mu (1-\mu)^{(1-\mu)}} \frac{w^{1-\mu} P_{X_i}^\mu}{A_i}. \tag{C.6}$$

Here P_{X_i} is the price index of the intermediates for firm i:

$$P_{X_i} = \left[P_Z^{\frac{\rho}{\rho-1}} + P_{M_i}^{\frac{\rho}{\rho-1}}\right]^{\frac{\rho-1}{\rho}}. \tag{C.7}$$

The home-state and inter-state input price indices are given by:

$$P_Z = \left[\int_j p_i^{\frac{\theta}{\theta-1}} di\right]^{\frac{\theta-1}{\theta}} \quad , \quad P_{M_i} = \left[\int_k p_m^{\frac{\theta}{\theta-1}} dk\right]^{\frac{\theta-1}{\theta}} = p_m |\Omega_i|^{\frac{\theta-1}{\theta}}. \tag{C.8}$$

The home-state price index P_Z is the same across all firms, while the inter-state price index varies depending on the number of inter-state varieties $|\Omega_i|$ used by i. The firm i charges a price given by C_i/θ. Finally firm i chooses the optimal number of varieties Ω_i to maximize its profits. Let us define the share of intra-state inputs out of both inter- and intra-state inputs as γ_i for the i-th firm. We can solve the model to obtain the following propositions.

Proposition 1: *If $\frac{\partial\, lnP_Z}{\partial\, lnp_m} < 1$ and $\frac{\partial\, ln\Omega_i}{\partial\, lnp_m} < 0$, an increase in uncertainty captured by an increase in inter-state input price p_m, increases the share of domestic inputs in total inputs for firm i.*

This proposition follows from evaluating the elasticity of γ_i w.r.t. p_m:

$$\frac{\partial\, ln\gamma_i}{\partial\, lnp_m} = \frac{\rho(1-\gamma_i)}{1-\rho}\left[1 - \frac{\partial\, lnP_Z}{\partial\, lnp_m} + \frac{\theta-1}{\theta}\frac{\partial\, ln\Omega_i}{\partial\, lnp_m}\right] > 0. \tag{C.9}$$

The relative share of intra-state inputs γ_i would increase after an increase in p_m under two sufficient conditions. First, the home-state price index should not rise quickly due to an increase in p_m, or $\frac{\partial\, lnP_Z}{\partial\, lnp_m} < 1$. Second, the number of inter-state varieties sourced (Ω_i) should fall with an increase in p_m, i.e., $\frac{\partial\, ln\Omega_i}{\partial\, lnp_m} < 0$. Next, we look at differential impact on firms based on γ_i.

Proposition 2: *Under $\frac{\partial\, lnP_Z}{\partial\, lnp_m} < 1$, $\frac{\partial\, ln\Omega_i}{\partial\, lnp_m} < 0$, and $\partial(\frac{\partial\, ln\Omega_i}{\partial\, lnp_m})/\partial\gamma_i > 0$, the shift to intra-state inputs is larger for firms with a higher dependence on inter-state intermediate inputs, after an increase in uncertainty captured by an increase in p_m.*

In Equation C.9, the elasticity of γ_i with respect to p_m directly depends on $(1-\gamma_i)$ i.e., the degree of inter-state input sourcing of a firm, and also implicitly through the terms within the square brackets. Formally, taking a derivative of Equation C.9 w.r.t. γ_i gives the sufficient conditions in Proposition 2 (Gopinath and Neiman, 2014). These results show that in response to a shock to the inter-state price, firms with higher inter-state input-sourcing will undertake greater reshoring, under three sufficient conditions. The first two conditions are the same as for Proposition 1. The third condition requires that firms with higher exposure to inter-state input-sourcing shrink their set of inter-state input varieties relatively more than firms with less exposure to inter-state input sourcing. Intuitively, Proposition 2 will hold if there is a larger fall in the number of varieties of a product sourced by firms which initially had a greater inter-state input dependence i.e., these firms contract their import bundles more in response to a given price shock.

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