Have the Clustered SMEs Performed Better Than the Non-clustered SMEs during the Pandemic? Evidence from Three Rounds of Surveys

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Motivation: Importance of SMEs

SMEs have significant impact (Little, 1987; Beck et al. 2005; Foghani et al. 2017)

- Economic growth
- Employment generation
- Rural non-farm growth
- Poverty reduction

In Bangladesh SMEs account for (BBS 2013)

- 50.9% of the country's industrial establishments
- 35.5% of industrial employment
- 47% of industrial gross value added

➔Government of Bangladesh places SMEs at the center of development strategies

Motivation: SMEs and COVID-19

- Early impact
- Bartik, A. W., Bertrand, M., Cullen, Z. B., Glaeser, E. L., Luca, M., & Stanton, C. T. (2020). *How are small businesses adjusting to covid-19? Early evidence from a survey* (No. w26989). National Bureau of Economic Research.

  - 5,800 small businesses in USA
  - Mass layoffs and closures have already occurred
  - Reduced their employee counts by 40 percent relative to January
  - Majority of businesses planned to seek funding through the CARES act.

- Fairlie, R. W. (2020). *The Impact of Covid-19 on Small Business Owners: Evidence of Early-Stage Losses from the April 2020 Current Population Survey* (No. w27309). National Bureau of Economic Research.

  - 22 percent of small business were inactive in April 2020
  - The number of active business down by 2.2 million or 15 percent from February 2020
  - Longer-term ramifications for job losses and economic inequality.
  - *African-American business owners hardest hit by COVID-19*

- Humphries, J. E., Neilson, C., & Ulyssea, G. (2020). The evolving impacts of COVID-19 on small businesses since the CARES Act. Cowles Foundation Working Paper, Yale U.
    - 8,000 small business owners in the U.S. March 28th - April 20th.
    - 60% had already laid off at least one worker.
    - *The smallest businesses had the least awareness of government assistance programs*
- Dai, R., Hu, J., & Zhang, X. (2020). The Impact of Coronavirus on China's SMEs: Findings from the Enterprise. IFPRI Working Paper.
    - 80 percent of surveyed firms had not resumed operations at the time of the survey, February 10
    - 20 percent of surveyed firms will be unable to last beyond a month on a cash flow basis
- India: UNIDO
    - 9-13 April, few thousands
    - *heterogeneity of impact (lockdown did not hamper production for rice mills)*
- Islam et al. (2020, BIGD)
    - *manufacturing vs. service*

Contribution to the literature

- Largely early impact ➔ medium term impact is missing!

➔ We study impact and recovery paths in 13 month horizon

- Significant heterogeneity in impact on small enterprises
  - Manufacturing vs. service
  - Essential vs. non-essential manufacturing
  - Size of the enterprise (within small firms)
  - Race of the owners
  - Gender of the owners

➔ We study another important source of heterogeneity: cluster vs. non-cluster SMEs

Why impacts would be different for the clustered SMEs from non-clustered SMEs?

- **Industries tend to agglomerate (Krugman, 1991, JPE)**
- Economies of scale
- **Benefits of agglomeration (Marshallian externalities)**

1. Sharing

- opportunity of sharing indivisible goods
- firms can share large machines, intermediate goods
-

2. Matching

- **Labor market matching and other inputs**
- the number job seekers and vacancies may be in equilibrium quicker than in a non-cluster area.
- a smaller proportion of inputs will remain idle within a cluster.

3. Learning

- facilitate knowledge spillovers
- transfer of technological and business knowledge can easily be done in cluster areas

Evidence on Marshallian Externalities

- Iqbal et al. (2018)

- Greater sharing of transport by clustered SMEs
- Access to non-labor inputs is much easier for the clustered SMEs
- SMEs learn from each other and this learning is higher for clustered SMEs (skill and business related knowledge)

Benefits from clusters: Country case studies

- India: (i) at the firm level from improved access to market centers, (ii) at the industry level from intra-industry localization economies, and (iii) at the regional level from inter-industry urbanization economies (Lall et al 2004, JDE)
- China: Through clustering an integrated production process can be divided into many incremental steps (Ruan and Zhang, 2009, EDCC)
- Peru, Clothing: Cost reductions and information spillovers are the dominant type of advantages (Visser, 1999, WD)
- China, blue jeans: role of local cluster in global value chains (Bair and Gereffi, 2001, WD]
- Nairobi, handicraft: Existence of important agglomeration economies but informality also introduces particular diseconomies of agglomeration (Harris, 2014, WD)

Our study

- The impact and recovery of SMEs in longer time frame

- How impact varies with clustered and non-clustered SMEs

- Coping strategies of the clustered and non-clustered SMEs (government's incentive package, other formal and informal loans, etc.)

Working sample

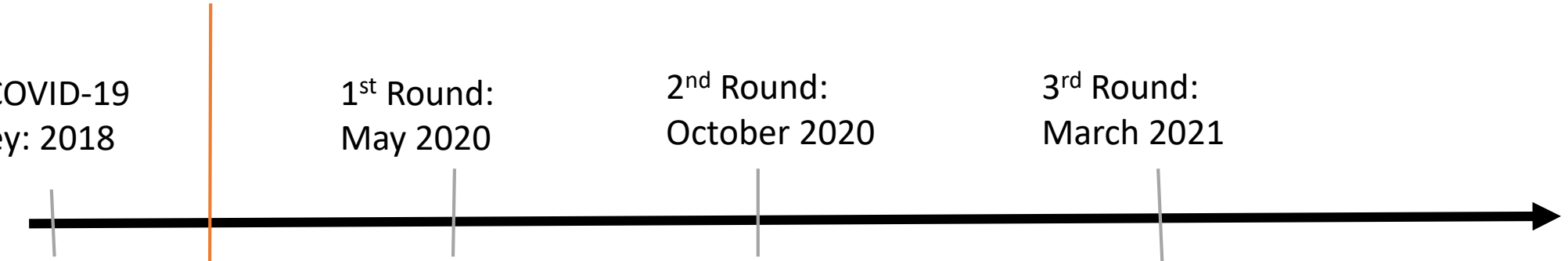
Rounds	Sample unit	Clustered SMEs	Non-Clustered SMEs
1st	Enterprises	150	150
	Workers	150	150
2nd	Enterprises	143 (4.66%)	146 (2.66%)
	Workers	140 (6.66%)	142 (5.33%)
3rd	Enterprises	143 (5%)	140 (6.66%)
	Workers	138 (8%)	137 (8.66%)

Note: Figures in the parentheses are the percentage change of sample size compared to the 1st round.

Survey and Sample

Data frequency: Monthly
Sample period: February 2020 –February 2021 (13 months)

First case of Covid-19: 8th March 2020



Pre-COVID-19 survey: 2018

Enterprises: 500
Clustered SMEs: 250
Non-clustered SMEs: 250

1st Round: May 2020

Enterprises:
Cluster: 150
Non-cluster:150
Workers
Cluster: 150
Non-cluster:150

2nd Round: October 2020

Enterprises:
Cluster:143
Non-cluster:146
Workers
Cluster: 140
Non-cluster:142

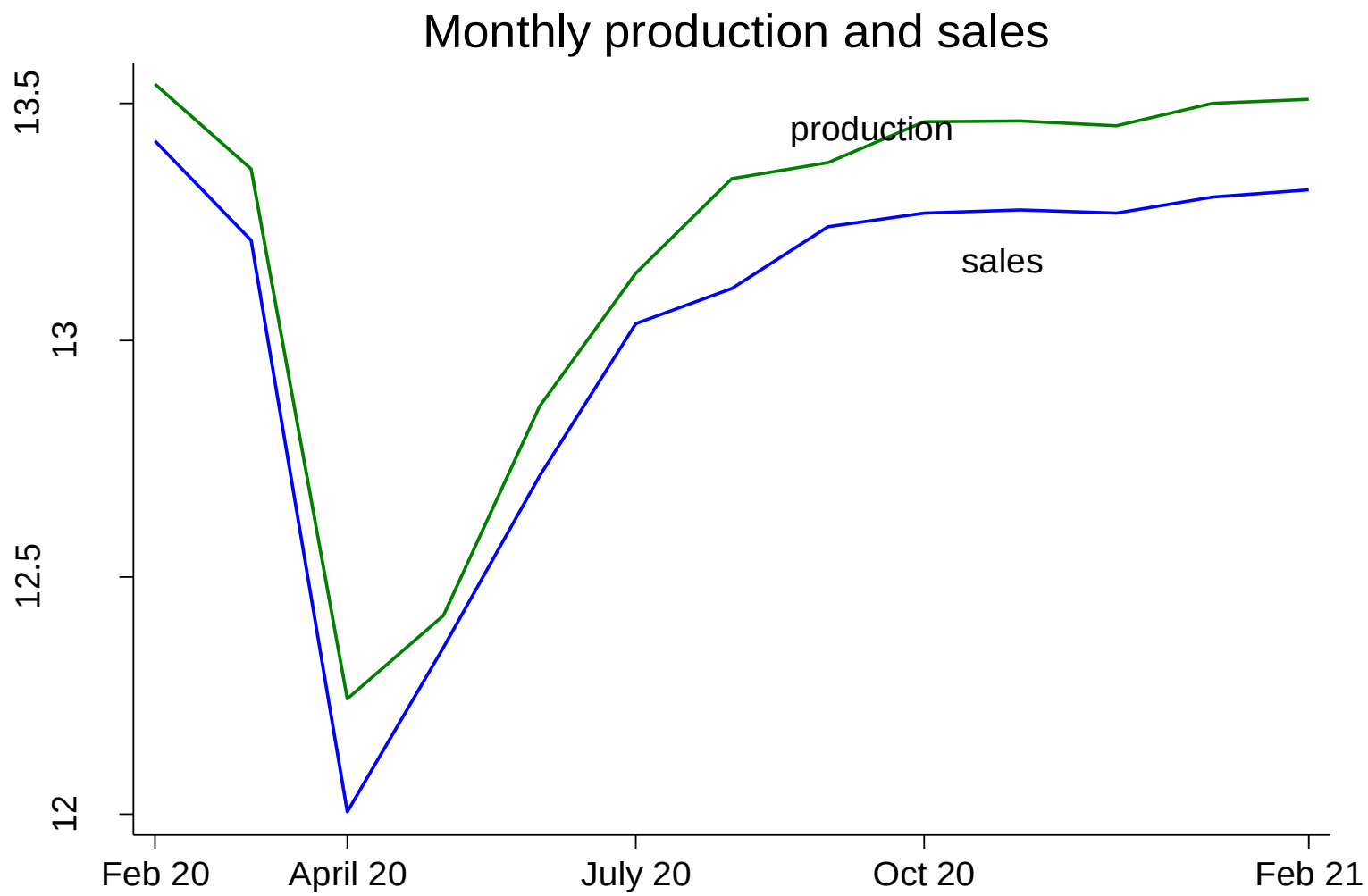
3rd Round: March 2021

Enterprises:
Cluster: 143
Non-cluster:140
Workers
Cluster: 138
Non-cluster:137

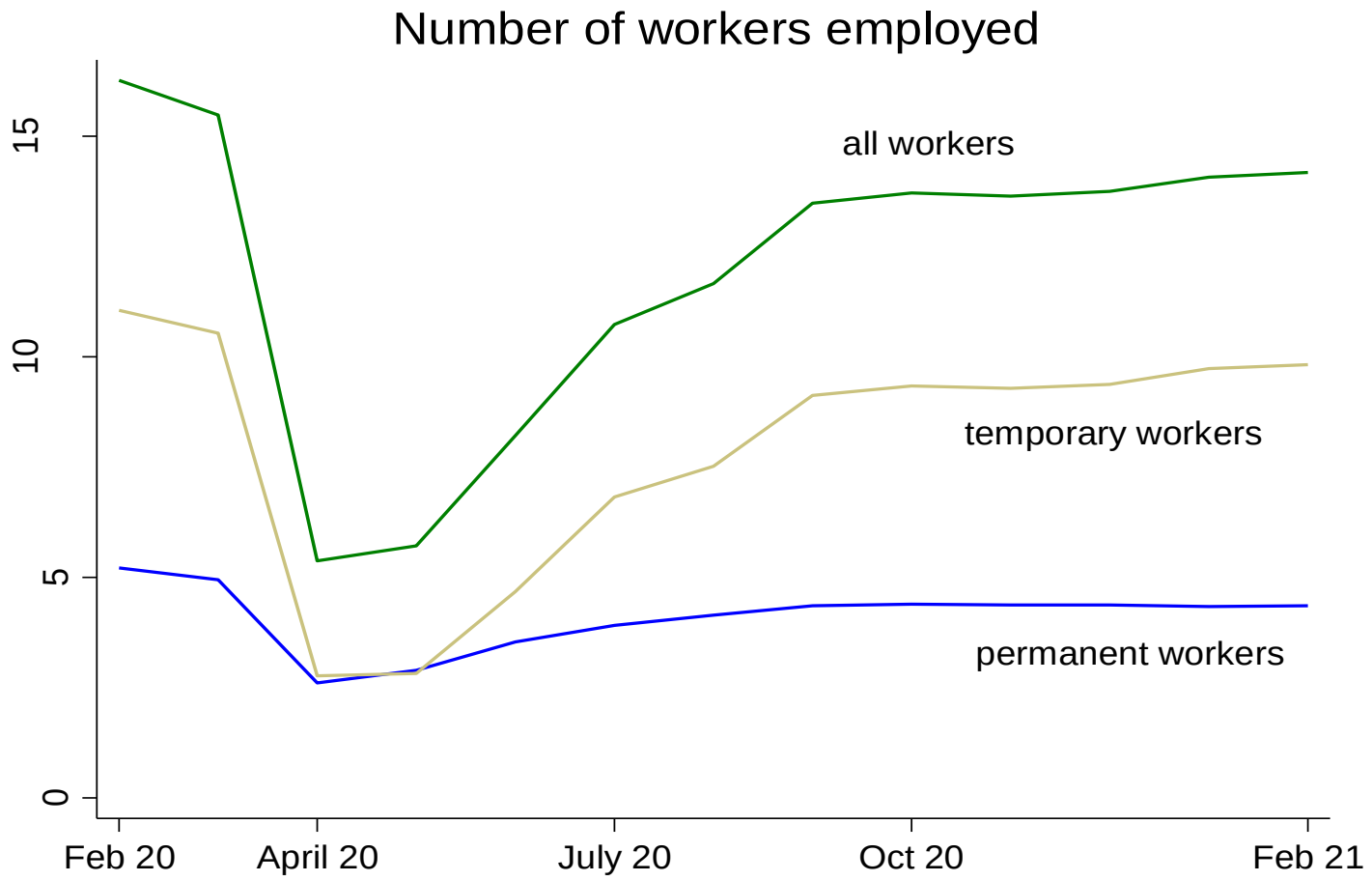
Face-to-face interview

Telephone interview

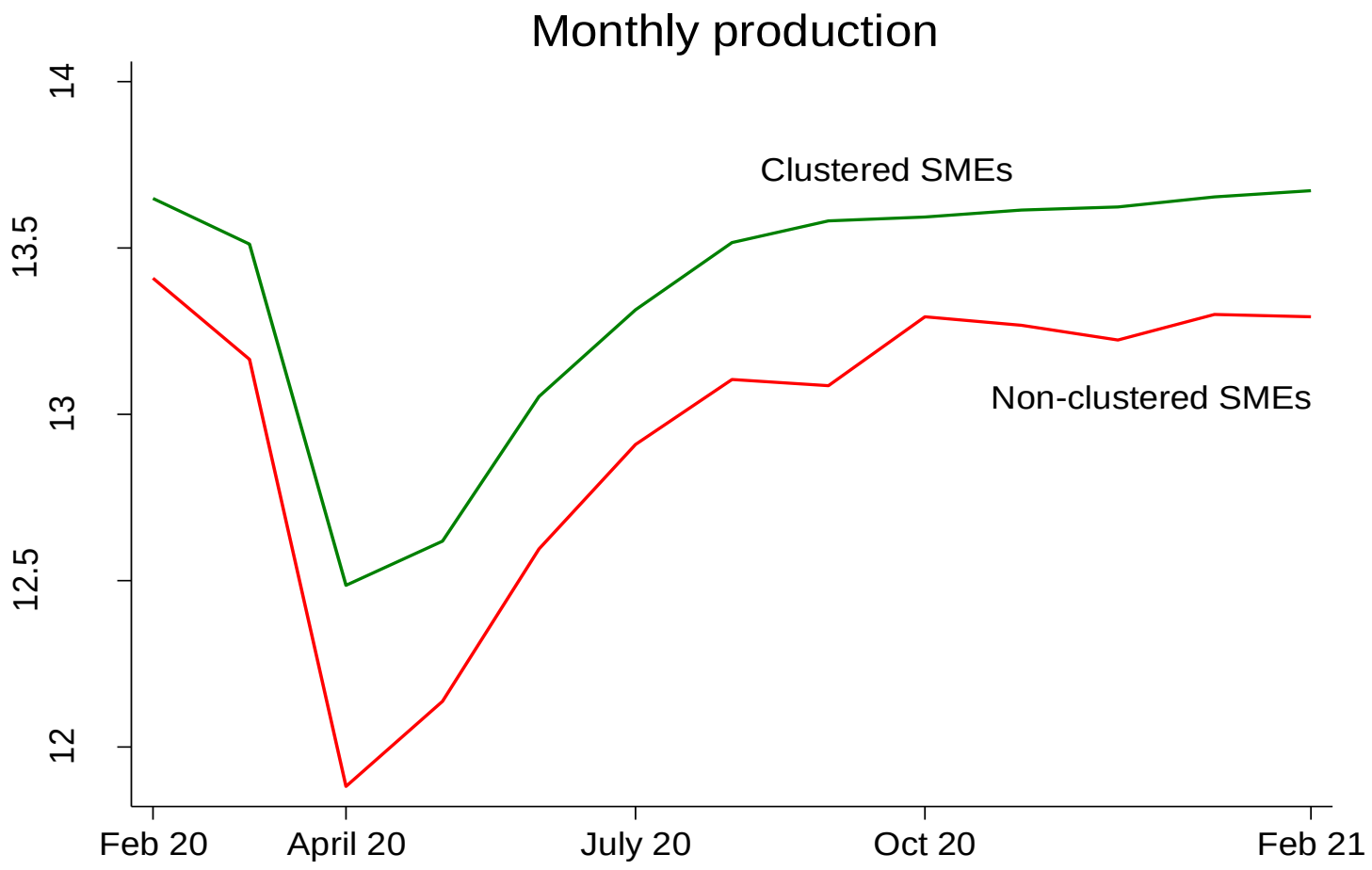
Full sample: production and sales



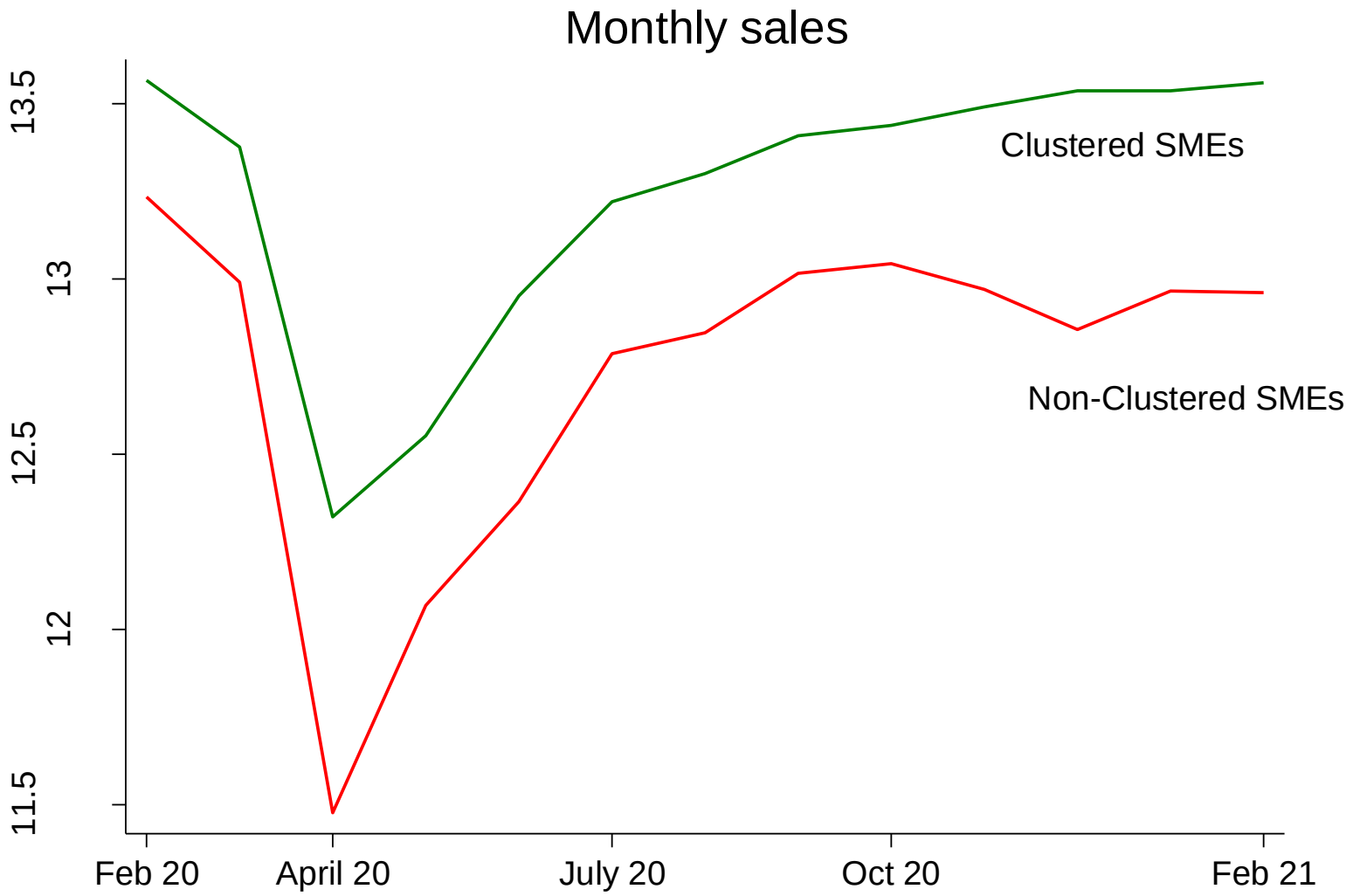
Full sample: employment



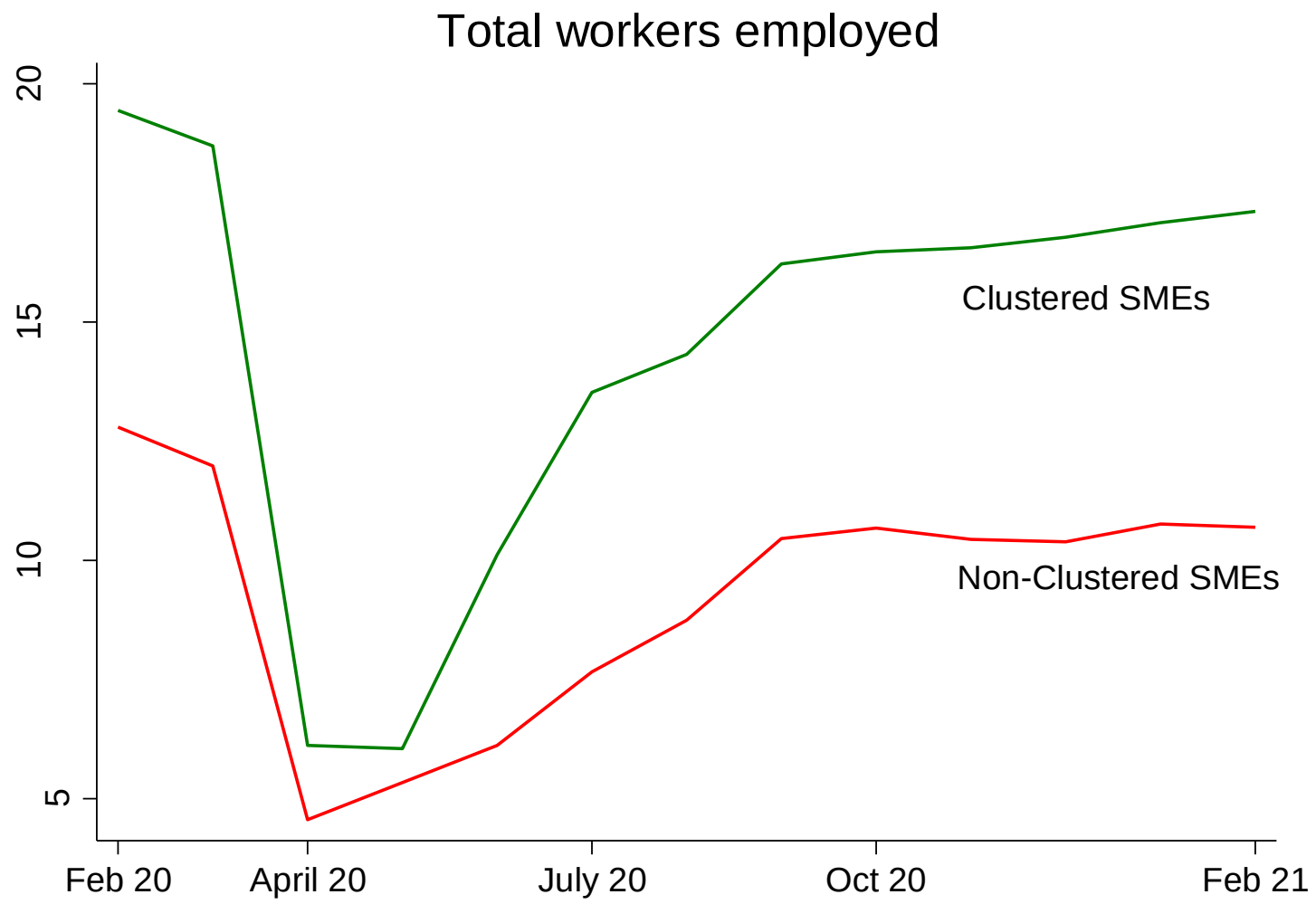
Clustered vs. non-clustered SMEs Production



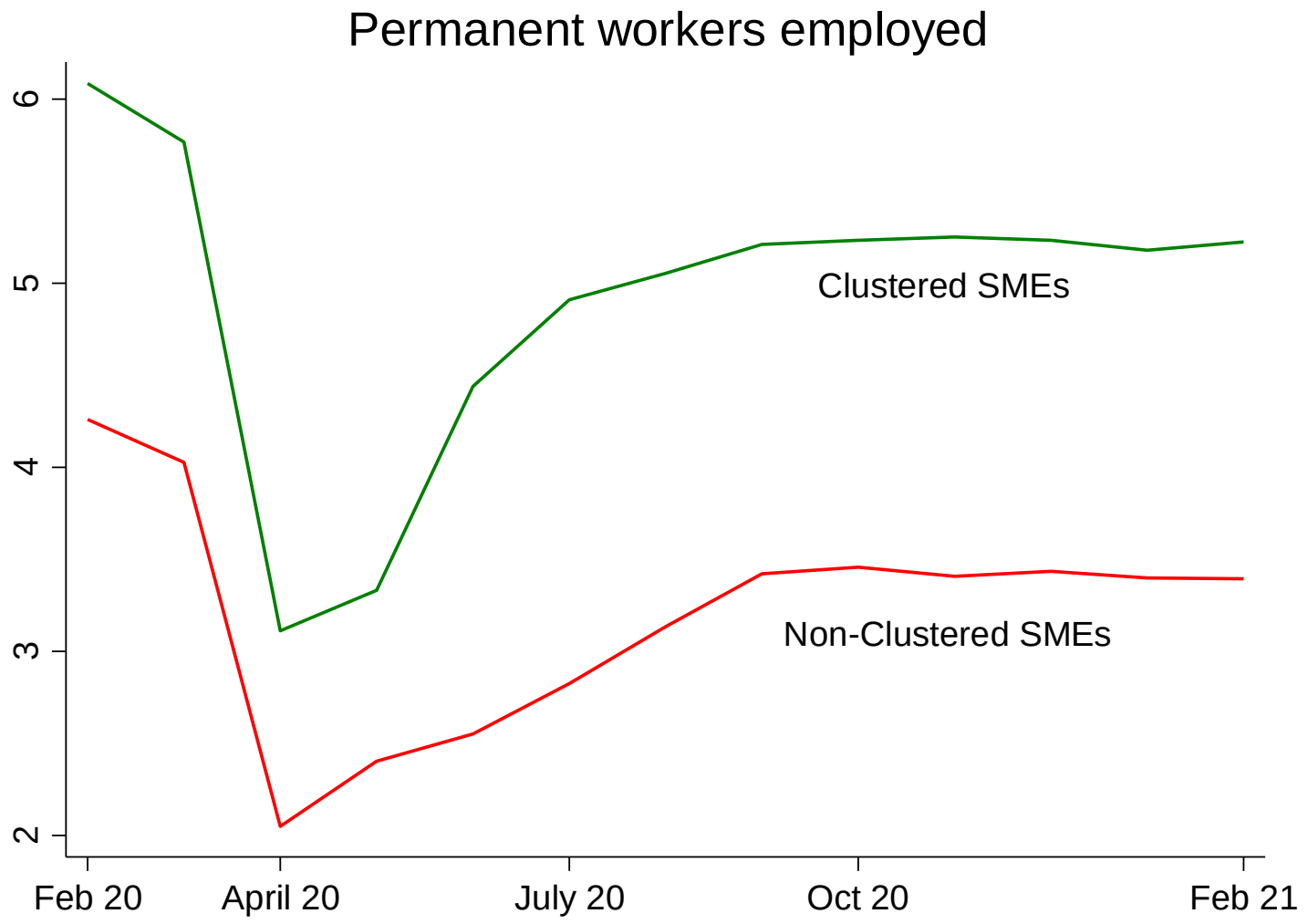
Sales: clustered vs. non-clustered SMEs



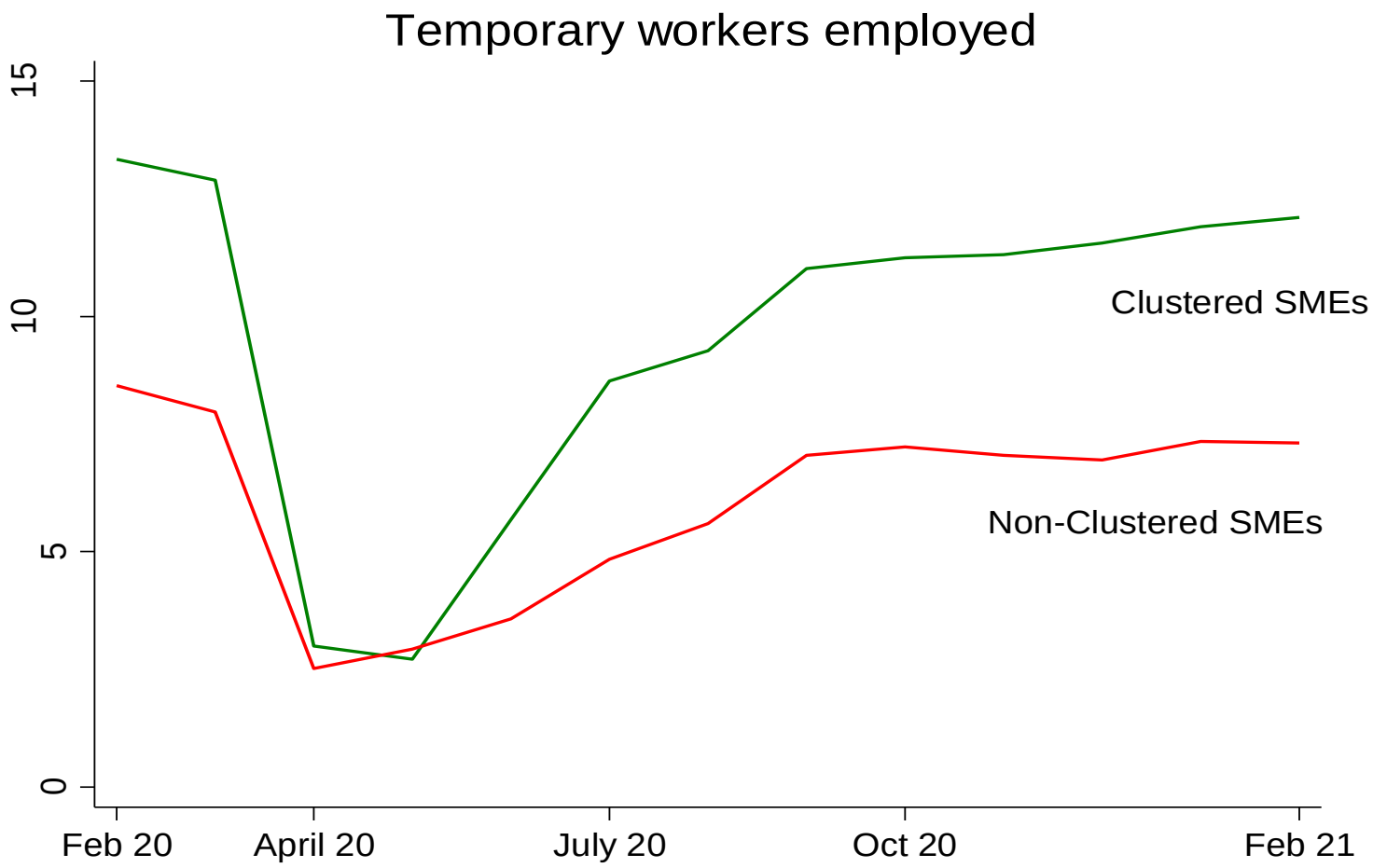
Total workers employed: clustered vs. non-clustered SMEs



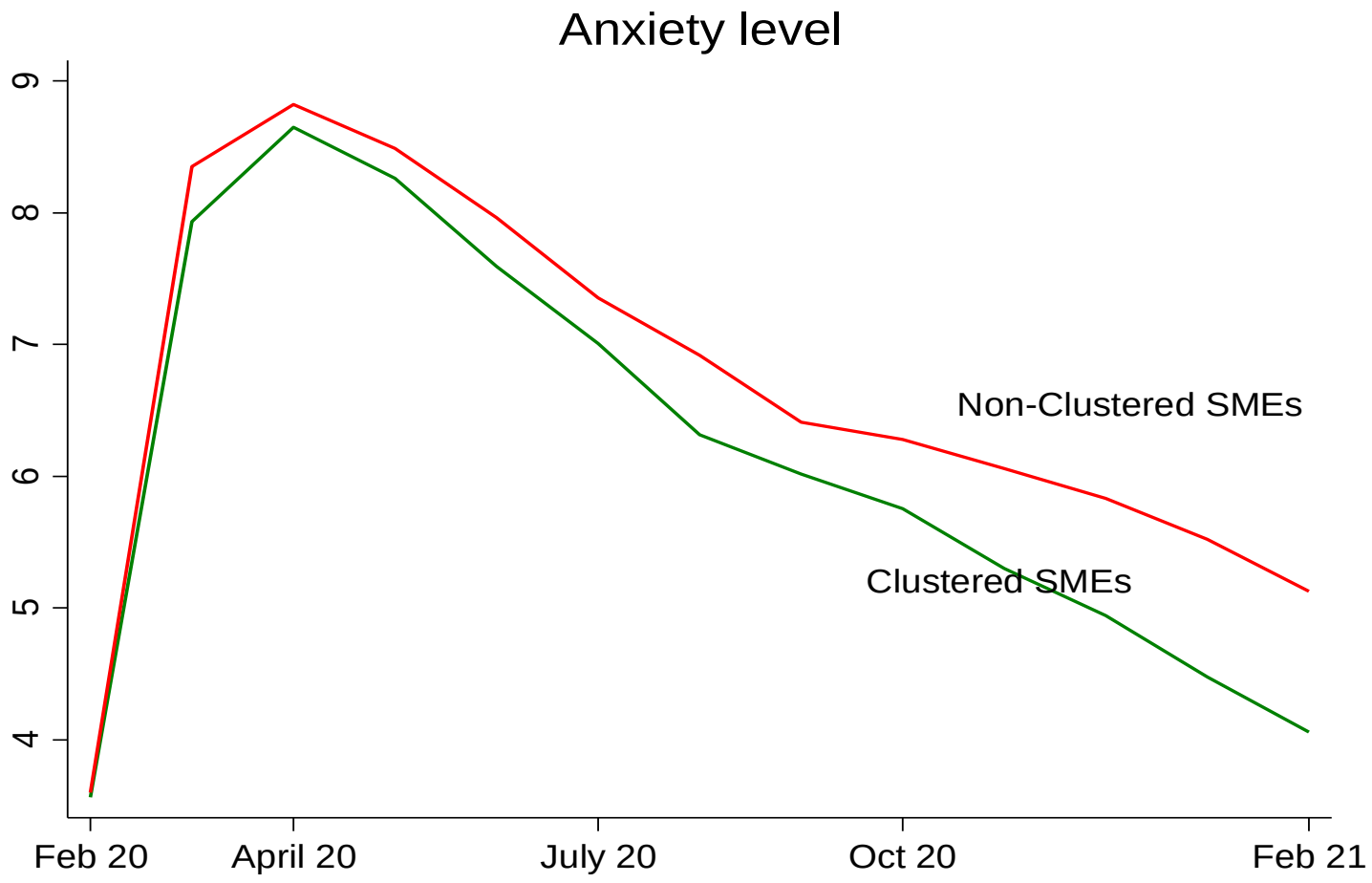
Permanent workers employed: clustered vs. non-clustered SMEs



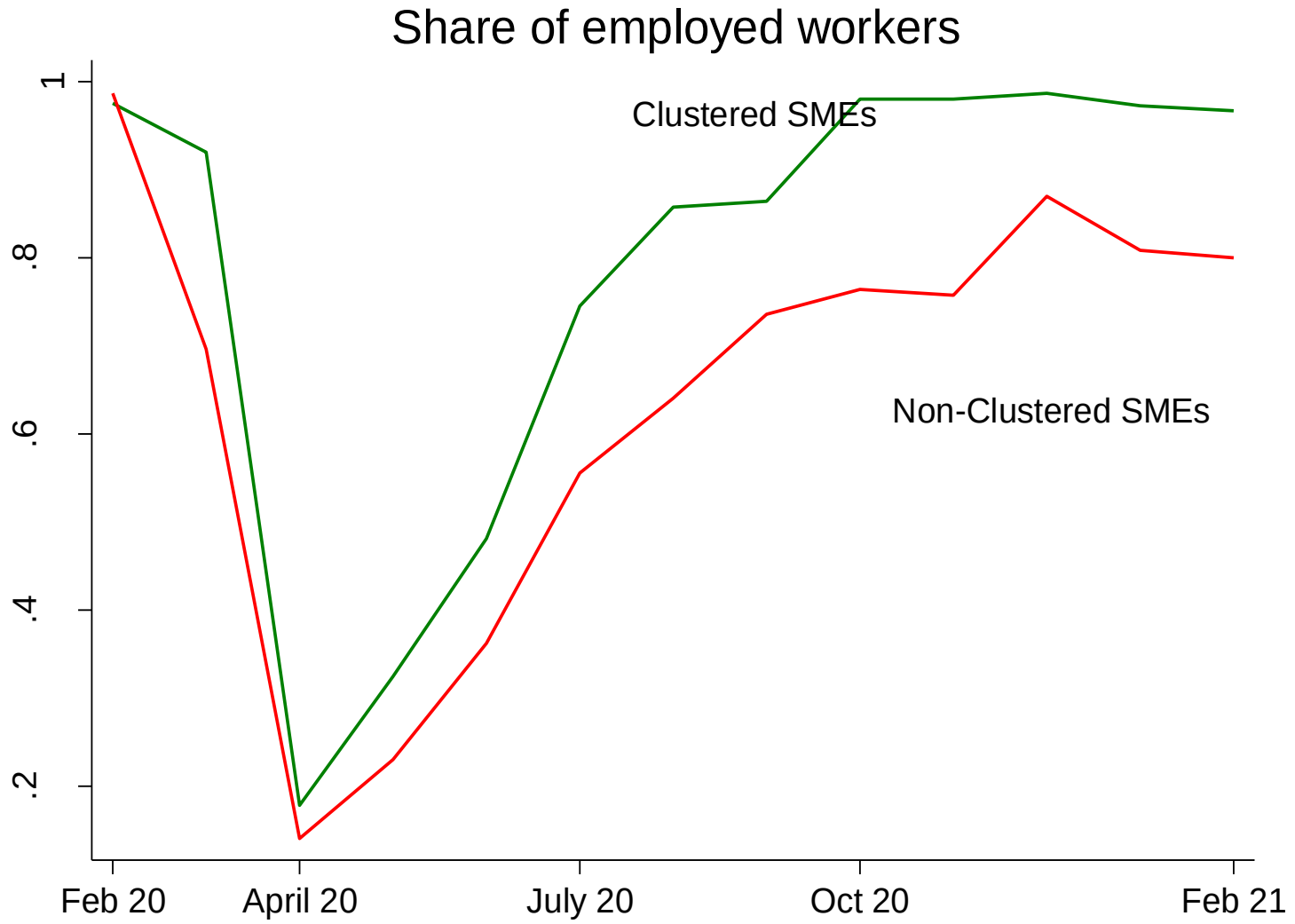
Temporary workers employed: clustered vs. non-clustered SMEs



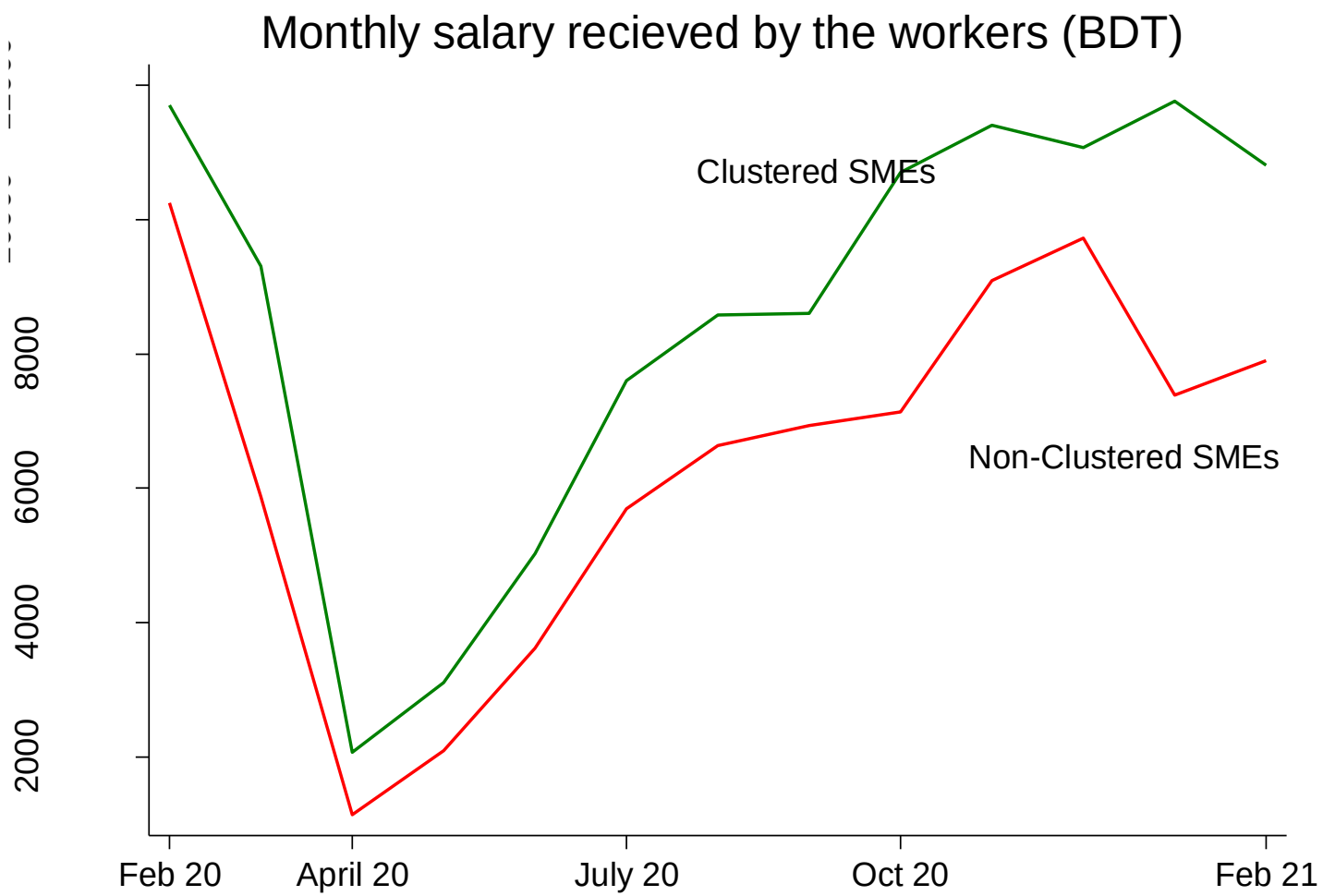
Level of anxiety of the owners/managers: clustered vs. non-clustered SMEs



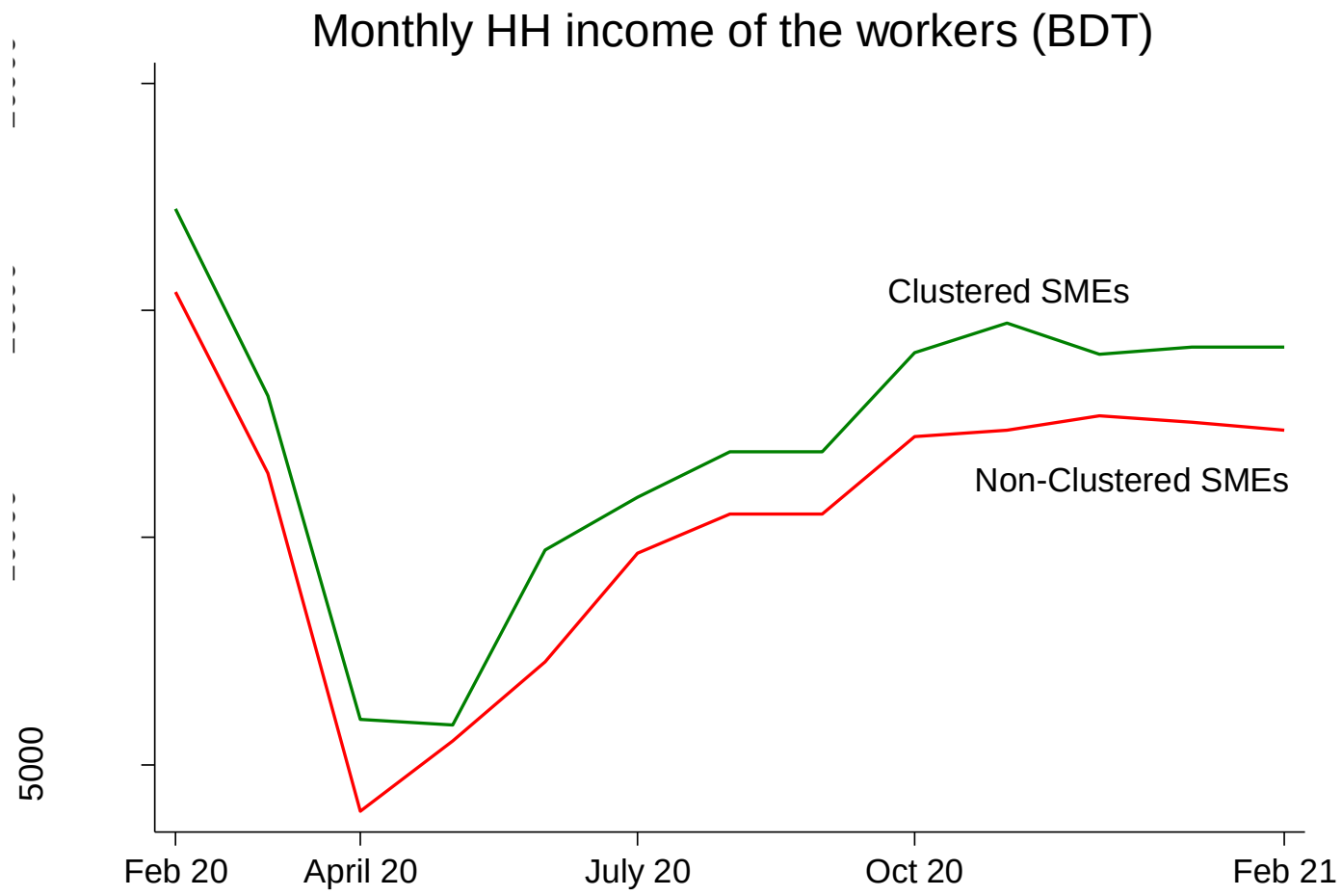
Worker survey
Share of workers employed: clustered vs. non-clustered SMEs



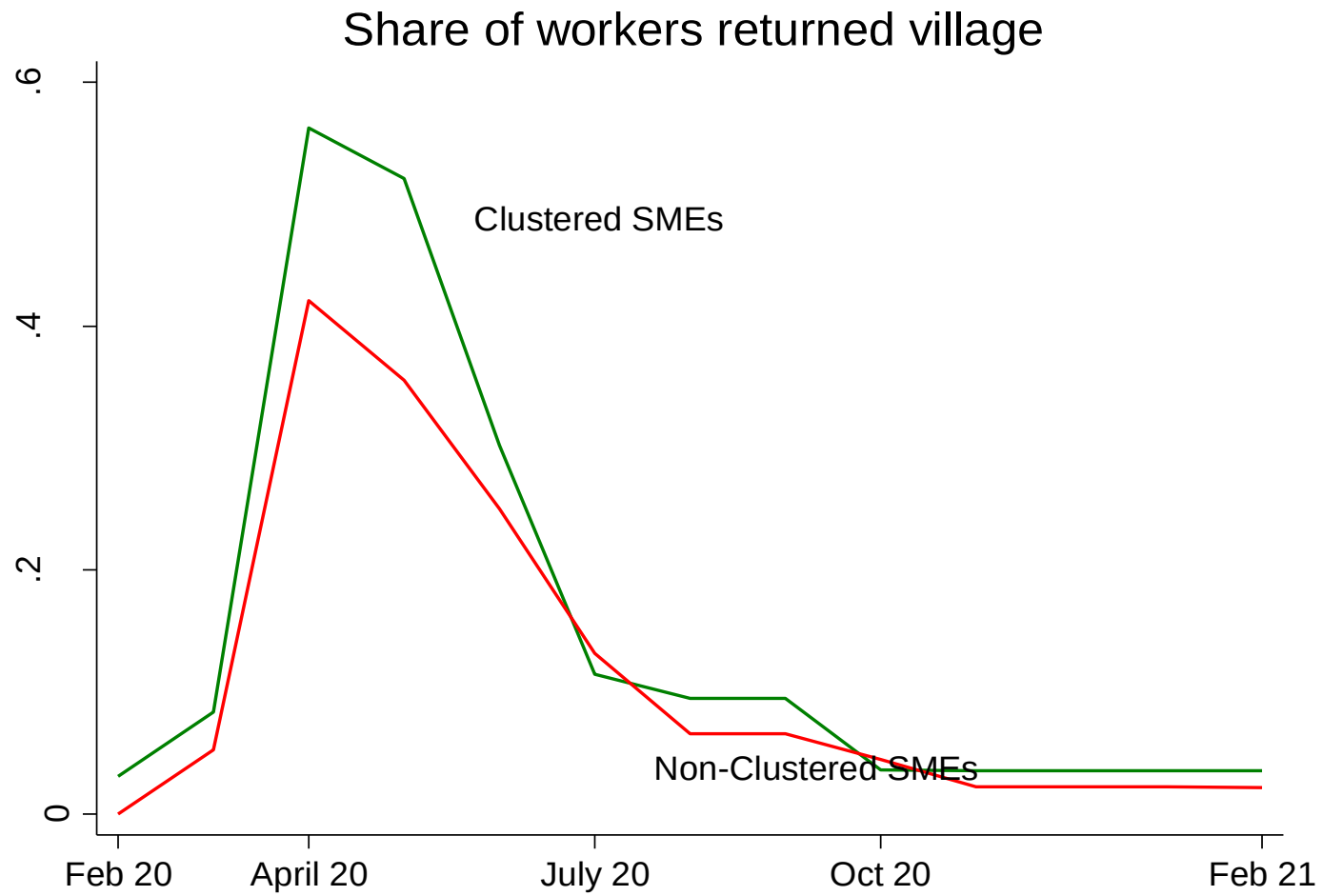
Monthly salary received: clustered vs. non-clustered SMEs



Monthly HH income: clustered vs. non-clustered SMEs



Share of workers returned to villages: clustered vs. non-clustered SMEs



Regression models

$$Outcome_{it} = \beta_0 + \beta_1 Cluster\ dummy_i + \beta_2 Sector\ dummy_i + \beta_3 Month\ dummy_t + \beta_4 PreCovid\ controls_i + u_{it}$$

- Outcome variables:
- Enterprises: Production, sales, production-sales, workers employed, permanent workers employed, temporary workers employed, anxiety level of the owners/managers
- Workers: share of workers employed, salary. HH income, whether returned to villages
- Sector dummy: 13 sectors
- Pre-Covid controls: Production in 2018, profit in 2018

Regression results

Enterprises: Benchmark

Dependent variable: Production(t)/production in February 2020

	(1)	(2)	(3)	(4)
VARIABLES				
Clustered SMEs	0.116***	0.101***	0.098***	0.099***
	(0.032)	(0.032)	(0.028)	(0.028)
Production in 2018				0.000*
				(0.000)
Profit in 2018				-0.000
				(0.000)
Sector dummy	No	Yes	Yes	Yes
Month dummy	No	No	Yes	Yes
Constant	0.719***	0.735***	0.979***	0.978***
	(0.023)	(0.078)	(0.076)	(0.076)
Observations	2,199	2,199	2,199	2,199
R-squared	0.006	0.033	0.254	0.254

Enterprises: Other outcome variables

Dependent variable= Y(t)/Y(1) [t=1,2,…13]

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	sales	prod-sale	total labor	permanent labor	temporary labor	anxiety
Clustered SMEs	0.183***	-0.076**	0.059***	0.134***	0.027	-0.093***
	(0.032)	(0.031)	(0.016)	(0.023)	(0.020)	(0.030)
Constant	0.826***	0.246***	0.986***	0.984***	0.808***	1.020***
	(0.085)	(0.083)	(0.042)	(0.054)	(0.054)	(0.082)
Sector dummy	Yes	Yes	Yes	Yes	Yes	Yes
Month dummy	Yes	Yes	Yes	Yes	Yes	Yes
Initial Conditions	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,199	2,199	2,192	2,192	2,192	2,200
R-squared	0.197	0.020	0.337	0.196	0.355	0.402

Worker survey

Dependent variable= Y(t)/Y(1) [t=1,2,…13]

	(1)	(2)	(3)	(4)
VARIABLES	work status	salary received	HH income	returned village
Clustered SMEs	0.138***	0.021*	0.034	0.049***
	(0.014)	(0.017)	(0.029)	(0.018)
Sector dummy	Yes	Yes	Yes	Yes
Month dummy	Yes	Yes	Yes	Yes
Initial conditions	Yes	Yes	Yes	Yes
Constant	0.703***	0.899***	0.839***	0.036
	(0.046)	(0.098)	(0.097)	(0.040)
Observations	1,886	1,886	1,886	1,420
R-squared	0.051	0.031	0.021	0.074

Coping strategies of the enterprises

	Number			Percentage		
	Cluster	Non-Cluster	Difference	Cluster	Non-Cluster	Difference (p-value)
Knows about government incentive package	143	132	11	100	94.28	5.72 (0.09)
Applied for the subsidized govt. loan	48	33	15	33.56	23.57	9.99 (0.07)
Received loan	16	11	5	33.33	33.33	0
Took loan other than the subsidized government loan	86	68	18	60.13	48.57	11.56 (0.06)
Source of loan: Bank	34	21	13	39.53	30.882	8.65 (0.082)
Source of loan: NGO	33	19	14	38.37	27.94	10.43 (0.046)
Source of loan: Money lander	5	5	0	5.81	7.353	-1.54 (0.37)
Source of loan: Friends and family	20	27	-7	23.26	39.71	-16.45 (0.01)

Coping strategies of the workers

	Cluster	Non-cluster	Difference (p-value)
Received any financial aid from any sources (e.g., Govt., NGOs, etc.)?	65	69	-4
Percentage	47.10	50.36	-3.26 (0.52)
Taken any informal loan (NGOs, money lender, friends, family)?	60	71	-11
Percentage	43.47	51.82	-8.35 (0.06)
Was employed in any alternative employment?	23	34	-9
Percentage	16.66	24.81	-8.15 (0.04)

Summary of the results

➔ **Overall impact on SMEs**

- About 6 percent of the sample SMEs winded up their businesses
- About 8 percent of the sample workers lost their jobs, including both surviving and closed-down businesses.
- We observe a V-shape recovery of the SMEs

➔ **Clustered SMEs vs. non-clustered SMEs**

A. Enterprises

- Steeper recovery for the clustered SMEs.
- Relative to February 2020, average production of clustered SMEs was about 10 percent higher than the non-clustered SMEs.
- Employment of the workers is about 6 percent higher in the clustered SMEs, driven by higher retaining of permanent labor.
- Significantly higher glut – the difference between production and sales – for the non-clustered SMEs.

B. **Workers**

- Worker survey shows that monthly employment was about 14 percent higher for the workers of clustered SMEs than that of non-clustered ones.
- Average salary was slightly higher for the workers of the clustered SMEs but hardly any differences in HH income
- Share of workers who returned to village is higher for the clustered SMEs.

Coping strategies

➔ Enterprises

- Incidence of receiving subsidized government credit is low for all SMEs
- Both clustered and non-clustered SMEs relied more on other sources (e.g., borrowing from formal and informal sources) than the government's subsidized credit scheme
- Clustered SMEs relied more on banks and NGOs for credit
- Incidence of borrowing from friends and families is higher for non-clustered SMEs.

➔Workers

- About half of the workers received assistance from either public or private sources
- Incidence of taking informal loans are higher for the workers of the non-clustered SMEs
- Share of workers engaged in alternate employment was higher for the workers of non-clustered SMEs

Conclusion

- Longer sample period to track the changes with monthly data
  - help track the full recovery path
- Clustered SMEs performed better
  - greater access to formal credit market, better marketing opportunities

- Externalities generated by clusters may have helped cope with shocks better

- Non-clustered SMEs are more informal than the clustered SMEs
  - Shocks like Covid-19 may induce firms to be more formal