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On the Effects of the COVID Epidemic on Global and Local Food Access and Availability of Strategic Sectors

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On the effects of the COVID epidemic on global and local food access and availability of strategic sectors



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Background and motivation Data Evidence

December 15, 2020

Background and Motivation (I)

- COVID-19 is affecting almost ALL countries, with more than
 1.5 million deaths (numbers on the rise!)
- Economic impacts of the pandemic forecasted to be giant
 (- 3% in 2020; IMF, 2020)

.... and the measures to contain the contagion may severely disrupt food supply chains (Glauber et al, IFPRI 2020)

Background and Motivation (II)

- Heterogeneous impacts across supply chains: F&Vs severely exposed to disruption due to seasonal labor requirements and high perishability (Tamru et al, IFPRI 2020)
- Restrictions may alter prices, implying uncertainty for production and consumption (FAO, 2020)
- Our focus is on how the pandemic has influenced the prices of F&Vs in selected countries: Canada, US, Mexico, and EU

Background and motivation Data Evidence

December 15, 2020

Sample and Data (I)

- Case studies: CAN, USA, MEX, EU (North America and Europe severely affected by the pandemic)
- F&Vs Price dynamics from Jan 2019 to Jun 2020 in:
 - ✓ Canada: Montreal, Toronto
 - ✓ USA: Atlanta, Baltimore, Boston, Chicago, Columbia, Dallas, Los Angeles, Miami, New York, Philadelphia, Rotterdam, San Francisco
 - ✓ Mexico: Guadalajara, Mexico City, Monterrey
 - ✓ EU: Austria, Belgium, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Romania, Spain

Sample and Data (II)

- Classifications of F&Vs:
 - ✓ vegetables, roots and tubers vs. fruit and nuts
 (Pennington & Fisher, JFoodCompAnal 2009)
 - ✓ seasonality: within and out of the pandemic period
 (Seasonal Produce Guide, USDA 2020)
 - high-perishable (<1 month), medium-perishable (1-6 months), low-perishable (>6 months)
 (Kader, 2002; Gross et al, USDA 2016)

Background and motivation Data

Evidence

December 15, 2020

How the pandemic has affected level and variability of F&Vs prices

 Comparison of average prices (in level and deviations) b/w min and max levels of monthly prices (variability)

 Identification of common (MAJORITY of markets) and localized (A FEW markets) behaviors in price level and variability of F&Vs

Comparison of price dynamics and monthly imports and exports

F&Vs price level and variability: CAN, USA, MEX

	Av	verage prices	Average deviation				
CAN	Mar-Jun '19 (\$)	Mar-Jun '20 (\$)	∆ (\$)	Mar-Jun '19 (\$)	Mar-Jun '20 (\$)	∆ (\$)	
Montreal	33.79	33.73	-0.06	3.00	2.73	-0.27	
Toronto	37.52	37.11	-0.41	2.94	1.95	-0.99	
USA	Mar-Jun '19 (\$)	Mar-Jun '20 (\$)	∆ (\$)	Mar-Jun '19 (\$)	Mar-Jun '20 (\$)	∆ (\$)	
Atlanta	28.08	26.96	-1.12	1.89	3.21	1.32	
Baltimore	27.48	28.62	1.14	1.06	3.14	2.08	
Boston	25.92	26.54	0.62	0.45	1.14	0.69	
Chicago	28.01	28.10	0.09	1.09	1.80	0.71	
Columbia	26.63	27.66	1.03	4.09	6.20	2.11	
Dallas	37.41	39.74	2.33	0.93	3.80	2.87	
Los Angeles	25.10	28.37	3.27	0.81	2.16	1.35	
Miami	23.70	23.22	-0.48	0.34	1.12	0.78	
New York	24.53	26.50	1.97	0.48	3.45	2.97	
Philadelphia	24.87	25.69	0.82	1.57	3.59	2.02	
Rotterdam	12.33	14.18	1.85	1.91	2.46	0.55	
San Francisco	29.29	27.61	-1.68	3.09	0.83	-2.26	
MEX	Mar-Jun '19 (\$)	Mar-Jun '20 (\$)	∆ (\$)	Mar-Jun '19 (\$)	Mar-Jun '20 (\$)	∆ (\$)	
Guadalajara	12.89	19.30	6.41	1.70	29.64	27.94	
Mexico City	10.92	20.18	9.26	0.86	31.43	30.57	
Monterrey	8.49	14.79	6.30	1.27	19.36	18.09	

The analysis includes wholesale prices available in both periods

Source: Elaboration on data from Government of Canada, USDA, Eurostat

F&Vs price level and variability: EU

	Av	verage prices	Average deviation				
EU	Mar-May '19 (€)	Mar-May '20 (€)	Δ (%)	Mar-May '19 (€)	Mar-May '20 (€)	Δ (%)	
Austria	56.68	79.94	23.26	8.39	6.30	-2.09	
Belgium	94.74	113.63	18.89	61.84	28.61	-33.23	
Bulgaria	128.48	140.54	12.06	69.81	52.35	-17.46	
Croatia	78.59	83.43	4.84	34.90	27.01	-7.89	
Czech Republic	60.58	80.78	20.20	31.76	1.45	-30.31	
France	183.80	220.72	36.92	13.47	24.49	11.02	
Germany	78.77	94.70	15.93	59.53	52.07	-7.46	
Greece	101.66	118.21	16.55	16.46	12.18	-4.28	
Hungary	129.04	124.28	-4.76	43.73	27.50	-16.23	
Ireland	299.56	308.37	8.81	0.00	0.00		
Italy	125.72	138.16	12.44	44.24	26.50	-17.74	
The Netherlands	119.81	151.03	31.22	70.11	97.98	27.87	
Poland	51.57	80.30	28.73	46.92	33.34	-13.58	
Portugal	92.80	87.60	-5.20	14.89	27.84	12.95	
Romania	63.29	61.85	-1.44	76.86	21.53	-55.33	
Spain	104.32	110.73	6.41	12.58	14.47	1.89	

Source: Elaboration on data from Government of Canada, USDA, Eurostat

- USA and MEX tend to report a surge in prices (both level and volatility), the opposite for CAN
- EU: generalized price increase; lower price variabilities with a few exceptions (PRT, FRA, NDL)
- Marked differences across products and markets

Canada



Increase in average price Fruit and vegetables Market season Perishability 0.5 0.5 0.5 20.4 ₹ 0.4 \$0.4 Relative frequence of the second seco B 0.3 B 0.1 ative fre 2.0 M 2 0.1 2 0.: 0.0 0.0 0.0 0-25% 75-100% 0-25% 75-100% 0-25% 75-100% Markets with increase in prices Market with increase in prices Market with increase in prices Uvegetables, roots, tubers within pandemic out of pandemic High Medium Low



EU



Mexico



USA

A few take-home on changes in price levels and variability

- Marked increase in prices of fruit and nuts, but not in vegetables, roots and tubers
- Price levels (and variability) of more perishable prod. have been affected the most
- In MEX and EU there have been more generalized changes (not much in CAN and USA)

How anti-COVID policies have influenced price dynamics of F&Vs

- Analysis of policy measures and urgent actions implemented to limit socio-economics effects of the pandemic
 - ✓ classification according to date of entry into place
 - \checkmark identification of beneficiaries of each intervention
 - \checkmark selection of interventions in support the agri-food sector
 - ✓ comparison b/w policy interventions and price changes

Average F&Vs price level and deviation



Source: Our elaboration on data from Government of Canada, USDA, Eurostat

Interventions in CAN (e.g. improved access to credit for agri-food operators), USA (e.g. Coronavirus Food Assistance Program) and in some EU countries (e.g. support to local producers of F&Vs, establishment of a green corridor for guest workers) seem to have limited price changes.

How different markets have performed in terms of resiliency to the pandemic

- Price differences across markets
 - country-level analysis (CAN, USA, MEX, 16 EU Countries)
 - absolute differences in F&Vs prices between markets pairs

Example

USA - Products with increase in price differences

	Atlanta	Baltimore	Boston	Chicago	Columbia	Dallas	Los Ang.	Miami	New York	Philadel.	Rotterdam	San Franc.
Atlanta												
Baltimore	48%											
Boston	50%	50%										
Chicago	52%	49%	49%									
Columbia	54%	55%	53%	50%								
Dallas	53%	47%	46%	53%	38%							
Los Ang.	57%	51%	50%	48%	59%	42%						
Miami	61%	58%	55%	43%	47%	47%	57%					
New York	41%	50%	44%	46%	59%	43%	56%	52%				
Philadel.	43%	59%	55%	57%	54%	42%	56%	46%	55%			
Rotterdam	33%	44%	38%	26%	45%	45%	56%	30%	59%	35%		
San Franc.	42%	46%	40%	54%	40%	44%	41%	41%	44%	37%	8%	

Source: Our elaboration on USDA data

How different markets have performed in terms of resiliency to the pandemic

- **CANADA**: For about two-third of F&Vs sold both in Montreal and Toronto, price differences have increased during the pandemic: more economic distance between geographically separate markets
- **MEXICO**: Even more evident for Mexican markets: price differences have increased during the pandemic
- USA: Higher market integration: about half of F&Vs have larger price differences across the US markets
- **EU**: Larger differences across countries, especially for those countries most hit by the first wave of the pandemic (e.g. Italy and Spain)

Conclusions

- Marked impact of the pandemic on price dynamics, with
 - heterogeneous impacts across products and markets.
 - strong impacts for perishables
- Policy interventions seem to have limited impacts
- (Dis)integration of some markets
- Role of international trade in avoiding potential disruption of F&Vs supply chains in the medium- term

(Elleby et al, EnvResEcon 2020)

Thanks

Comments are welcome

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