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

**Fabio Gaetano Santeramo and Ignacio Perez Dominiguez**

*Selected presentation for the International Agricultural Trade Research Consortium's (IATRC's) 2020 Annual Meeting: Economic Implications of COVID-19, December 14-15, 2020, Virtual platform.*

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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

# 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

# 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**

# 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

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

*The analysis includes wholesale prices available in both periods*

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

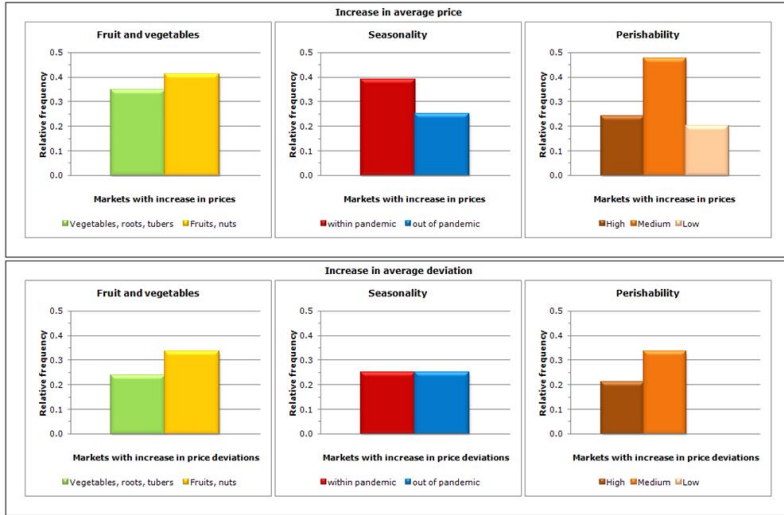
# F&Vs price level and variability: EU

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

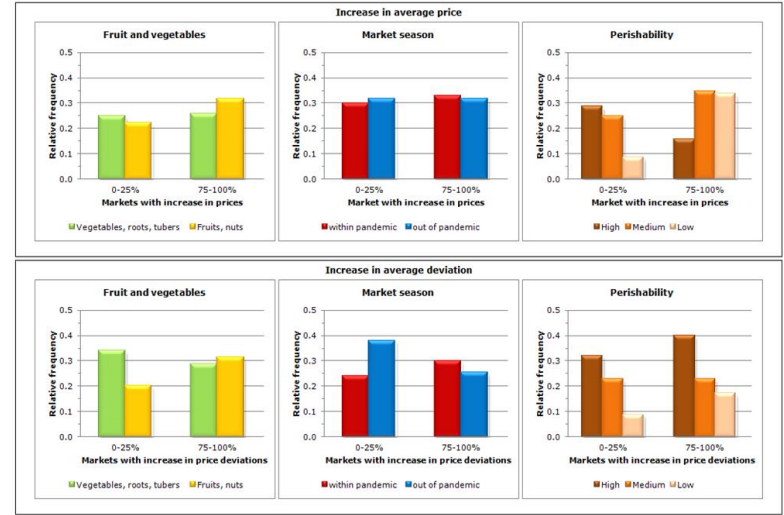
Source: Elaboration on data from Government of Canada, USDA, Eurostat

- 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**

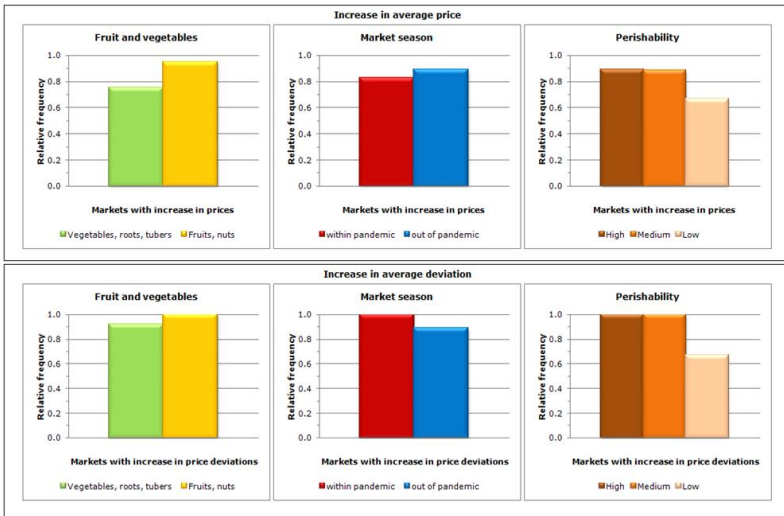
# Canada



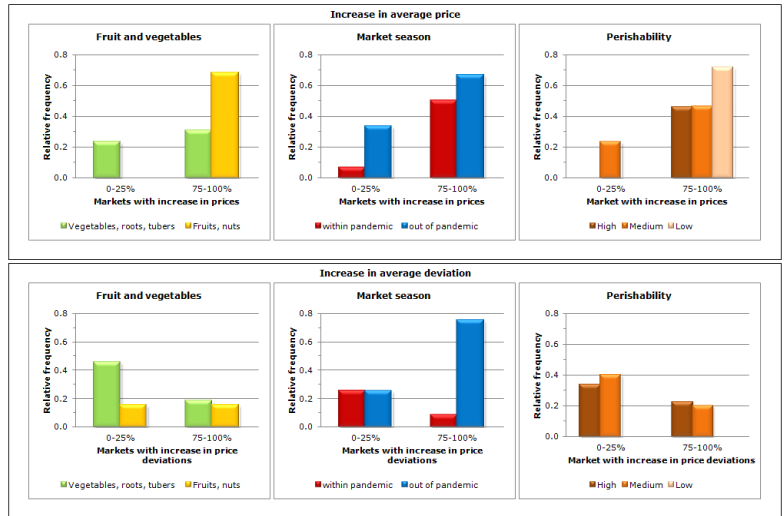
# USA



# Mexico



# EU



# 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
  - ✓ identification of beneficiaries of each intervention
  - ✓ selection of interventions in support the agri-food sector
  - ✓ comparison b/w policy interventions and price changes

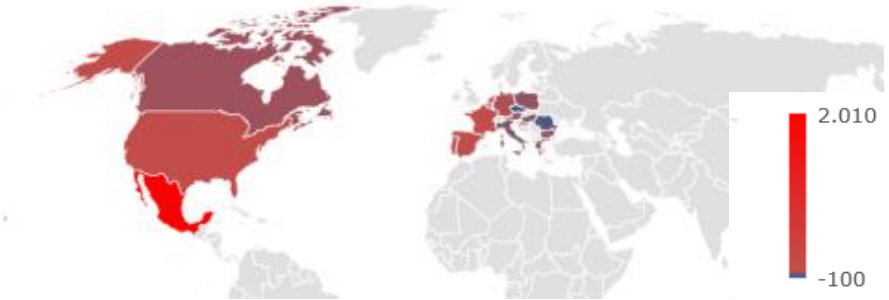


# Average F&Vs price level and deviation

Variation in average prices (%)



Variation in average deviations in prices (%)



*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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