The impact of COVID-19 on urban logistics

Dr. Laetitia Dablanc
• Research oriented Chair
• Warehouses, innovations, new trends in consumption and impacts on city logistics

Results available online:
• Observatory of ecommerce mobilities (https://www.ecommercemobilities.com/)
• Survey reports on gig workers for instant delivery platforms in Paris 2016, 2018, 2020, 2021
• Barometer of urban logistics under covid lockdown
• Logistics real estate and relationships with urban form in 74 large cities around the world

How to research on COVID impacts?

- Differences in time and space: the global COVID-19 pandemic has translated in different countries into a variable mix of lockdowns, curfews and diverse sanitary measures since the end of 2019.
- Many trends already on, were accelerated (or not) by COVID.
- Use of routine surveys and data collections + specific *ad hoc* surveys.
- Implementing surveys and interviews during a pandemic: many respondents happy to testify on their activity during these very unusual times.
- An abundance of webinars further increased access to information on stakeholders’ perceptions and data.
“More than 90% of covid-19 cases are happening in urban areas”

(UNSTATS, CCSA, May 2020)
"This handbook is a systematic collection about COVID-19 and other pandemics in association with transport, logistics, and supply chains, in various modes in both developed and developing countries, covering different geographical territories and cultures, from both academic and practical perspectives.

**Impacts** of COVID-19 and other pandemics on transport, logistics and supply chains and their consequent influences on citizens’ life and industries will be investigated. **How to prepare** for pandemics in practice will be reviewed”

PART I: IMPACTS OF COVID-19 ON TRANSPORT, LOGISTICS AND SUPPLY CHAINS
PART II: EFFECTS OF POLICY MEASURES AT DIFFERENT PHASES OF COVID-19 PANDEMIC
PART III: COUNTRIES (Chapter *Impact of COVID-19 on Public Transportation in Urban India*)
PART IV: LESSONS LEARNED FROM HISTORY AND PREPAREDNESS
PART V: CHANGES TOWARD THE FUTURE

Chapter: Dablcanc, L. *Impacts of COVID pandemic on urban logistics and policy lessons*
Methodology for urban logistics chapter

- Literature review
- Economic press
- Institutional reports
- Business and practitioners’ webinars
- Four original surveys for the French case (Dablanc et al., 2021)
Literature review

• By April 2021, about 20 publications on COVID and urban freight in scientific journals
• In addition: two sessions on COVID and urban freight at the VREF international conference on urban freight, March 2021 (online)
• Ogochukwu and Ugboma (2021): interesting research showing how new last mile logistics services compensated for open markets in Lagos, Nigeria, during the lockdown
• Mogaji (2021): the pandemic in Lagos has increased the cost of freight transportation, making deliveries more complicated, especially for the informal economy, with direct impacts on food prices


COVID 19-related urban mobility challenges with one Section dedicated to freight and logistics (Lozzi et al., 2020)

• Fragmentation in loads and trips is one of the key delivery challenges, driving an increase in the number of deliveries and the related environmental impacts

• New types of soft modes (such as cargo-bikes) for freight movements have emerged

• The sector suffers from shortages in terms of workforce, assets and resources and needs to make urban logistics more efficient
2020-2021: the demand for goods has changed

• Goods managed to maintain a high level of mobility, thus guaranteeing the supply of cities (supermarkets, markets, warehouses...) and limiting the possible effects of shortages

• E-commerce has increased everywhere

• New York City added nearly 500,000 parcel deliveries a day in 2020, for a daily total of about 2.4 million

• In Europe, more than one in three consumers who made online food purchases during the first wave of lockdowns were new on-line consumers, with 70% being baby-boomers

• First semester 2021: COVID consumption ‘habits’ remain

• New trend in Europe: q-commerce (quick commerce)
Q-commerce: very fast deliveries of grocery

- Cajoo promises to deliver in **15 minutes**
- Gorillas promises to deliver in **10 minutes**
- Alibaba promises to deliver in **5 minutes**

Fierce competition and many new startups in Europe
### Table 1: Online retail sales, selected economies, 2018-2020

<table>
<thead>
<tr>
<th>Economy</th>
<th>Online retail sales ($ billions)</th>
<th>Retail sales ($ billions)</th>
<th>Online share (% of retail sales)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>13.5</td>
<td>14.4</td>
<td>22.9</td>
</tr>
<tr>
<td>Canada</td>
<td>13.9</td>
<td>16.5</td>
<td>28.1</td>
</tr>
<tr>
<td>China</td>
<td>1,060.4</td>
<td>1,233.6</td>
<td>1,414.3</td>
</tr>
<tr>
<td>Korea (Rep.)</td>
<td>76.8</td>
<td>84.3</td>
<td>104.4</td>
</tr>
<tr>
<td>Singapore</td>
<td>1.6</td>
<td>1.9</td>
<td>3.2</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>84.0</td>
<td>89.0</td>
<td>130.6</td>
</tr>
<tr>
<td>United States</td>
<td>519.6</td>
<td>598.0</td>
<td>791.7</td>
</tr>
<tr>
<td>Economies above</td>
<td>1,770</td>
<td>2,038</td>
<td>2,495</td>
</tr>
</tbody>
</table>

Source: UNCTAD, based on national statistics offices.

UNCTAD May 2021
## Table 2: Top B2C e-commerce companies by GMV, 2020

<table>
<thead>
<tr>
<th>Rank by GMV</th>
<th>Company</th>
<th>HQ</th>
<th>Industry</th>
<th>GMV ($ billions)</th>
<th>GMV change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alibaba</td>
<td>China</td>
<td>E-commerce</td>
<td>$866</td>
<td>$954</td>
</tr>
<tr>
<td>2</td>
<td>Amazon</td>
<td>USA</td>
<td>E-commerce</td>
<td>$344</td>
<td>$417</td>
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<tr>
<td>3</td>
<td>JD.com</td>
<td>China</td>
<td>E-commerce</td>
<td>$253</td>
<td>$302</td>
</tr>
<tr>
<td>4</td>
<td>Pinduoduo</td>
<td>China</td>
<td>E-commerce</td>
<td>$71</td>
<td>$146</td>
</tr>
<tr>
<td>5</td>
<td>Shopify</td>
<td>Canada</td>
<td>Internet Media &amp; Services</td>
<td>$41</td>
<td>$61</td>
</tr>
<tr>
<td>6</td>
<td>eBay</td>
<td>USA</td>
<td>E-commerce</td>
<td>$90</td>
<td>$86</td>
</tr>
<tr>
<td>7</td>
<td>Meituan</td>
<td>China</td>
<td>E-commerce</td>
<td>$43</td>
<td>$57</td>
</tr>
<tr>
<td>8</td>
<td>Walmart</td>
<td>USA</td>
<td>Consumer goods retail</td>
<td>$25</td>
<td>$37</td>
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<tr>
<td>9</td>
<td>Uber</td>
<td>USA</td>
<td>Internet Media &amp; Services</td>
<td>$50</td>
<td>$65</td>
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<tr>
<td>10</td>
<td>Rakuten</td>
<td>Japan</td>
<td>E-commerce</td>
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<td>$34</td>
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<tr>
<td>11</td>
<td>Expedia</td>
<td>USA</td>
<td>Internet Media &amp; Services</td>
<td>$100</td>
<td>$108</td>
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<tr>
<td>12</td>
<td>Booking Holdings</td>
<td>USA</td>
<td>Internet Media &amp; Services</td>
<td>$93</td>
<td>$96</td>
</tr>
<tr>
<td>13</td>
<td>Airbnb</td>
<td>USA</td>
<td>Internet Media &amp; Services</td>
<td>$29</td>
<td>$38</td>
</tr>
<tr>
<td><strong>Companies above</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$2,035</strong></td>
<td><strong>$2,399</strong></td>
</tr>
</tbody>
</table>

Note: Alibaba year beginning 1 April, Walmart year beginning 1 February. Figures in italics are estimates. GMV = Gross Merchandize Value (as well as Booking Value). Source: UNCTAD based on company reports.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Economy</th>
<th>B2C e-commerce sales ($ billion)</th>
<th>Share of B2C e-commerce sales in GDP (%)</th>
<th>Online shoppers (million)</th>
<th>Online shoppers (% of internet users)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>1,539</td>
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<td>2</td>
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<td>3</td>
<td>United Kingdom</td>
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<td>8.9</td>
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<td>88</td>
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<tr>
<td>4</td>
<td>Japan</td>
<td>178</td>
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<tr>
<td>5</td>
<td>France</td>
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<td>38</td>
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<tr>
<td>6</td>
<td>Korea (Rep.)</td>
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<tr>
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<td>Germany</td>
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</tr>
<tr>
<td>8</td>
<td>Spain</td>
<td>64</td>
<td>4.6</td>
<td>23</td>
<td>64</td>
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<tr>
<td>9</td>
<td>India</td>
<td>61</td>
<td>2.1</td>
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<td>20</td>
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<tr>
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<tr>
<td>11</td>
<td>Hong Kong (China)</td>
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<td>13</td>
<td>Russian Federation</td>
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<td>1.9</td>
<td>34</td>
<td>35</td>
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<tr>
<td>14</td>
<td>Mexico</td>
<td>31</td>
<td>2.5</td>
<td>26</td>
<td>32</td>
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<tr>
<td>15</td>
<td>Netherlands</td>
<td>29</td>
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<td>16</td>
<td>Thailand</td>
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<td>5</td>
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<td>17</td>
<td>Ireland</td>
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<tr>
<td>19</td>
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<td>20</td>
<td>Brazil</td>
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<td>0.9</td>
<td>48</td>
<td>39</td>
</tr>
<tr>
<td>20 above</td>
<td>4,021</td>
<td>5.9</td>
<td>1,339</td>
<td>59</td>
<td></td>
</tr>
</tbody>
</table>

Source: UNCTAD, based on sources mentioned in section 3 on methodology and data sources.
Amazon

- Revenue $386 Mds (2020), 15 times higher than McDonald’s
- Amazon added 9 warehouses in New York City in 2020

Source: Amazon, Statista 2021
E-commerce growth: example of France

- +32% B2C products sold in 2020 (growth rate twice as high as usual)
- Traditional retail has accelerated omni-channel services
- Huge increase in grocery and DIY click-and-collect
- Higher diversity of e-consumers: poor and rich, rural and urban, old and young, women and men
Covid has been an accelerant of trends in logistics service provision

- Goods movement and logistics services resilience
- Truck transport has recovered
- Key role of technologies uptake
A huge impact on on-demand instant delivery services

- DoorDash bookings (world) in 2020: +198%
- Meituan market valuation in May 2021: $210 bil
- Postmates sold to Uber in 2020 for $2.65 bil
- Deliveroo IPO disappointing, labor issues

Partnerships formed between instant delivery platforms and major grocery chains

- Carrefour and UberEats, April 2020
- Casino and Deliveroo, May 2020
- Carrefour and Deliveroo, April 2021
- Carrefour and UberEats for 20 min delivery, May 2021
Court decisions accelerated

• Several court decisions have required on-demand delivery platforms to compensate couriers for lost benefits as they should have been considered employees rather than independent workers
• California Supreme Court, 30 April 2018 and California judge Sept 2021; French Cour de Cassation March 2020; Spanish Tribunal Supremo September 2020; British Supreme Court February 2021; Italian Procura di Milano February 2021, Amsterdam Justice Court Sept 2021
A new issue for litigation: algorithms

• July 2021: Italy’s data protection agency fined Glovo-owned food delivery company Foodinho €2.6m over the way it used algorithms for managing its delivery workers
• It found violations of labor and privacy laws
Autonomous deliveries: marketing approaches using COVID challenges

JD in Wuhan and Baiyang lake, Hebei

Rappi, Medellin, Colombia

Starship Technologies, Co-op grocer in Milton Keynes, UK
Wing and Nuro

Wing (Google) made 1,000 deliveries in two weeks during first lockdown in Australia, Finland, the US

Nuro in the US for medical supplies
# Acceleration of new modes for urban deliveries

<table>
<thead>
<tr>
<th>Livreur en poids lourd</th>
<th>Livreur en VUL</th>
<th>Livreur en voiture</th>
<th>Livreur en scooter</th>
<th>Livreur en vélo-cargo</th>
<th>Livreur en vélo</th>
<th>Livreur à pied</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 000</td>
<td>70 000</td>
<td>&gt; 3500</td>
<td>&gt;20 000</td>
<td>500-1000</td>
<td>&lt;35 000</td>
<td>&lt;2000</td>
</tr>
</tbody>
</table>

(estimations nombre d’emplois France compte d’autrui)
A huge increase in cycle-logistics in Paris

One of the main advantages: access to bike lanes (and ‘corona-lanes’)
Explosion of the number of urban freight companies in France...coming from gig workers
Accelerated implementation of urban warehouses

- Recycling local shops, car parks or other underused areas into logistics facilities
- Micro-hubs for last mile distribution of parcels and grocery
  - ‘Dark kitchens’: for meals
  - ‘Dark stores’: for groceries

Fabric automated micro-fulfillment center in Brooklyn, 2021
Four surveys along the pandemic progress

- Surveys during the first lockdown or along 2020 with the views of getting knowledge on urban logistics operations and challenges
  
  **Survey 1**: ‘Barometer of urban logistics in times of lockdown’ (Buldeo Rai and Dablanc) March-May 2020, daily survey with a panel of 11 delivery companies operating in Paris

  **Survey 2**: Interviews with stakeholders during the period March-April 2020 (Heitz), 27 semi-directive interviews with third-party logistics providers, shippers and public authorities

  **Survey 3**: On demand instant delivery platforms’ gig workers in Paris (Adoue, Aguilera, Dablanc, Krier), February 2021

  **Survey 4**: Monthly survey on main logistics property developers in France (Dablanc and Diziain) in March, April, May, June, September and October 2020
Lockdowns for delivery operators: extreme variability of orders and sectorial economic difficulties

• Flexibility was key
• Freight companies involved in markets not associated with ‘essential goods’ had to reorganize their activities, find new markets and accelerate shift to BtoC
• Also generating shift in destinations
• Increase in empty returns, deteriorating productivity
• Overall, higher productivity from better traffic conditions was counter-played by less return freight, staff disorganization, more home deliveries (as opposed to deliveries to pick-up points)
• New services helping local farmers to sell their products online and find delivery providers
• New services matching local stores opening a delivery service to logistics start-up companies
Delivery and logistics workers

• An increase in temporary workers in parcel’s delivery industry and mass retail sector
  - Many sick or absent workers (due to childcare)
  - Need to respond to the new demand
• A high rate of unemployment in industrial logistics compared with other sectors
• Change in warehouse organization to ensure health safety
  - And ... prevent social movements (Amazon had to shutdown its warehouses in April 2020 because of unsufficient protective measures at the request of unions)
• Limited remote working in logistics and transport: high exposure to COVID
• Precarious working conditions increase the vulnerability of workers
  - Northern poor suburbs of Paris where a majority of delivery/logistics workers live: excess COVID mortality
Gig delivery workers in Paris: comparing 2021 to 2020

- More students on the job, reversing a strong trend since 2016
- 34% turned to this activity because of the pandemic (61% among students)
- The pandemic has led to a decrease in income for more than half of delivery workers
- 57% of delivery workers say that the pandemic has worsened their working conditions

Increased use of illegal transport modes: mopeds, cars and electric shared-bikes

2020
60% bicycle
31% mopeds
0% cars

2021
47% bicycle
36% mopeds
7% cars

⇒ Increased use of motor vehicles: (strictly regulated in French legislation)
⇒ Increased use of bike and scooter sharing (not allowed for deliveries)
Commuting to the work place (2021)

- 62% with vehicle used for deliveries (bike or moped or car)
- 16% in public transit, with bike
- 13% in public transit
- 9% other
Logistics real estate market did well in 2020

- Logistics real estate was in a very good shape before the first lockdown
- The first lockdowns generated major but short-term challenges
- Activities recovered and overall activity has decreased by only 7% in 2020 compared with 2019 which was an exceptionally good year

The evolution of warehousing activity levels, as estimated by AFILLOG members compared to “normal” times (Dablanc, Diziain, 2021)
Less concentration of logistics development in the largest four metro areas (Lille, Paris, Lyon, Marseille) in 2020

(ImmoStat/BNP Paribas Real Estate)
### Mood changes from logistics real estate stakeholders

<table>
<thead>
<tr>
<th>Survey month</th>
<th>Key feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2020</td>
<td><strong>Strong adaptability</strong>, uncertainties and worries but optimism despite everything</td>
</tr>
<tr>
<td>April 2020</td>
<td>A gradual recovery but <strong>aggravated administrative bottlenecks</strong></td>
</tr>
<tr>
<td>May 2020</td>
<td>A <strong>strong recovery</strong> and the catching up of accumulated backlogs, but progress risks being blocked due to persistent or even worsening administrative delays.</td>
</tr>
<tr>
<td>June 2020</td>
<td>Confirmation of a <strong>strong recovery</strong> and catching up on accumulated delays, but progress continues to suffer from <strong>administrative delays</strong> and the uncertainties for 2021 and beyond are very real</td>
</tr>
<tr>
<td>September 2020</td>
<td>Confirmation that the year <strong>2020 should be rather good</strong> but concerns for 2021; progress continues to suffer from event cancellations and administrative delays</td>
</tr>
<tr>
<td>October 2020</td>
<td>Confirmation that the year 2020 should be rather good, but costs and complications related to staff and site reorganizations and persistent administrative delays; <strong>concerns for 2021 due to missed opportunities</strong> following event cancellations, uncertainties and a slowdown in calls for tenders. More diffuse concerns about the sector’s <strong>image</strong> with the general public and an “anti-Amazon” sentiment.</td>
</tr>
</tbody>
</table>

Dablanc, Diziain, 2021
Overall: various levels of challenges and adaptability
Recycling under-used urban spaces and brownfields

- Former gas-station in Paris (project)
- Empty space under the Paris ring-road (finalized in December 2020)
Policy response to COVID in French cities

- Quick responses to urgency at the local level during lockdown
- Municipalities’ websites identifying stores proposing home delivery

Paris website has identified and mapped more than 1000 local retailers

Policy response, longer term

• Logistics omitted from several post-lockdown initiatives
  - Reorganization of street space to invent a “different urban world” (Mayor of Grenoble)
  - “tactical urbanism”: change quickly, cheaply and temporarily the use of space in cities
  - Paris 50 kilometers of “corona-lanes”

• 2021: emerging strategies to accommodate new logistics operations
  - Cargo-cycle dedicated delivery areas
  - Mobile micro-hubs allowed on city streets
  - Exemption of on-street parking pricing for electric motorcycles and mopeds
Conclusion : urban logistics in a post-pandemic world

- Accelerating the use of some technologies
  - easier to get authorizations for testing automated delivery vehicles such as robots and drones
  - new enforcement tools (plate number recognition cameras) ready for deployment
  - Discussions on new methods for urban freight data and data sharing

- Improving the situation of gig workers for on-demand instant delivery platforms

- Accelerated implementation of low and zero emission zones, with one issue now disputed between local decision-makers and freight operators: the status of trucks in the new traffic restrictions
Ressources

- World Conference on Transport Research https://www.wctrs-society.com/
- METROFREIGHT www.metrans.org/metrofreightw.metrans.org/metrofreight
- Urban Freight Lab: https://depts.washington.edu/sctlctr/urban-freight-lab-0
- Urban freight platform: https://www.chalmers.se/en/centres/lead/urbanfreightplatform/Pages/default.aspx
laetitia.dablanc@univ-eiffel.fr