

Big Data & AI

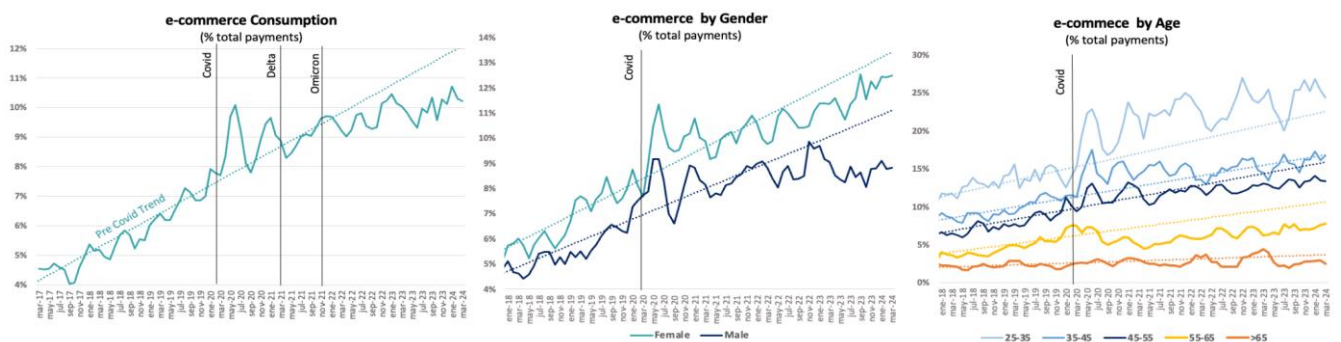
E-commerce in Spain: One “Click” does not fit all

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Takeaways¹

- The secular positive trend in Spanish e-commerce is well alive but the pandemic's boost proved to be temporary, with a moderating trend in its share once pandemic restrictions were lifted. We find some recovery of the e-commerce share from mid-2023 (Figure 1).
- One “Click” does not fit all and a salient feature of the e-commerce during Covid and Post-Covid recovery has been the heterogeneity in different categories of consumption:
 - Sectors with a higher pre-pandemic online share saw a pronounced and permanent increase in e-commerce spending during the pandemic. A relevant impulse has been observed in textile and footwear, furniture, recreation and culture.
 - In contrast, food & beverage, restaurants & hotels boost proved to be temporary.
- There is also heterogeneity in demographic characteristics: women and young consumers show a stronger shift towards online spending, while both rural and urban maintained similar trends.
- Behavioral reasons (compulsive, hoarding, fear) associated with the lockdowns could explain the general but transitory acceleration of e-commerce during the Covid period.
- Most consumers were already familiar with e-commerce before the pandemic, limiting new learning permanent effects, unlike the working from home effect with the Covid. However, the microeconomic analysis reveals some “learning by locking” in the new e-commerce users. Individuals with lower initial e-commerce shares engaged more in online spending during the pandemic.

Figure 1. **Aggregate consumption² e-commerce share in Spain: a secular, but heterogeneous trend**
(E-commerce share, as a percentage of total payments. Moving average 3 months)



Source: Mishra, Ortiz, Rodrigo, Spilimbergo & Vázquez (2024)

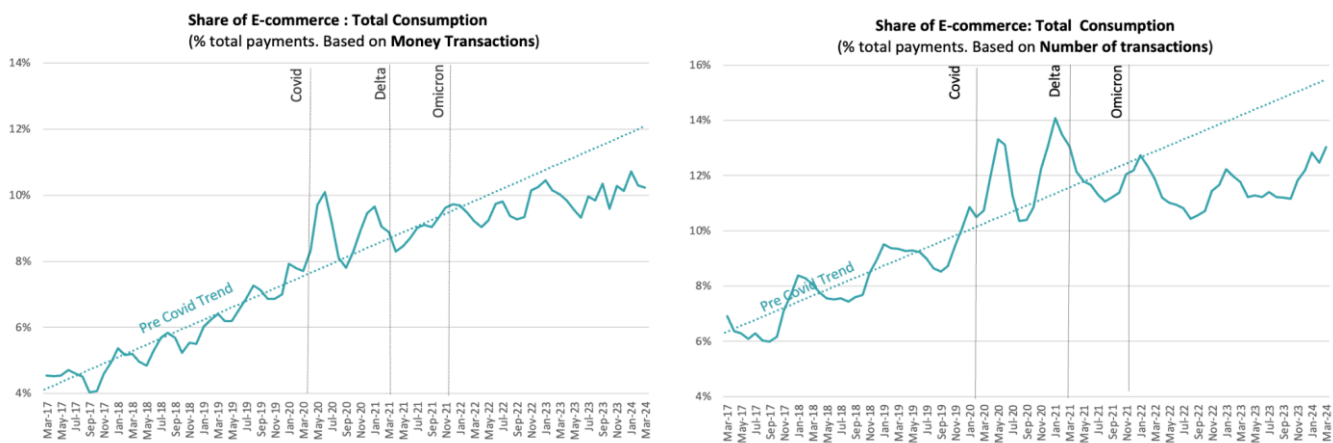
¹ This paper is based on Mishra, P., Ortiz, A., Rodrigo, T., Spilimbergo, A. and Vazquez, S (2024). “E-commerce during Covid in Spain: One “Click” does not fit All”. Forthcoming IMF Working Paper

² See Buda et al. (2022) for further details about the methodology to develop the consumption indicators using BBVA transactions.

1. The secular trend of E-Commerce, the Covid boost and the return to normal

E-commerce has shown a sustained rise during the last years, increasingly becoming a preferred shopping method for a wide range of goods and services. This enduring upward trend, indicative of a shift in consumer preferences towards digital solutions, has been documented across various developed nations, including Spain. As depicted in Figure 2, the share of e-commerce in Spain's total consumption continues to grow both in terms of expenditure and transaction volume, underscoring the robustness of this secular trend. In line with the observations in most of the advanced countries, there was a secular and steady trend which experienced an unexpected boost during the pandemic, but returned to normal once the Covid restrictions were lifted (Alcedo et al, 2023).

Figure 2. **Aggregate consumption e-commerce share in Spain. Online to total consumption share**
(As a % of total payments based on amount (Left) and as a % of total transactions. Moving average 3 months)

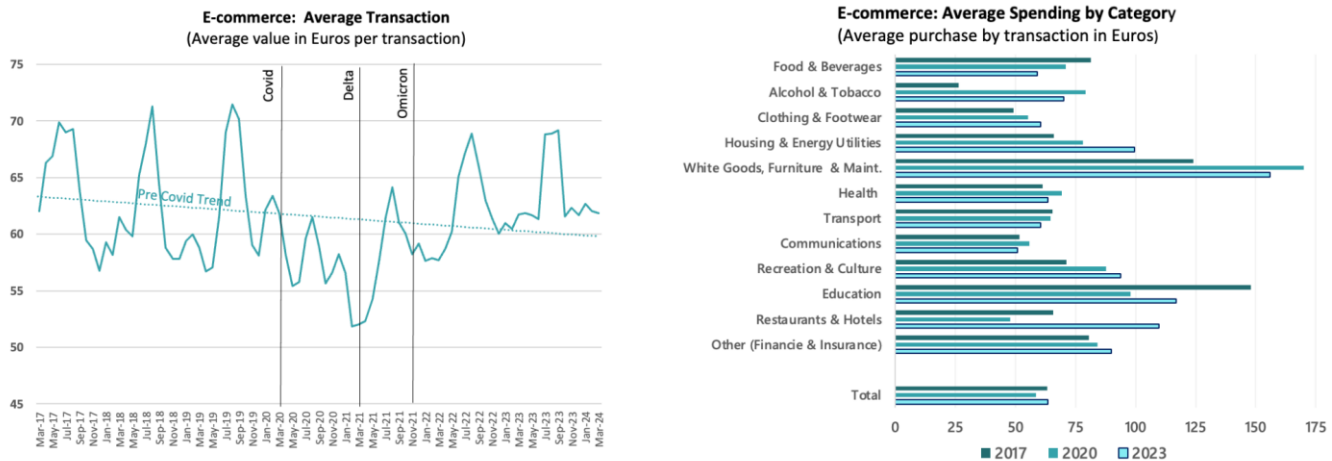


Source: Mishra, Ortiz, Rodrigo, Spilimbergo & Vazquez (2024)

The outbreak of Covid served as a catalyst for a temporary spike in e-commerce adoption. With lockdowns forcing physical stores to close and social distancing becoming the norm, consumers and businesses rapidly turned to online platforms for their shopping needs. This surge was significant but temporary; as restrictions eased and normalcy began to return, e-commerce growth rates started to align once again with their pre-pandemic trajectories. This pattern suggests that the pandemic's impact, while profound, was more of a short-term acceleration rather than a permanent alteration in the growth rate of e-commerce.

The pandemic has also influenced spending patterns within various e-commerce categories, reflecting broader changes in consumer behavior. During the pandemic, average spending per transaction initially dropped, but has begun to rebound, aligning with pre-pandemic levels by early 2024 (Figure 3). Notably, spending in sectors such as home appliances, furniture, and maintenance saw increases since 2020, likely due to more consumers setting up home offices. On the contrary, the average spending by transaction decreased in restaurant and hotel sectors given the lockdowns in 2020, while they experienced a significant growth as restrictions lifted and people resumed dining out and traveling. In contrast, sectors like food and beverages, and education observed declines in spending, indicating a return to pre-pandemic habits. These shifts highlight how pandemic-induced lifestyle changes have had lasting effects on consumer spending across different e-commerce categories.

Figure 3. **E-Commerce: Total & Categories of Consumption average amount by transaction**
(In euros)



Source: Mishra, Ortiz, Rodrigo, Spilimbergo & Vazquez (2024)

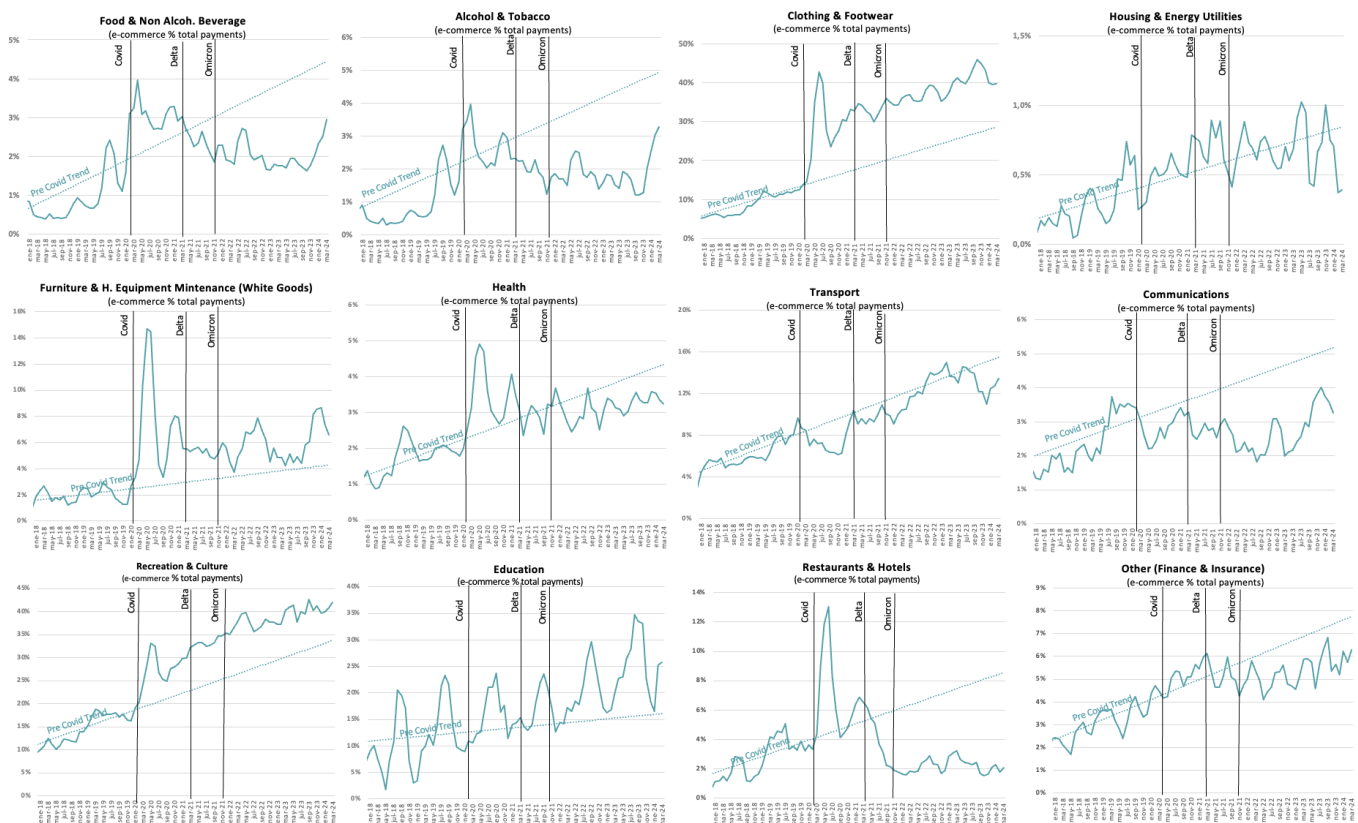
2. One size does not fit all: heterogeneity among categories

The Covid pandemic led to temporary increases in e-commerce across various consumer demographics and categories, driven by mobility restrictions and consumer caution. In the post-pandemic period, most categories and demographics have reverted to pre-pandemic levels. However, among these general trends we find some degree of heterogeneity in some sectors (Figure 4). The main differences by categories are the following:

- **E-commerce permanent acceleration:** this behavior is observed in categories already developed for e-commerce and those affected by changing habits after the lockdowns, with an accelerated trend after the Covid. These activities are:
 - **Textile and footwear:** this category already maintained a strong online presence before the Covid (10%), but experienced a further boost in e-commerce during the pandemic. This sustained increase suggests a more permanent shift in consumer shopping habits for clothing and footwear, likely fueled by the convenience and variety offered by online platforms. As a result, at the beginning of 2024, the market share multiplied by 4 reaching 40%. This category is dominated by female clients.
 - **Recreation and leisure:** online sales for leisure and entertainment products, including books, games, and hobby-related items, spiked during the pandemic as consumers looked for at-home entertainment options. The e-commerce share was already high before the pandemic (10%), but sectors like textile and footwear reached near 40% at the beginning of this year.
 - **Furniture and home equipment goods:** home goods and electronics saw an uptick in e-commerce activity after the Covid, driven by the increased time consumers spent at home, the need for home office setups during the lockdowns and the development of work from home trend. This category has increased its share from near 2% in 2017 to near 6% in 2024.

- **Education:** the move towards online education platforms, resources and tools showed an acceleration such as schools, universities and other educational institutions adapted remote learning environments. This was in line with global trends where educational entities leveraged digital platforms to continue their offerings amidst physical restrictions. Although accelerating the shift, the trend has been more gradual.

Figure 4. **Consumption e-commerce share in Spain by Official Consumption categories (COICOP)**
(E-commerce share, as a percentage of total payments. Moving average 3 months)



Source: Mishra, Ortiz, Rodrigo, Spilimbergo & Vazquez (2024)

- **Maintaining e-commerce positive trend :** there were some sectors which had a positive trend before Covid, but they showed a steep fall during the lockdowns, coming back to its trend thereafter. These activities are:
 - **Transport :** this category has maintained a secular positive trend but fluctuated during the Covid waves. The initial decrease in e-commerce spending on transport can be attributed to the lockdowns, which drastically reduced the demand for travel services, including public transportation, airlines and ride-sharing services. As the situation evolved, the transport sector began to witness a gradual recovery, driven by the increased adoption of online payment options for public transport systems.
 - **Finance and Insurance:** unlike sectors that faced immediate and drastic fluctuations due to lockdowns and mobility restrictions, finance and insurance saw a more steady adaptation towards e-commerce and online platforms. There were some initial but modest boosts during the Covid to correct thereafter. More recently a recovery trend is observed.

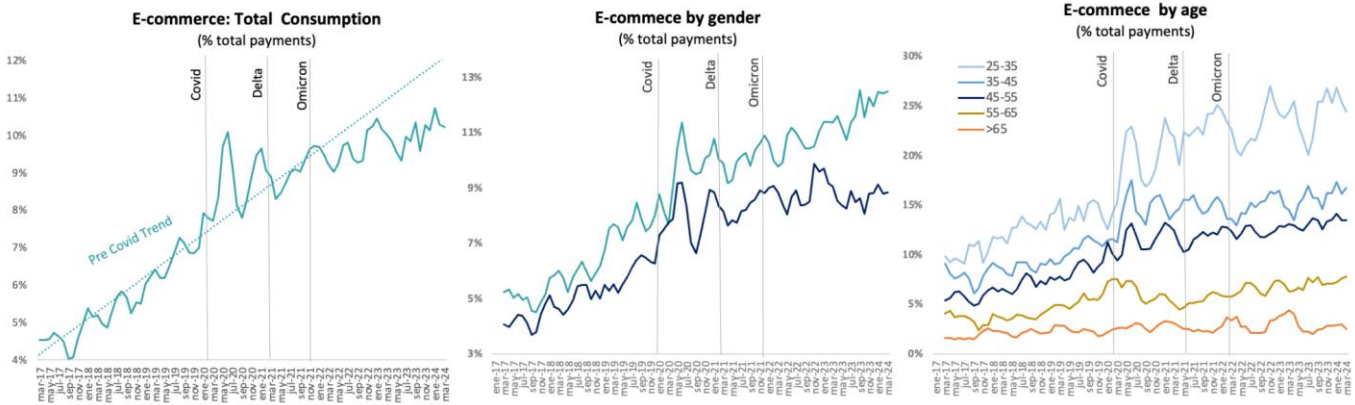
- **A sharp adjustment after the Covid:** Some basic goods experienced a temporary boost during Covid, yet they rapidly returned to normal even below.
 - **Food & beverage, alcohol and tobacco:** e-commerce saw a significant, albeit temporary, spike in essential goods and groceries as consumers adapted to lockdowns and mobility restrictions. This trend was particularly pronounced during the peak of the pandemic, with a notable return to pre-pandemic levels as restrictions eased. The surge indicates a temporary behavioral adaptation rather than a permanent shift towards online purchasing in these categories. However, the most recent trend since 2023 shows a significant acceleration to catch up the pre-Covid trend corresponding levels.
 - **Communications:** the communication sector, including hardware, software, internet access and streaming services experienced a downward adjustment in the e-commerce share post-Covid until mid 2023, when it initiated a recovery to reach its pre-Covid share of 3% at the end of 2023.
 - **Restaurants and hotels:** a notable case is the restaurant and hotel sector, which initially had a low e-commerce share but saw a significant boost as businesses adapted to e-commerce during lockdowns. This increase was short-lived, however, the online share decreased slightly below its January 2020 level once restrictions were lifted.

3. Demographics: female, younger, both urban and rural consumers lead the increasing e-commerce trend

The heterogeneity observed in the share of e-commerce in total consumption across different categories is mirrored in the demographic characteristics, with some variations potentially influenced by Covid (Figure 4):

- **The initial differences in e-commerce consumption by gender have even increased after Covid.** Data indicates that female consumers have an initial higher share of e-commerce compared to males. Before Covid, this gap was about 2 percentage points. However, this difference began to widen just during the post-Covid period and even increased at the beginning of 2024 to 4 percentage points
- **There is variation too in the e-commerce share across different age groups, which were partially present during Covid but experiencing some differences (Figure 5):**
 - **Younger age cohorts (below 35) not only had a higher share before Covid, but also showed the most significant increases, reaching levels above the pre-Covid trend.** This group had e-commerce consumption rates around 15 percent (<35 years) and rapidly grew during the pandemic to reach shares near 23 percent at the end of the period. Interestingly, the 35-45 age cohort also experienced an acceleration in their e-commerce consumption and remained aligned to the pre-Covid trend.
 - **The mid 35-45 age cohort also experienced an acceleration in their e-commerce consumption, but maintaining the pre-Covid trend.**
 - **Older age cohorts (45-55, 55-65 or >65) experienced temporary increases with the pandemic in the share of e-commerce, but they returned to shares below the pre-Covid trend in the post-Covid period at the beginning of 2024.** In sum, only the young ones (<35) and to a lesser extent the 35-45 group, which are those with a higher percentage of e-commerce before Covid, observed a significant acceleration after it.
 - In terms of geographical distribution, **urban and rural areas have shown similar growth trends in the share of e-commerce:** both groups experienced an acceleration during Covid, but they are now back to pre-Covid trends.

Figure 5. **Consumption e-commerce share in Spain by Gender, Geographical area (Urban and Rural) and Age**
(E-commerce share, as a percentage of total payments. Moving average 3 months % of Total Transactions)



Source: Mishra, Ortiz, Rodrigo, Spilimbergo & Vazquez (2024)

4. Micro evidence: confirming the significant heterogeneity across consumers by demographic characteristics and sectors

In order to analyze the microeconomic factors that explained the evolution of the aggregate consumption e-commerce share, we estimate in Mishra et al. (2024) the following panel data model³ explaining the e-commerce share as a function of some demographic factors (gender, geography and age), the pre-pandemic level of e-commerce, the lockdown effects and including some fixed and time effects as:

$$(1) \text{ } os_{i,r,s,t} = \text{Male}_i + \text{Urban}_i + \text{Age}_i + \overline{os}_{s,2019} + \text{Lockdown}_{r,t} + \alpha_s + \beta_r + \gamma_t + \delta_i + \varepsilon_{i,r,s,t}$$

Where $os_{i,r,s,t}$ is the e-commerce as a fraction of total consumption at time t for individual i located in region r spending in sector s . *Male* and *Urban* are dummies that take a value of 1 for males, and if the individual is living in an urban area. *Age* is the age of individual i . In alternative specifications, we also employ a dummy variable that takes a value of 1 if the individual is young. $\overline{os}_{s,2019}$ is the pre-pandemic average of online spending in sector s . This variable can be interpreted as a proxy of technological competency or learning in the sector. *Lockdown* is measure of lockdown restrictions during the pandemic. $\alpha_s, \beta_r, \gamma_t, \delta_i$ denote fixed effects for sector, region, time, and individual.

We find consistently across specifications (with and without fixed effects) that women and young spend more online relative to men and old respectively. In addition, individuals in sectors with greater online shares pre-pandemic continued to spend more online thereafter. On the other hand, individuals in urban locations do not report significantly different e-commerce shares from those in rural areas, after controlling for other individual characteristics. Therefore, results suggest significant heterogeneity across different groups of individuals (particularly across gender and age), and across sectors (depending on pre-pandemic online sectors; and for goods versus services). On average, e-commerce shares are higher for younger individuals, for women, and for spending in sectors with higher pre-pandemic online.

³ See Mishra et al. (2024) for further details about the methodology and the results.

5. The Covid effects on the secular trend: transitory or permanent accelerations and similarities with work from home (WFH)

Mishra et al. (2024) examines the impact of the Covid pandemic, finding that the pandemic significantly boosted e-commerce, but this surge didn't result in permanent behavioral changes across all demographic groups. Theories like compulsive behavior, hoarding and fear suggest the shifts were temporary, in line with the paper's findings.

This contrasts with permanent shifts like increased work-from-home (WFH) practices (Barrero et al., 2021). While WFH led to lasting organizational changes and personal discoveries about remote work's feasibility and benefits, e-commerce saw less innovation during the pandemic. Most consumers were already familiar with e-commerce, limiting new learning or behavioral changes. However, groups less familiar with e-commerce in the pre-pandemic period have increased their usage in the post-pandemic one, aligning with the hypothesis that experience levels affect the permanence of pandemic-induced behaviors.

In order to make a closer comparison with the WFH hypothesis, we restricted the sample to BBVA clients that were new to online consumption, and likely "learned" to go online during the pandemic (i.e. "Learn by Locking"). In order to evaluate this hypothesis, we look at whether individuals with lower initial e-commerce shares engaged more in online spending during the pandemic and afterwards. Indeed, we find some evidence which supports this idea. There is a negative relationship, which is stronger for extensive margin clients – a one percentage point lower pre-Covid online share is associated with a 0.27 pp higher online share on average for these customers. This could be suggestive evidence of learning by this group of clients.

Furthermore, our paper explains that e-commerce does not require the same level of coordination between parties as WFH does, making it easier to revert to pre-pandemic shopping habits. This easiness of switching behaviors emphasizes the transitory nature of the pandemic's impact on e-commerce compared to the more integrated and permanent shift towards WFH.

5. Conclusions

E-commerce has consistently grown over the recent years, becoming an increasingly popular means of payment. This rise in online shopping accelerated during Covid as the lockdowns limited people's mobility. While there was a significant surge in e-commerce during the pandemic, attributed to temporary Covid restrictions, the sector's growth returned to its original trend once those restrictions were lifted (see Alcedo et al., 2023).

But one "Click" does not fit all. A salient feature of e-commerce during Covid and the recovery has been heterogeneity. Sectors with a higher pre-pandemic online share saw a pronounced and permanent increase in e-commerce spending during the pandemic, while the acceleration during Covid vanished in other categories. Heterogeneity extends also to some of the demographic characteristics. On average, e-commerce shares are higher for younger individuals, for women, and for spending in sectors with higher pre-pandemic online.

We also find evidence of some learning in new e-consumers as individuals with lower initial e-commerce shares engaged more in online spending during the pandemic and afterwards.

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