

The labour impact of digital platforms

Valeria Cirillo¹, Dario Guarascio², Jacopo Tramontano²

¹University of Bari 'Aldo Moro', Department of Political Sciences

²Sapienza University of Rome, Department of Economics and Law

Group of work:

Clara Punzi (SNS), Donato Cutolo (IE Business School), Martin Kenney (University of California)

March 20, 2026

Spring School Scuola Normale Superiore

Political economy of production and labour

PRIN project n. 2022 PNRR P2022KM7C: "Living and working conditions in the digital economy in Italy and the European Union (DIGECON)".

Outline

The rise of digital platforms

Digital platforms and labour: different theoretical perspectives

Digital platforms and labour: worker-level evidence

Dimensions of Precarity in Platform Work

Digital platforms and techno-economic dependency of firms

Implications for Businesses and Labour

The geographical impact of platforms

How Amazon Shapes Local Labour Markets: Impacts on Wages, Jobs,
and Income Distribution

The rise of platform economy

- ▶ Large digital platforms - i.e., 'Big Tech' - as key drivers of structural change in contemporary capitalism
- ▶ Unprecedented **concentration of techno-economic power** (e.g., Vasudevan, 2022; Coveri et al., 2022)
- ▶ Reshaping the operation of **knowledge and innovation networks/ecosystems** (e.g., Gawer and Cusumano, 2014; Jacobides et al., 2024)
- ▶ **Surveillance-based business model** (Zuboff, 2019) challenging the very conceptualization of the firm (Pitelis, 2022)
 - Diffusion of '**algorithmic management**' **beyond digital labour market** (Adam-Prassl, 2019) also in "traditional work contexts"
 - **Increasing capacity of control** used by companies in relation to labour, stiffening of hierarchical relations (Moro et al., 2019; Cetrulo et al. 2020)
- ▶ Exacerbating the process of **labor fragmentation** (Cirillo et al., 2023) - e.g -, increasing **inequalities** (Schor and Vallas, 2020)
 - **Platform workers:** Italy - 42% of web-based workers does not have a contract; 35% of location based; 47% women!

Digital platforms and labour: different perspectives

▶ **Micro-economic view:**

- (i) monopoly-monopsony power; fragmentation, monitoring and bargaining power (PA theories) [-, with ambiguities]
- (ii) lowering search and transaction costs; reduction of asymmetric information and signalling; organizational innovations [+ , with ambiguities]

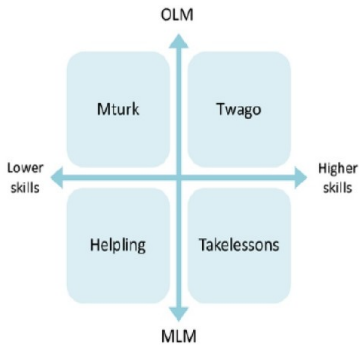
▶ **Radical approaches, non-competitive markets:**

- (i) expanding the pool of labour to be exploited; increasing competition among workers; direct and indirect value extraction; increasing exploitation rate [-]

▶ **Industrial relations and labour view :**

- (i) labour market flexibility and 'digital precariousness'; weakening bargaining power; labour conditions and income vulnerability [-]

Platforms: different organizational models...



Heterogeneous models:

(global market) *Online Labour Markets* (OLMs) vs. (local market) *Mobile Labour Markets* (MLMs)

Exchange of **heterogeneous services**:

«micro-tasks» exchanged virtually or physically vs. complex tasks

- ▶ Platforms differ for **task allocation strategies** (Eurofound, 2018):
 - tasks are allocated by the platform (i.e. the platform matches client and worker - '**platform-determined**' work);
 - tasks are allocated by the client (i.e. the client selects a worker - '**client-determined**' work);
 - tasks are allocated by the workers (i.e. the worker chooses their tasks - '**worker-determined**' work).

...Same organizational flexibility, increasing capacity of control

1. Platform work directed by digital platforms allows **extreme organisational flexibility** (for companies); disposing of work according to firms' strategic objectives beyond the regulatory and contractual constraints;
 - ▶ Standardization and segmentation of labor processes - '**Digital Taylorism**' (Dosi and Virgillito, 2019) or/and **new international division of labour** (Casilli and Posada, 2019);
2. Platforms have the capacity to **organise, control and direct work** by making use of technologies that allow them to:
 - (i) **verifying at any time the positioning and activity of the worker**
 - (ii) **measuring the compliance of the work performance against standards settled by the platform**
 - (iii) **incentivising/inducing specific behaviours or impose sanctions** (Aloisi and De Stefano, 2020)

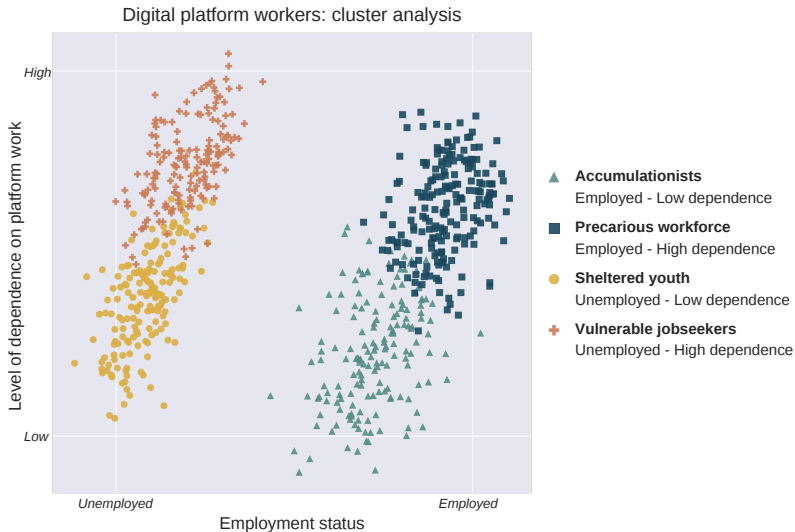
→ Lots of empirical contributions have focused on workers' vulnerability and economic insecurity (individual level data)

Dimensions of Precarity in Platform Work

- ▶ Three common and overlapping features of platform work that are likely to lead to greater economic insecurity among platform workers:
 1. **Low pay**
 2. **Volatility in working hours and wages**
 3. **Privatization of risks**

- ▶ Italy (INAPP-PLUS, 2021):
 - ▶ 570,521 platform workers (18-74 years old)
 - ▶ 1.3% of active pop in 2021
 - ▶ 48% (274,000) main income activity
 - ▶ 25.6% does not manage its own account
 - ▶ 30% does not have a minimum wage per hour
 - ▶ 50% pay per each assignment

Who are digital platform workers in Italy?



Punzi et al., 2026

- ▶ Visualisation of the four distinct profiles of digital platform workers in Italy, identified through cluster analysis, positioned along two main dimensions: employment status (employed vs. unemployed) and level of dependence on platform work (low vs. high).

Tasks performed by platform workers (2018 vs 2021)

Figure: Variation in platform worker tasks across years

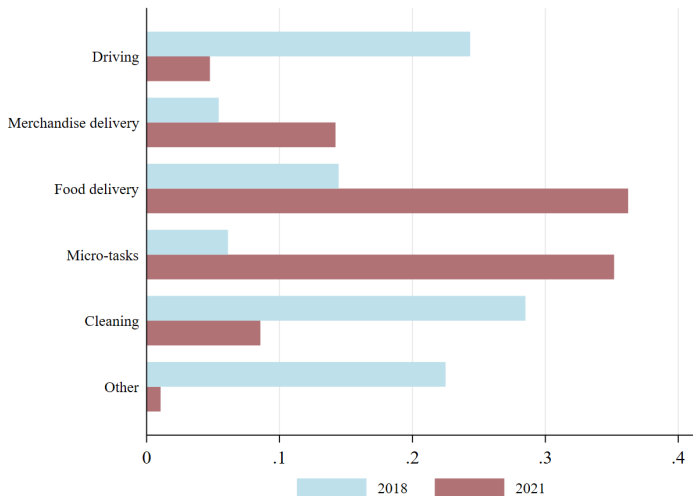
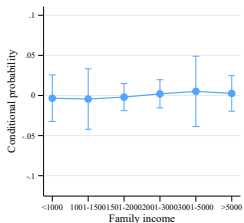
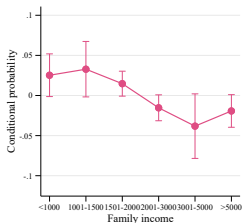


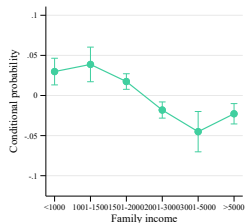
Figure: Marginal effects of different platform work tasks on household income, after an ordered probit estimation



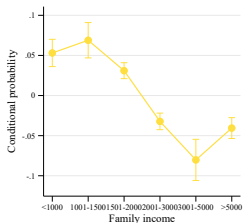
Driving



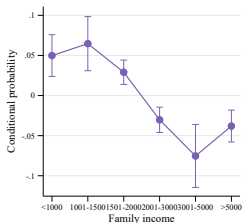
Merchandise delivery



Food delivery



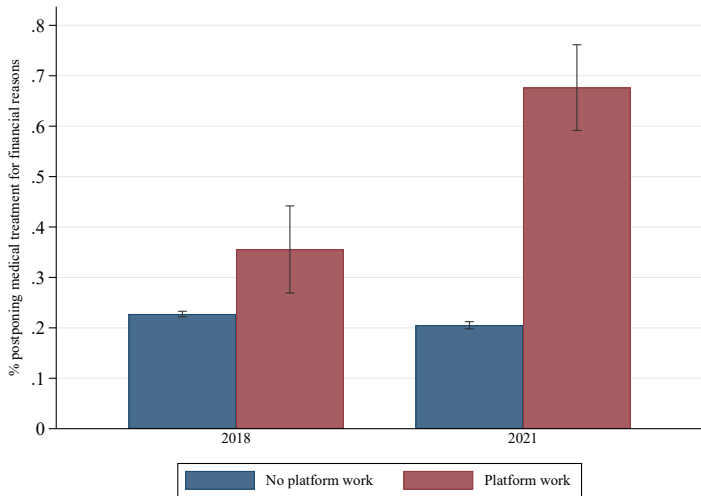
Micro-work



Cleaning

Platform workers and income insecurity (2018 vs 2021)

Figure: Percent of individuals postponing medical treatment across years and categories of workers

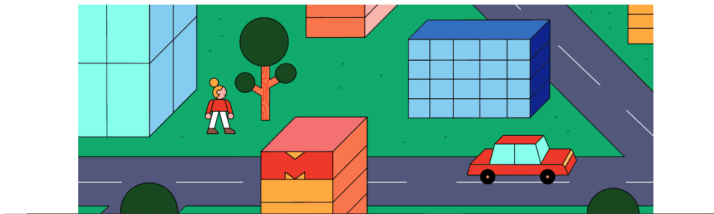


A further step: Techno-economic dependency of firms



Amazon Everywhere

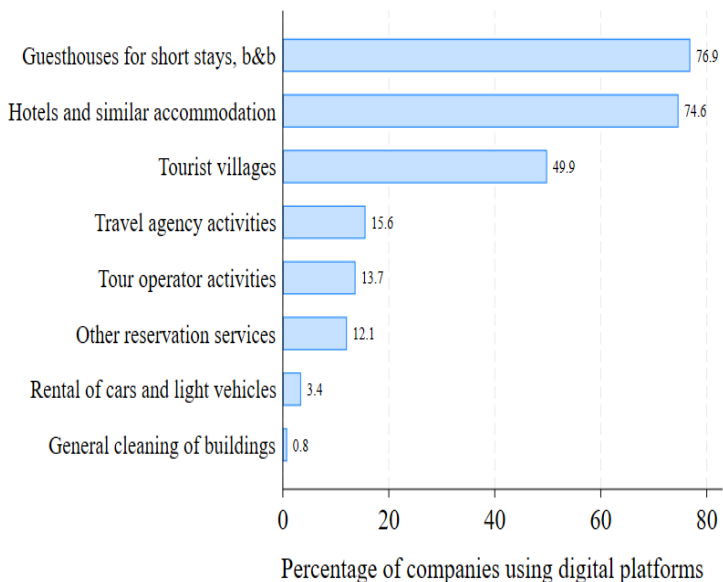
Prime Power: How Amazon Squeezes the Businesses Behind Its Store



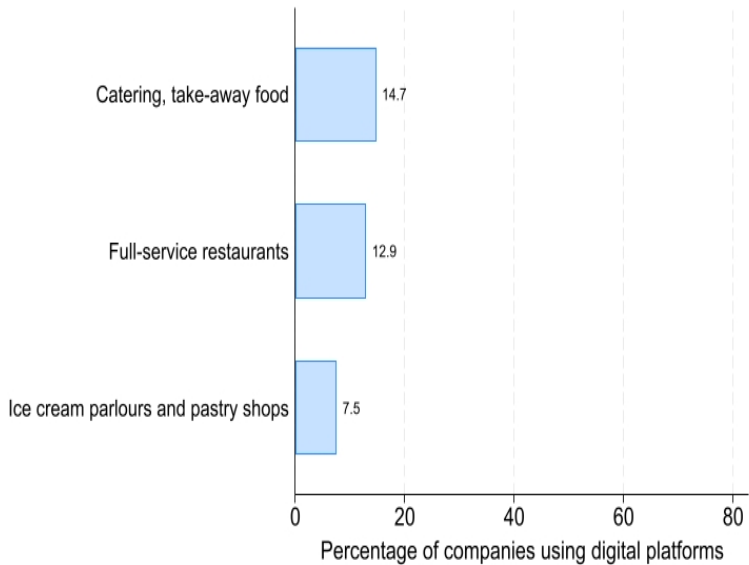
Digital platforms and firms

- ▶ Platforms may introduce wider demand fluctuations, power asymmetries and structural instability → **fostering uncertainty** (Ozalp et al., 2018; Zhu, 2019)
- ▶ Platforms' power is rooted in (Cutolo and Kenney, 2021):
 - i) **techno-economic features of digital platforms** (e.g., lock-in dynamics, panoptic view of users)
 - ii) **lack of alternatives** (e.g., platform's ability to match buyers and sellers or service providers; ensuring market access)
 - iii) **peculiar governance** (e.g., control mechanisms, pricing policies, unilateral setting of terms and conditions)
- ▶ Core issues such as the division of revenues between the platform and PDC are decided solely by the platform owner → **increasing vulnerability**
- ▶ **How does platform adoption affect firms' internal employment structures?**
 - **Resorting to non-standard employment relationships (NSERs):**
a longstanding practice for firms facing competitive pressure and uncertainty (Allaire and Firsirotu, 1989; Davis-Blake and Uzzi, 1993)

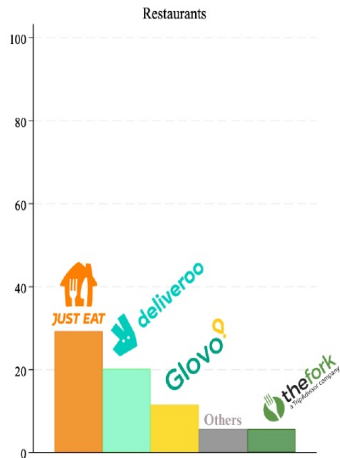
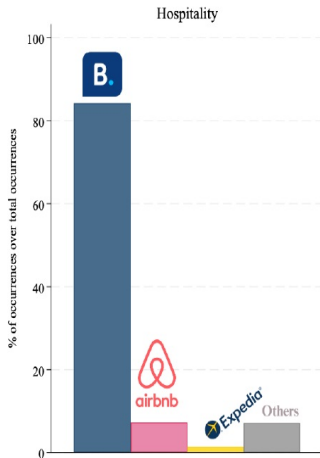
Firms using platforms in hospitality, 2021



Firms using platforms in restaurants, 2021



Which was your most used platform for sales in 2021?

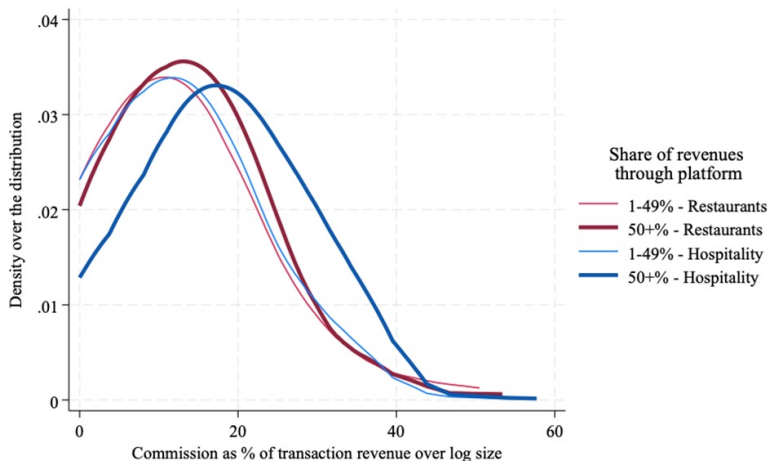


Source: DPS 2022. Percentage calculated over the number of occurrences of a particular platform name in answer to the question "Which was your most used platform for sales in 2021?"

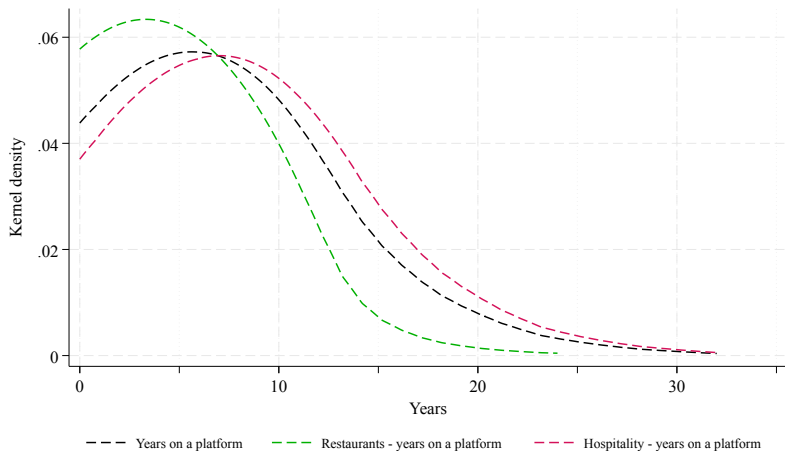
(Cirillo, Cutolo, Kenney, Guarascio, Tramontano, 2024)

Techno-Economic Dependency: the burden of fees

Figure: Average Fees Paid to the Platform: 'Dependent' vs 'Non-Dependent' Businesses (>50% of Revenue) (log of fees)



Descriptive evidence: length of the platform relationship



Results I - Reliance on non standard forms of employment

$$Sh_{NSER_i} = \alpha_0 + \beta_1 Plat_i + \beta_2 X_i + \beta_3 \Gamma_c + Z_r + F_s + \epsilon_{crs} \quad (1)$$

Table: Share of NSERs (OLS, OLS-PS, OLS year 2019)

	(1) OLS	(2) OLS	(3) OLS with propensity score	(4) OLS 2019
Use of platforms	0.0891 (0.0152)***	0.0509 (0.0216)*	0.0574 (0.0227)*	0.0659 (0.00275)*
Firm-level controls	NO	YES	YES	YES
Geographic controls	NO	YES	YES	YES
Constant	-0.513 (0.00871)***	3.305 (0.295)***	3.632 (0.296)***	4.034 (0.305)***
Observations	20,472	20,331	20,325	16,715
Adjusted R^2	0.000837	0.0468	0.0542	0.0542
χ^2	34.56	1576	1343.47	1164

Standard errors in parentheses, p-value: *** p<0.01, ** p<0.05, * p<0.1

Results II - Reliance on non standard forms of employment

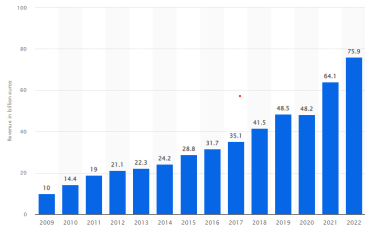
Table: Share of NSERs: mediating factors

	(5)	(6)	(7a) Restaurants	(7b) Hospitality	(8)
Micro firms	0.0229 (0.0476)***				
Medium firms	-0.502 (0.0813)***				
Multihoming		-0.0677 (0.0262)***			
Dominant platform			-0.00934 (0.0502)	0.156 (0.0519)***	
Platform-specific investment					0.0744 (0.0274)***
Firm-level controls	YES	YES	YES	YES	YES
Geographic controls	YES	YES	YES	YES	YES
Constant	3.697 (1.332)***	4.136 (1.334)***	1.953 (2.122)	4.812 (1.610)***	4.253 (1.338)***
Observations	6,830	6,830	1,622	5,208	6,830
Adjusted R ²	0.0676	0.0653	0.0238	0.0863	0.0653
χ^2	801.4	790.7	123.5	763.1	795

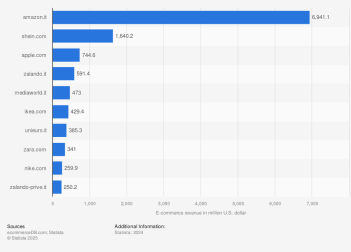
Standard errors in parentheses, p-value: *** p<0.01, **p<0.05, *p<0.1

The geographical impact of platforms - How Amazon Shapes Local Labour Markets

Ecommerce revenue in Italy from 2009 to 2022 (in billion euros)



Top online stores in Italy in 2024, by e-commerce net sales (in million U.S. dollars)



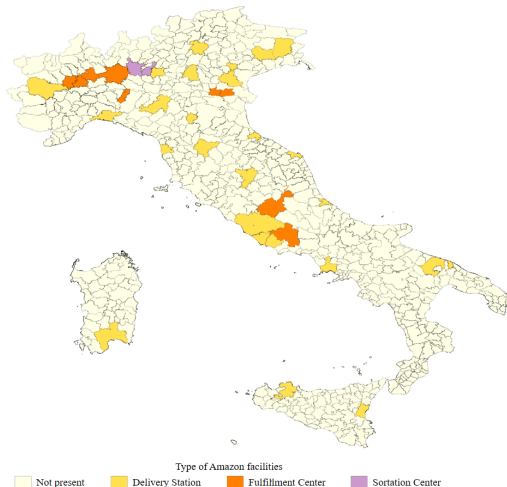
Research question I:

What are the impacts of Amazon on wages and employment?
Do these effects differ across local labor markets?

Research question II:

How does Amazon's presence affect income distribution?
Do the effects differ across income groups?

Amazon in Italy: FCs vs. DSs

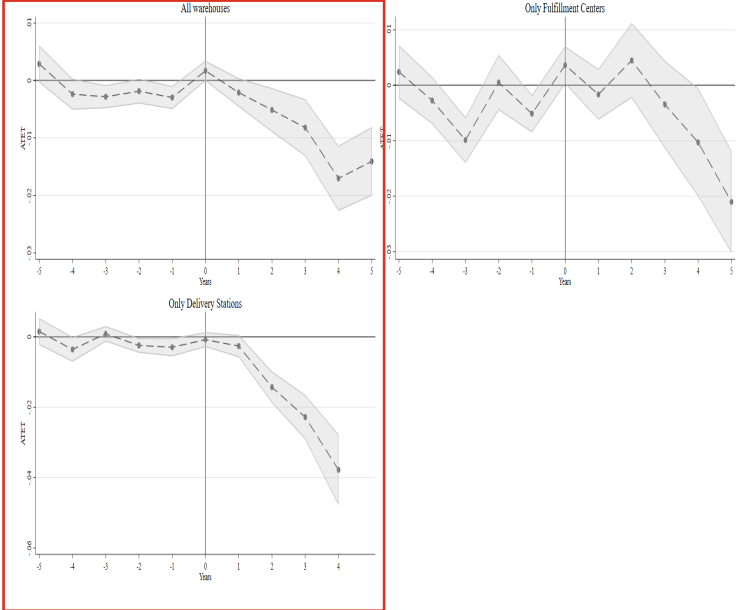


- ▶ FCs: farther away from cities and customers;
- ▶ DSs: close to cities and end-markets

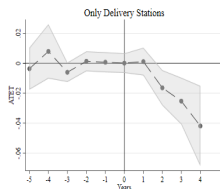
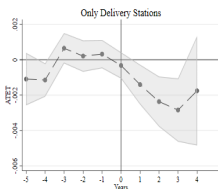
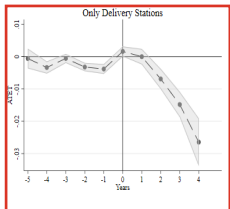
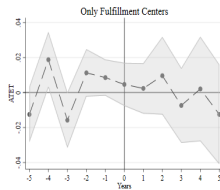
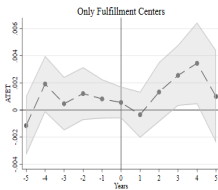
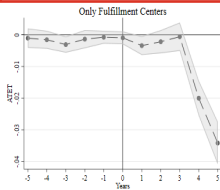
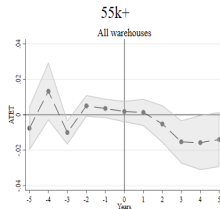
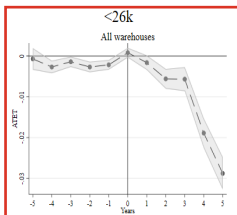
$$ATT_{c,t} = \alpha + \beta PostAmazon_{c,t \geq g} + \Phi_c + \Theta_t + \epsilon_{c,t} \quad (2)$$

Dynamic effects: log wages

Impact on log per capita wages of the opening of a new e-commerce facility



Dynamic effects: average income per bracket



Discussion and Conclusions

▶ Individual-level evidence

The rise of platform **exacerbates social inequality**, amplify existing structural divides embedding digital labour within the broader fragmentation and asymmetries of the Italian labour market

▶ Firm-level evidence

The growing power of digital platforms - including control of vital market functions and data - may affect **firms' organizational decisions and strategies** with non-trivial implications for labour

▶ Geographical-level evidence

New Amazon facilities have significant **negative impacts on wages**, no positive impact on employment → platform presence imply labour market losses and an uneven distribution of incomes

▶ Stronger regulation to limit the share of services managed by a single platform, fostering algorithmic transparency, data sharing and portability

Rider pagati 4 euro a consegna, commissariata Deliveroo: "Caporalato e sfruttamento"



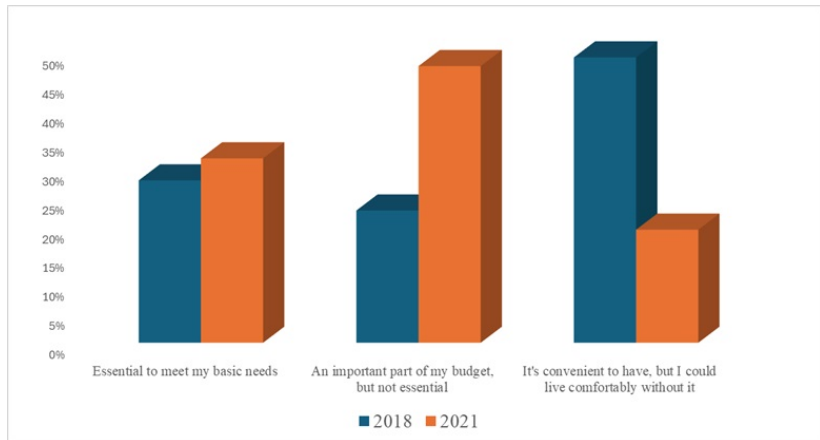
Thanks for your attention

Valeria Cirillo (valeria.cirillo@uniba.it)

Appendix

Platform workers and income dependency (2018 vs 2021)

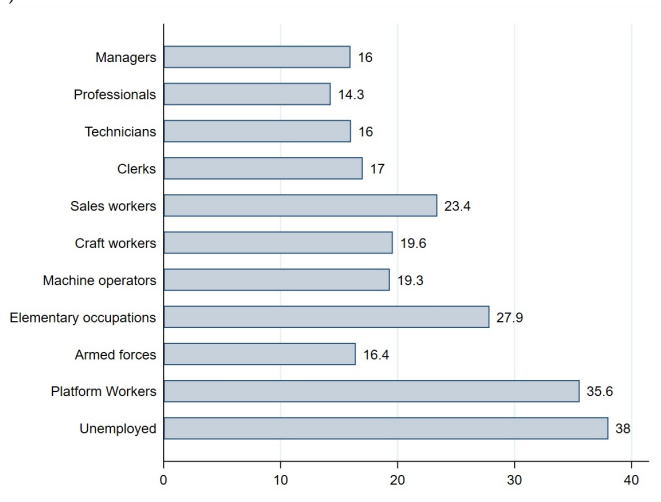
Figure: In relation to the income you earn from platform work activity...



Source: Cirillo, V., Guarascio, D., Punzi, C., Tramontano, J. Il Mulino

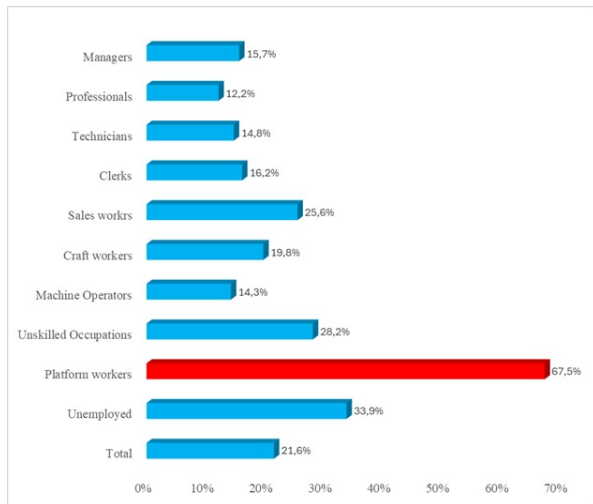
Platform workers and income insecurity (2018)

Figure: Income insecurity (not able to cope unforeseen expenses) by occupations (percent)



Platform workers and income insecurity (2021)

Figure: Income insecurity by occupations (percent)



Source: Cirillo, V., Guarascio, D., Punzi, C., Tramontano, J. Il Mulino

Fulfillment Centers and Delivery Stations



- ▶ Located farther away from cities and customers;
- ▶ Large (alleged) hiring event (800-1000, from newspaper reports)
- ▶ Assumed to bring logistics and transportation-related jobs



- ▶ Located close to cities and end-markets;
- ▶ Smaller local employment impact (100-300)
- ▶ Larger effects on local retail employment disruption

References I

- Y. Allaire and M. E. Firsirotu. Coping with strategic uncertainty. *MIT Sloan Management Review*, 30(3):7, 1989.
- A. Davis-Blake and B. Uzzi. Determinants of employment externalization: A study of temporary workers and independent contractors. *Administrative science quarterly*, pages 195–223, 1993.
- H. Ozalp, C. Cennamo, and A. Gawer. Disruption in platform-based ecosystems. *Journal of Management Studies*, 55(7):1203–1241, 2018.
- F. Zhu. Friends or foes? examining platform owners' entry into complementors' spaces. *Journal of Economics & Management Strategy*, 28(1):23–28, 2019.