

# Creation, destruction and reallocation of jobs in Italian firms: an analysis based on administrative data

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# Motivation

- ▶ News coverage of labour market usually focused on *net* employment changes
- ▶ These mask large simultaneous *gross* creation and destruction of jobs in different parts of the economy
- ▶ Creation and destruction not reflected in net changes implies substantial reallocation of jobs.
- ▶ Even during Covid-19, while many firms reduced their use of labor input, many others expanded (!). Where are jobs moving?
- ▶ This type of analysis much more revealing: shock responses, impacts of policies etc.

## This paper

- ▶ We study the creation, destruction and reallocation of jobs in Italy over **40 years**
- ▶ We employ well established indicators from the literature (Davis and Haltiwanger, 1992)
- ▶ We are able to follow dynamics at the quarterly frequency in many sectors / types of firms
- ▶ We extend older work on job flows in Italy (Contini et al., 1995) and capture recent dynamics during Covid-19, on which there's very little evidence.

## A preview of the results (1/2)

### During the last 40 years

- ▶ Job creation (JC) and job destruction (JD)  $\approx$  **12-13** percent of employment, largely in line with other developed economies  $\Rightarrow$  excess reallocation rate  $\approx$  **24** percent.
- ▶ Most of this simultaneous creation and destruction occurs ***within*** narrowly defined sectors, highlighting the crucial role of firm heterogeneity rather than sectoral shocks.
- ▶ Firm entry and exit contribute around **1/3** to total creation and destruction, although they account for a small employment share

## A preview of the results (2/2)

### During the Covid-19 crisis

- ▶ Even though STW schemes kept contracts alive, firms' *effective* labor input use dropped sharply.
- ▶ JD  $\uparrow$  5 p.p. JC  $\downarrow$  5 p.p. Share of expanding firms from 60 to 40 percent.
- ▶ Excess job reallocation *declined* exclusively due to within-sector flows. Between-sector flows increased but only slightly.
- ▶ Transition matrices of *worker flows* demonstrate abnormal inflows towards ICT and construction sectors – digital economy/WFH and fiscal incentives

## VisitINPS data

- ▶ Monthly panel of firm-level employment  $\approx 1.5$  million firm observations per year
- ▶ Average employment data at the quarterly frequency
- ▶ Take differences between a given quarter ( $t$ ) and the same quarter of the previous year ( $t - 1$ ).
- ▶ All figures to be interpreted as *yearly* indicators, although monitored at quarterly frequency.
- ▶ For some analyses on worker flows and to construct AKM FE, we also use matched EE panel. Cleaning follows standard procedures (Card et al. 2013 QJE).
- ▶ Timeliness and high-frequency are a key advantage of INPS data compared to e.g. German or US-based datasets

## Measuring job flows in admin data

Start from the growth rate of a firm  $i$

$$g_{it} = \frac{E_{it} - E_{it-1}}{X_{it}} \quad (1)$$

- ▶  $X_{it} = \frac{1}{2}(E_{it} + E_{it-1})$  is the average employment level between these  $t$  and  $t - 1$
- ▶ Varies between -200% (for exiting firms) and 200% (for firms entering the market)
- ▶ Well approximates other growth rates (logs) but defined for entrants and exiting firms.

## Measuring job flows in admin data

From growth rates we can define job creation (JC) and job destruction (JD) at the firm level

$$JC_{it} = \max\{g_{it}, 0\} \quad (2)$$

$$JD_{it} = \max\{-g_{it}, 0\} \quad (3)$$



## Measuring job flows in admin data

- ▶ At any other level of aggregation, JC and JD are *employment-weighted* averages of micro-level JC and JD

$$JC_t = \sum_i \left( \frac{X_{it}}{X_t} \right) \cdot JC_{it} \quad (4)$$

$$JD_t = \sum_i \left( \frac{X_{it}}{X_t} \right) \cdot JD_{it} \quad (5)$$

- ▶ It is easy to prove that JC (JD) is the sum of net employment changes at expanding (contracting) establishments, indexed by  $C$  ( $D$ )

$$JC_t = \frac{\sum_{i \in C} (E_{it} - E_{it-1})}{X_t} \quad (6)$$

$$JD_t = \frac{\sum_{i \in D} |(E_{it} - E_{it-1})|}{X_t} \quad (7)$$

## Indicators of job reallocation

It follows that  $JC_t - JD_t$  is equal to the net employment change. Excess reallocation is defined as:

$$ER_t = JC_t + JD_t - |JC_t - JD_t| \quad (8)$$

Excess reallocation can be decomposed in a within and a between sector component:

$$ER_t = \underbrace{\sum_s (JC_{st} + JD_{st} - |Net_{st}|)}_{\text{within component}} + \underbrace{\sum_s (|Net_{st}|) - \left| \sum_s Net_{st} \right|}_{\text{between component}} \quad (9)$$

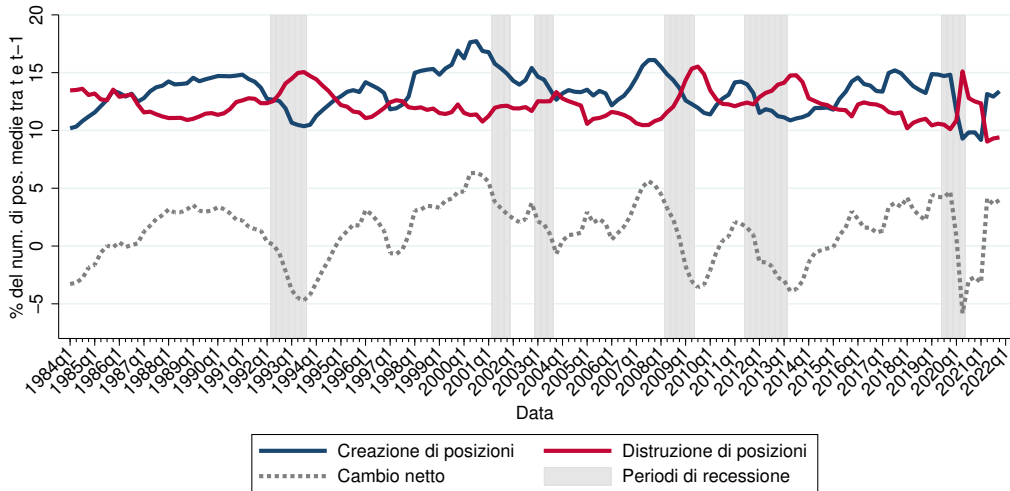
## Contribution of entry and exit

JC and JD can also be decomposed in the contribution coming from incumbent firms, and that coming from entry and exit.

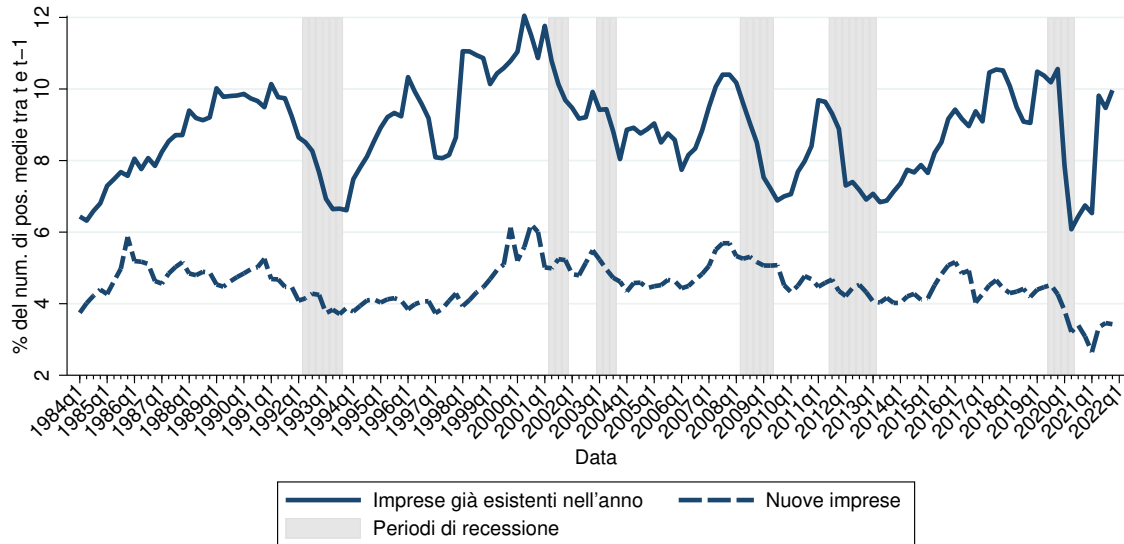
$$JC_{it} = \sum_{i \in \text{incu}} \left( \frac{X_{it}}{X_t} \right) \cdot JC_{it} + 2 \cdot \left( \frac{X_t^{\text{entry}}}{X_t} \right) \quad (10)$$

Intuitively, the contribution of entrants to job creation is twice their share of employment at entry.

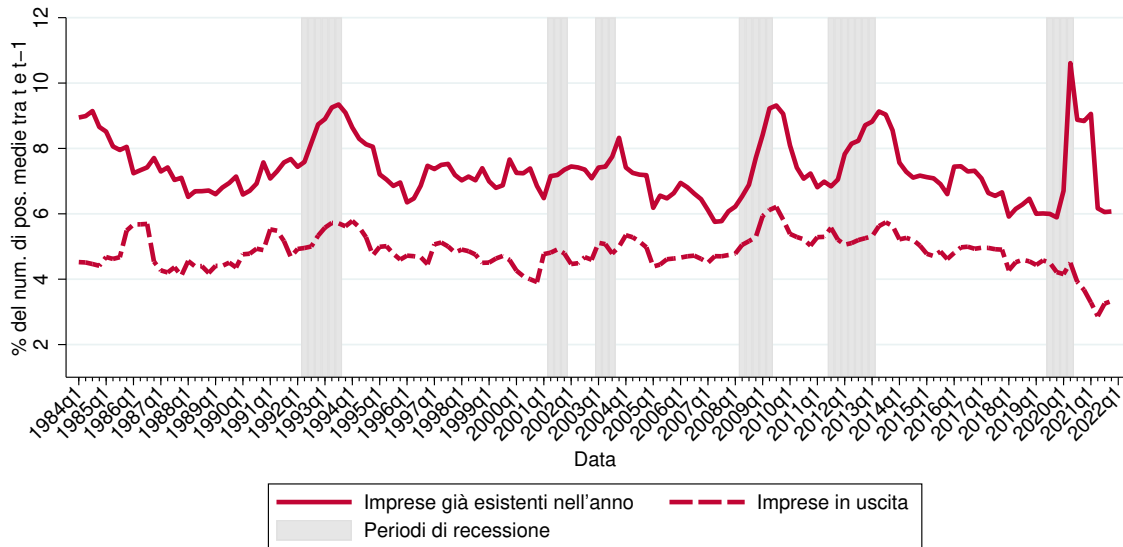
# Yearly rates of job creation, destruction and total employment changes



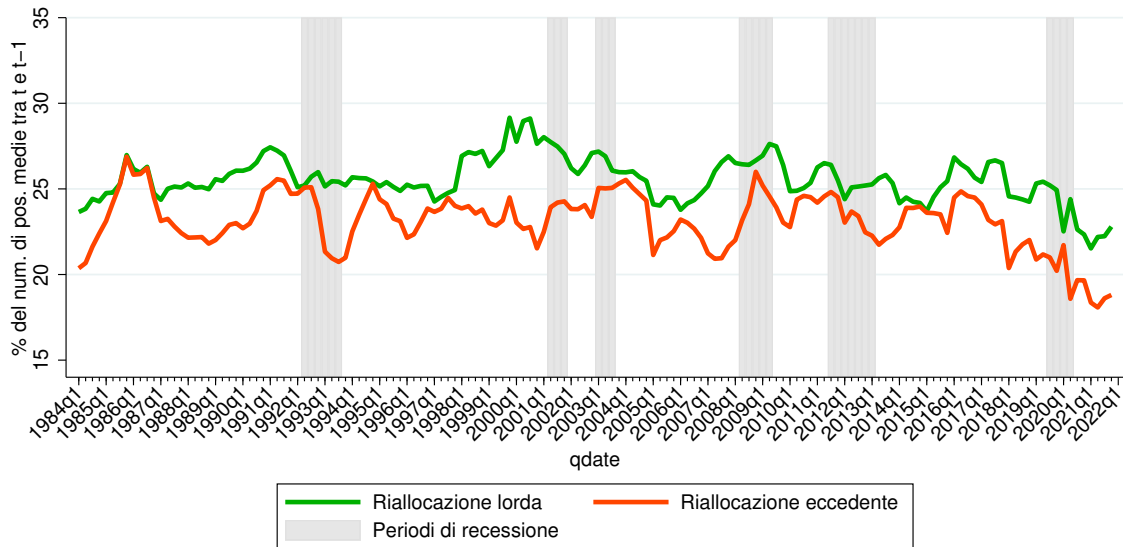
# Contributions to job creation by incumbent firms and new entrants



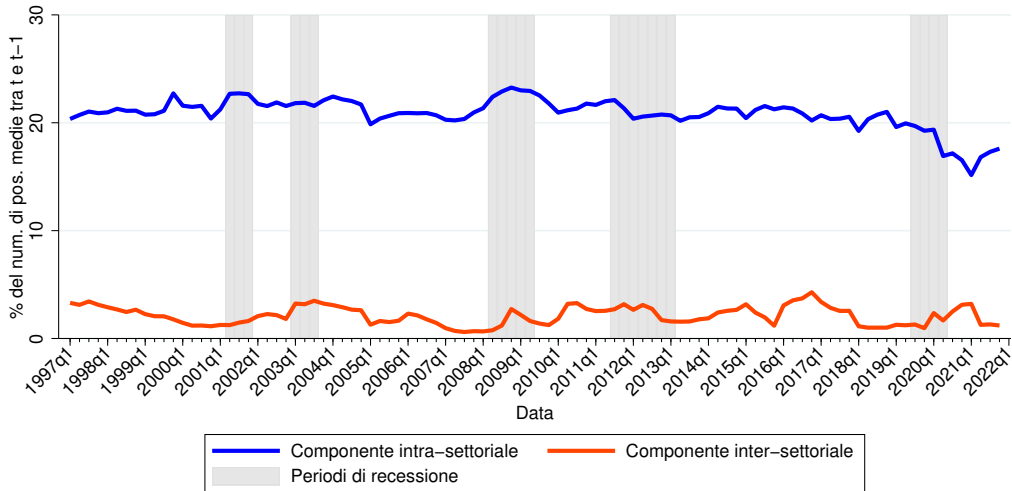
# Contributions to job destruction by incumbent and exiting firms



## Yearly gross and excess job reallocation

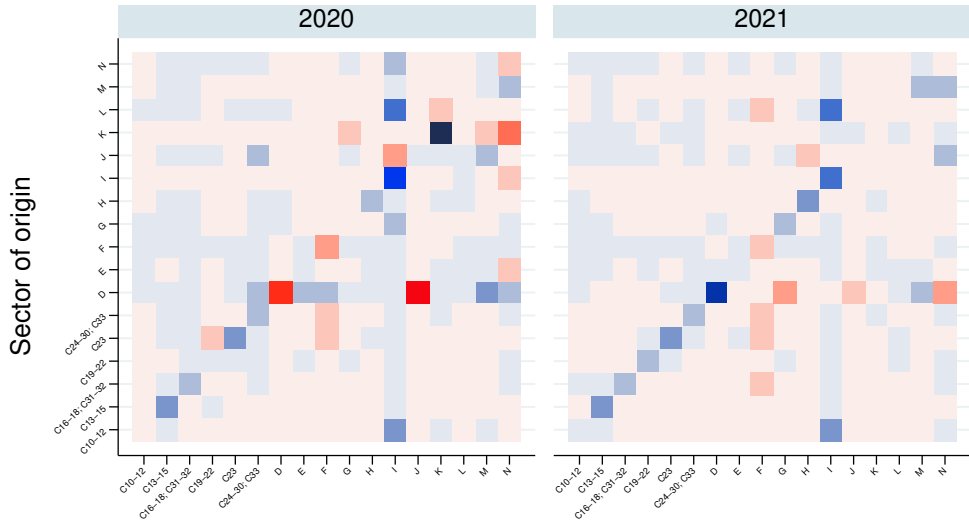


# Contributions to excess reallocation by within and between sector job movements





# Transition matrices of workers



# Conclusions

1. *Eppur si muove...* the Italian labor market has constantly displayed a high level of job flows
2. *Is Covid-19 a reallocation shock?*... in a historical perspective way less than one would have thought. Reallocation keeps being a within-sector phenomenon.