INTELLIGENZA ARTIFICIALE E LAVORO IN ITALIA: MISURAZIONE DELL'ESPOSIZIONE E RUOLO DELLE START UP

Artificial intelligence and work in Italy: measuring exposure and the role of start-ups

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SESSIONE INTELLIGENZA ARTIFICIALE: IMPATTI, RISCHI E SFIDE PER IL MERCATO DEL LAVORO IN ITALIA (with INAPP)

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Research question:

How much a job is exposed to AI?

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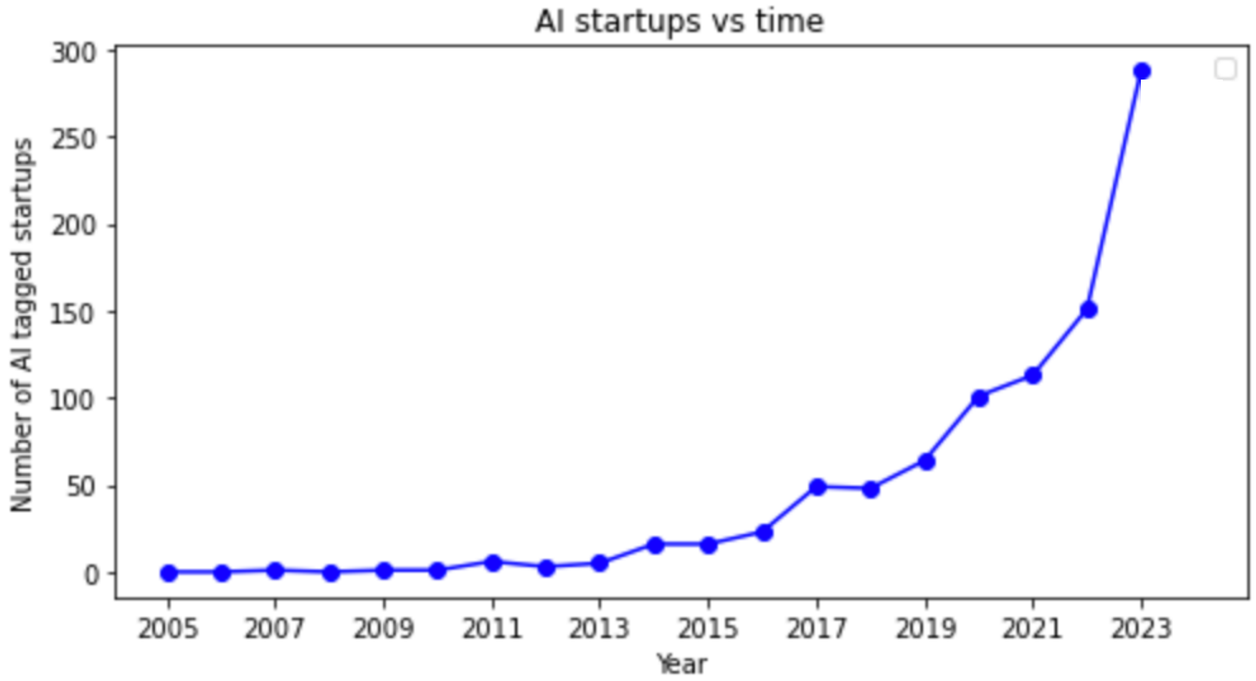
Our approach

We count the number of AI applications developed by funded startups that can significantly affect the tasks of an occupation

- **We have collected startups from Y-Combinator (a technology startup accelerator)**
- **5000 startups -> each funded 500k $**
- **We selected all the AI tagged startups**
- **(Robustness analysis with EU-startup)**



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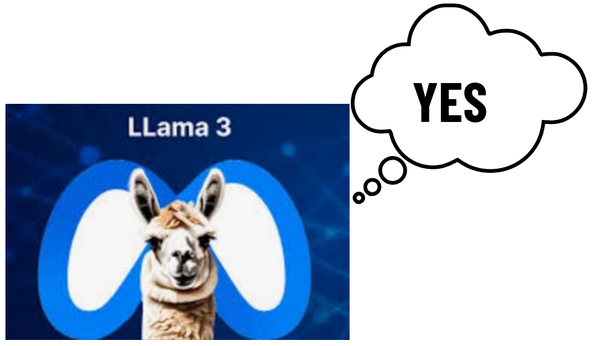
Example

Startup description example- Activity description



Method (step 2)

For each AI startup, Y-combinator provides a detailed description of the developed product or service

For each occupation, ICP provides a concise description of all its required "activities"

LoRa fine-tuned on a human labeled training set

step 2 → **We count how many AI startups are developing a product that can affects a given activity**

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Method (step 3)

For each AI startup, Y-combinator provides a detailed description of the developed product or service

For each occupation, ICP provides a concise description of all its required “activities”

LoRa fine-tuned on a human labeled training set

step 2

We count how many AI startups are developing a product that can affects a given activity

Since each occupation is associated with multiple activities, the final exposure index for a job is the average of the exposures of the tasks associated with it.

step 3

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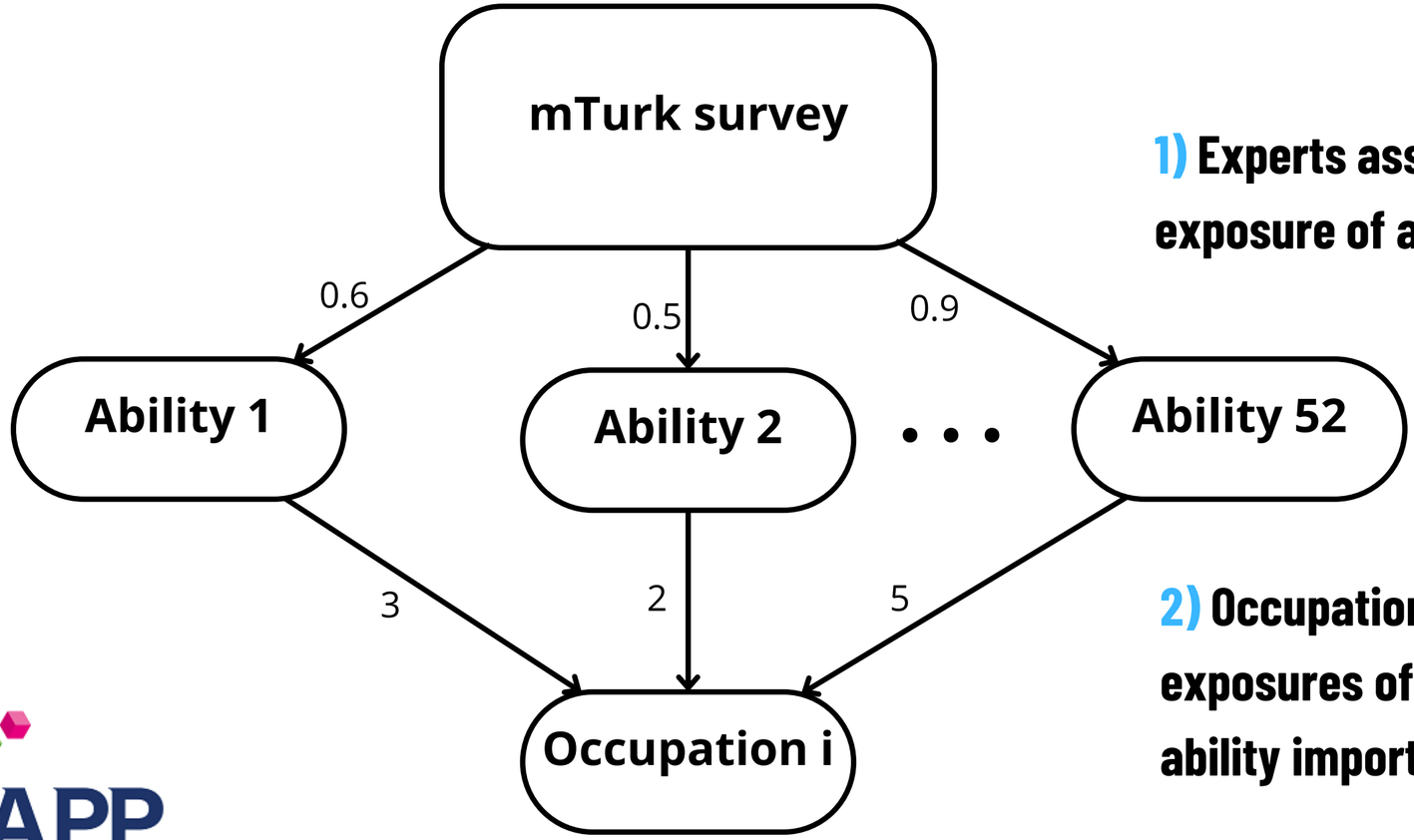
A benchmark index: Italian c-AIOE

(Ferri V., Fenoaltea E. M., Porcelli R., 2024)

c-AIOE is an ability-based measure:



1) Experts assign a score to the level of AI exposure of an ability (52 abilities from ICP)

2) Occupational exposure is the weighted average of the exposures of the required abilities (weights are the ability importance scores provided by ICP)

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- **Since there is the additional layer of abilities, the c-AIOE is a measure of potential exposure (or theoretical exposure)**

- **Our measure, based on AI applications that directly target job activities, reflects the actual effort toward exposure.**

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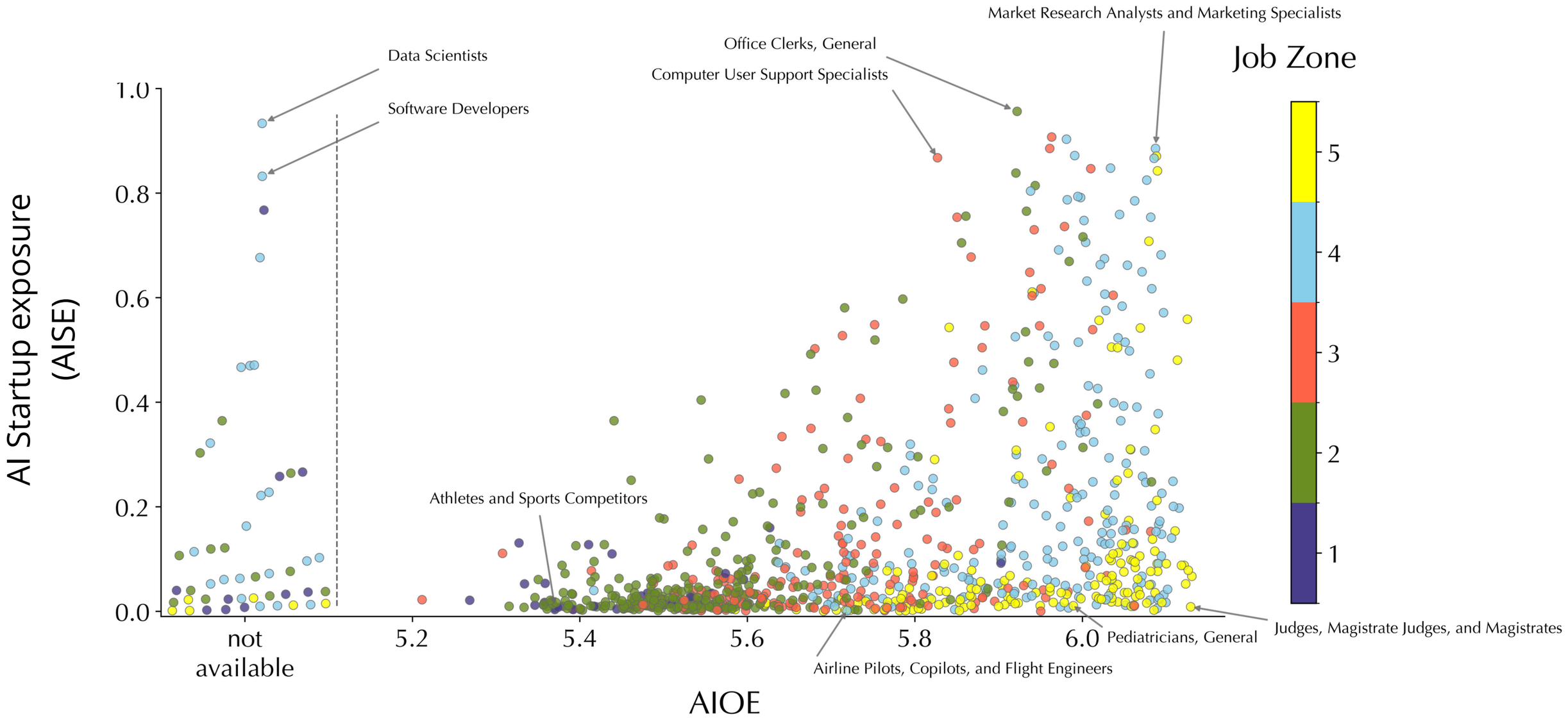
Results (O*NET based)



Fenoaltea, E. M., Mazzilli, D., Patelli, A., Sbardella, A., Tacchella, A., Zaccaria, A., ... & Pietronero, L. (2024). Follow the money: a startup-based measure of AI exposure across occupations, industries and regions. *arXiv preprint arXiv:2412.04924*.

Results (ICP based) Building the Italian AISEit (Ferri, Porcelli, Fenoaltea, 2025)

Data and Method

- Italian ICP tasks matched with YC-funded AI startups
- Selected tags: for example AI, ML, Generative AI, Computer Vision, AIOps, Conversational AI
- Input: detailed startup descriptions
- LLM classifies whether startup product can replace each task
- Activity-level exposure → averaged at occupation level

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Results (ICP based) – AISEit vs. CAIOEit: Joint Distribution Potential vs. Market-Driven AI Exposure

- **CAIOE: complementarity occupational AI exposure**
- **AISE: exposure driven by startup innovation**
- **High–high quadrant:**
  - **Data entry clerks**
  - **Monitoring and control staff**
  - **Database technicians**
- **Low–low quadrant:**
  - **Manual workers**
  - **Dancers**
  - **Athletes**

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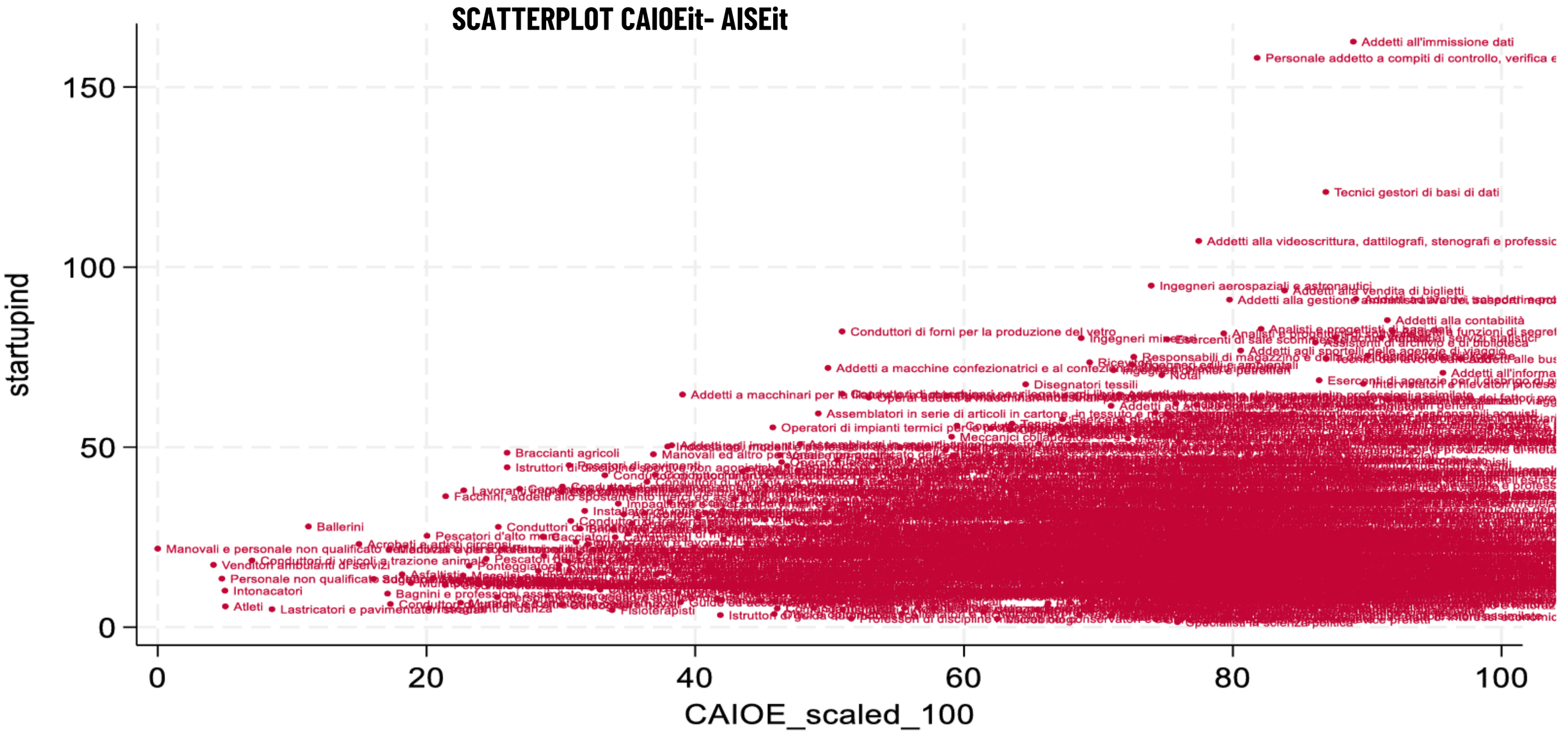

Results for ITALY

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Results (ICP based) - Employment Size Matters

Policy relevance of exposure

- **Highly exposed occupations may employ few workers**
- **Example: data entry clerks → high exposure, small employment share**
- **Easier targeting for reskilling and upskilling policies**
- **Some clerical profiles show high CAIOEit but low current startup pressure**

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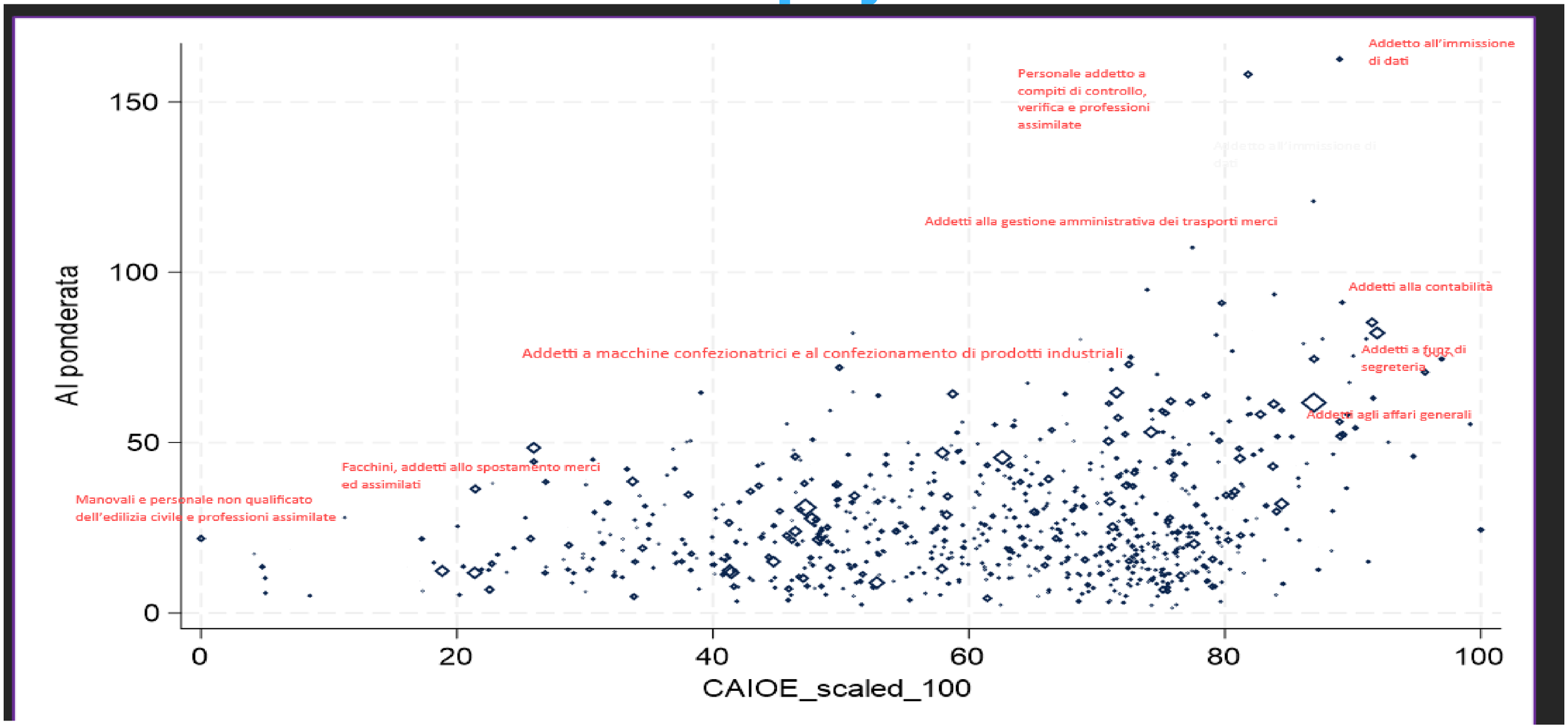
Results (ICP based) - Employment Size Matters



Fonte: elaborazioni degli autori su dati ICP, Y combinator e RCFL 2023

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Results (ICP based)- Key Takeaways

- Startup-based measures capture real market pressure, not only technical potential
- AI exposure is highest in clerical, data, and information-processing roles
- Physical, ethical, and high-risk professions remain less exposed in the short term
- Combining CAIOEit and AISE improves policy targeting and timing of interventions

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Thank you

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