

7th CONCORDi Conference
Innovation for Industrial Transformation
Seville, 27 September 2019

WHAT DID WE LEARN? WHAT IS IN THERE FOR POLICY?

Chiara Criscuolo

Head of Division - Productivity, Innovation and Entrepreneurship
(PIE)

Directorate for Science, Technology and Innovation
mariagrazia.squicciarini@gmail.com

Thank You...

Thank you to Organising Committee and in particular to

[Pietro Moncada-Paternò-Castello](#)

....but there is no such thing as a free lunch ...summary of

Industrial innovation and socio-economic transformation

- (I B) Digitalisation and employment – *Chair: Sven Schimpf*
- (IV C) Innovation and employment – *Chair: Nathalie Greenan*
- (V B) Sustainability – *Chair: Claudia Ghisetti*
- (VI A) Skills – *Chair: Cesira Urzi-Brancati*
- (VII B) Green technologies – *Chair: Ester Martínez-Ros*
- (VII C) Social return of technological change – *Chair: Mafini Dosso*

The Chair Award



- Thank you to all the chairs!
- The Chair Award
- **The Winner is:**

Chair of (V B) Sustainability

Claudia Ghisetti

Assistant Professor of Economics,
Catholic University of Milan

Industrial innovation and socio-economic transformation: Two Common Threads and one widespread need

(I B) Digitalisation and employment
(IV C) Innovation and employment
(VI A) Skills

(V B) Sustainability
(VII B) Green technologies
(VII C) Social return of technological change

NEED: GOOD Data

Green
Economy

Employment,
Skills and
Wages
Inequality



Employment, Skills and Wages Inequality

Innovation, Digitalisation, the Green Transformation and Employment

- R&D, innovation and digital transformation have mixed consequences on the labour force.
- Some forms of innovation favour employment growth and increase in wages. But some downsides, including the replacement of tasks by industrial robots, potential loss of jobs due to changes in demand have been identified by the papers presented in the different session.
- In addition innovation and the digital transformation appear to be linked to higher inequality.

For example In the UK (2009-2015), manufacturing firms that perform R&D generate a rent that they share unequally with their employees, creating **within and between firms' inequalities**.

Furthermore negative employment impacts are observed ...

- ...in Italy (2011-2016) when digitization is implemented in occupations where routine tasks are more widespread
- ...in Spain (2006-2016) when firms implement process innovation only and when their competitors and clients over the value chain implement product innovation
- ...across Europe (2002-2010) when R&D intensive firms face in their countries certain conditions in term of public R&D
- **Going beyond direct effects and look for spillovers:** the direct replacement of tasks by industrial robots is compensated by spillover effects leading to an overall positive effect on employment. Automation disrupt the way firms produce and is not inconsistent with labour-friendly technology change. Diffusion of technologies might diffuse rents and skill premia
- **Heterogeneity of effects:** digitalization effects (in India) highly vary depending on the sector: they are positive in advertisement and shipping and negative in Airlines, medical and health
- **Role of Complementarities:** in Italy, educated owners of SMEs employ higher educated people and perform better

...some broad conclusions ...

- **Evidence** on the links between innovation, structural change and inclusion is **still scarce** and even more for developing countries.
- From an **inclusive growth perspective, targeted intervention on the demand side** could contribute to mitigating job loss and fiscal measures to compensate losers. This requires better measures, analysis and evaluation of the downsides of innovation
- More evidence/research is needed on the micro-level impacts of the digital transformation, both direct and indirect (via input-output linkages, role of diffusion; etc..)
 - Particularly important for Policy: understanding **winners and losers** - go from correlation to causality; **evaluation** of particular policies - even if (probably more so) they do not work. Understand the role of **policy design and complementarities**

...and clear Data needs ...

- **Data collection** needs to be more systematically extended to the services sector where most of the employment growth is located; but also to Intangible investment, Human capital, tasks etc...but also to hours work, etc...
- **Better data (and data access)** are needed to describe the different facets of the digital transformations and the drivers of company choices in this area including the role of public policies.
- **Combining data (administrative, survey; big data...)** is crucial to achieve “value for money” and answer new questions with given resources. New data but also new methodologies;
- But need to be careful about statistical property of data; selection; representativeness etc;: this is crucial to give reliable and credible policy advice!




Green Transformation: Sustainability and green Technologies

- Sustainability characterized by **truly heterogeneous approaches** (econometrics zero inflated regressions; Agent Based System Dynamics; Input – Output tables) **and focuses** (regions and their patents; transport and sustainable mobility; waste sector and industrial symbiosis) which reflect the **complexity of the topic under scrutiny**, which definitely need **the adoption of multidisciplinary lenses**.
 - **Need of going beyond Sylos in research but also in Policy**
- Projections on the effects of Sustainable transport and its effects on the composition of employment according to alternative scenarios for future sustainable mobility finds potential significant inter and intra industry shifts.
 - **policy needs to consider these adjustments.**

- Evidence has been found of an association between revealed technological advantage of EU regions in environmental technologies and economic variables such as participation to labour market, employment, human capital and R&D investments,
- The transition to a Circular Economy models would be supported by the development of the so called “industrial symbiosis”, which would create an environment that is favourable for agents to cooperate towards a zero waste society.
- policy intervention could favour the development of such industrial symbiosis – which is found to be largely dependent on policy intervention to occur, either in terms of public investments (such as stimulating demand by procurement) or in terms of setting standards or taxes (such as a landfill tax). In such industrial symbiosis → the larger the network the larger its effects.

- In order to have effective support of a given technology, the technological ecosystem must be take into account.
- To achieve an EU energy system, the implementation of a policy mix is needed but Structural characteristics of countries should be take into account.
- The introduction of “green” innovations increase firms’ environmental innovations to a larger extent than non-environmental ones.
- This prize, however, only act when a minimum threshold of R&D expenditure has been reached (SCALE matters!!!).

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- Predicting innovation dynamics in the technological ecosystem.
 - **A. Pichler** (University of Oxford, UK), F. Lafond and J. Doyne Farmer
 - Sustainable energy transition and policy mix design in the European Union: a trade-based supply value chain approach.
 - V. Costantini and **E. Paglialunga** (Roma Tre University, IT)
 - Design and innovation: Does the “green-matching” actually help?
 - **C. Ghisetti** (Università Cattolica del Sacro Cuore, IT), S. Montresor and A. Vezzani

Innovation and employment session

- Digitalization, routineness and employment: an exploration on Italian task-based data *Cirillo V, Evangelista R., Guarascio D. and Sostero M (INAPP, Rome, University of Camerino & European Commission Joint Research Center*
- The Effects of Product and Process Innovation across the Value Chain on Different Type of Employment: An Empirical Case of Spanish Manufacturing Firms *A. Barge-Gila, G. Arenas Díaz, and J. Heijs (Complutense University of Madrid, ES)*
- Employment effects of innovation and R&D private and public collaboration: the role of knowledge spillovers in Europe *L. Aldieri, B. Bruno, L. Senatore and C.P. Vinci (University of Salerno, IT)*
- Firm innovation and wage inequality *T. Ciarli, A. Marzucchi, M. Savona (SPRU – University of Sussex Business School, UK) and E. Salgado (Inter-American Development Bank)*

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Some forms of innovation favour employment growth and wage increases. But some downsides have been identified by the papers presented in the session.

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- ...across Europe (2002-2010) when R&D intensive firms face in their countries certain conditions in term of public R&D
- From an inclusive growth perspective, targeted intervention on the demand side could contribute to mitigating these effects. This implies to better measure, analyse and monitor the downsides of innovation.
- Better data are needed to describe the diversity in digital transformations and the drivers of company choices in this area including public policies. Data collection also needs to be more systematically extended to the services sector where most of the employment growth is located.