

Lockdown, regional and sectoral dynamics

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Economic consequences of lockdowns: & sectoral and regional perspective

- High uncertainty about the economic recovery from the shocks implied by the lockdowns
- High uncertainty about the contagion dynamics
- In a [recent empirical study](#) we analyzed the economic impact in Italy of the Coronavirus emergency using a regional and sectoral perspective.
- Our analysis provides useful information on lockdown management

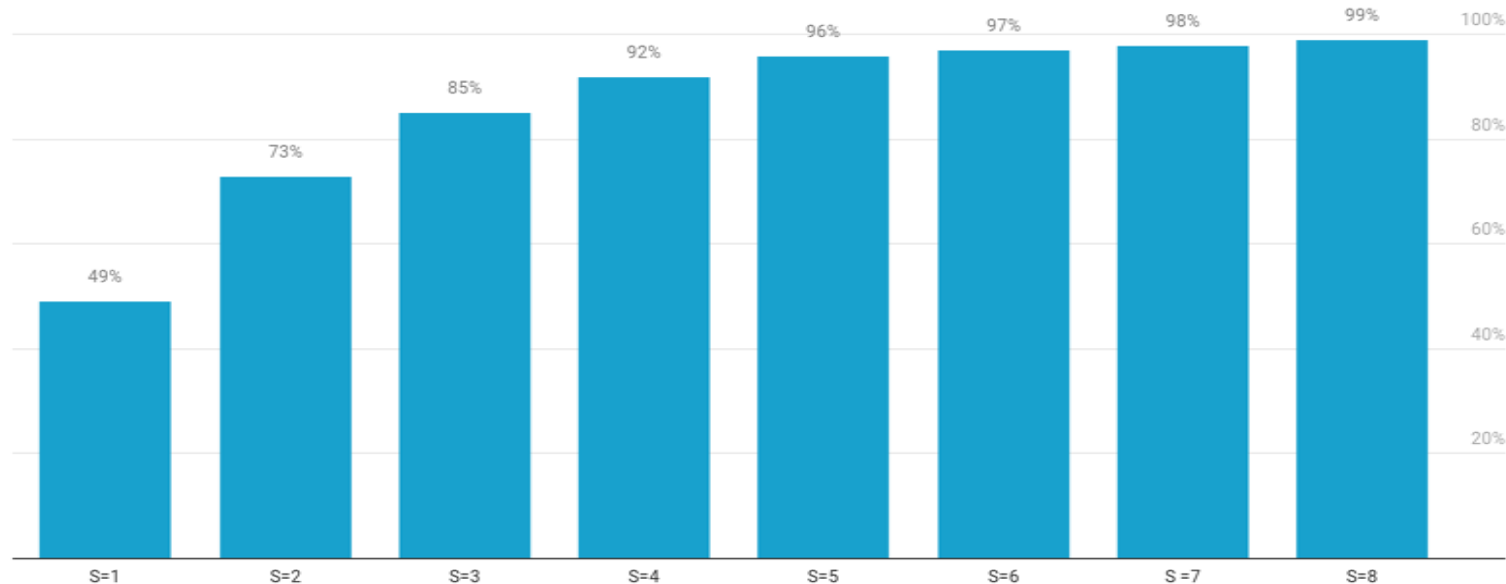
Some premises

Our study is grounded on three preliminary observations

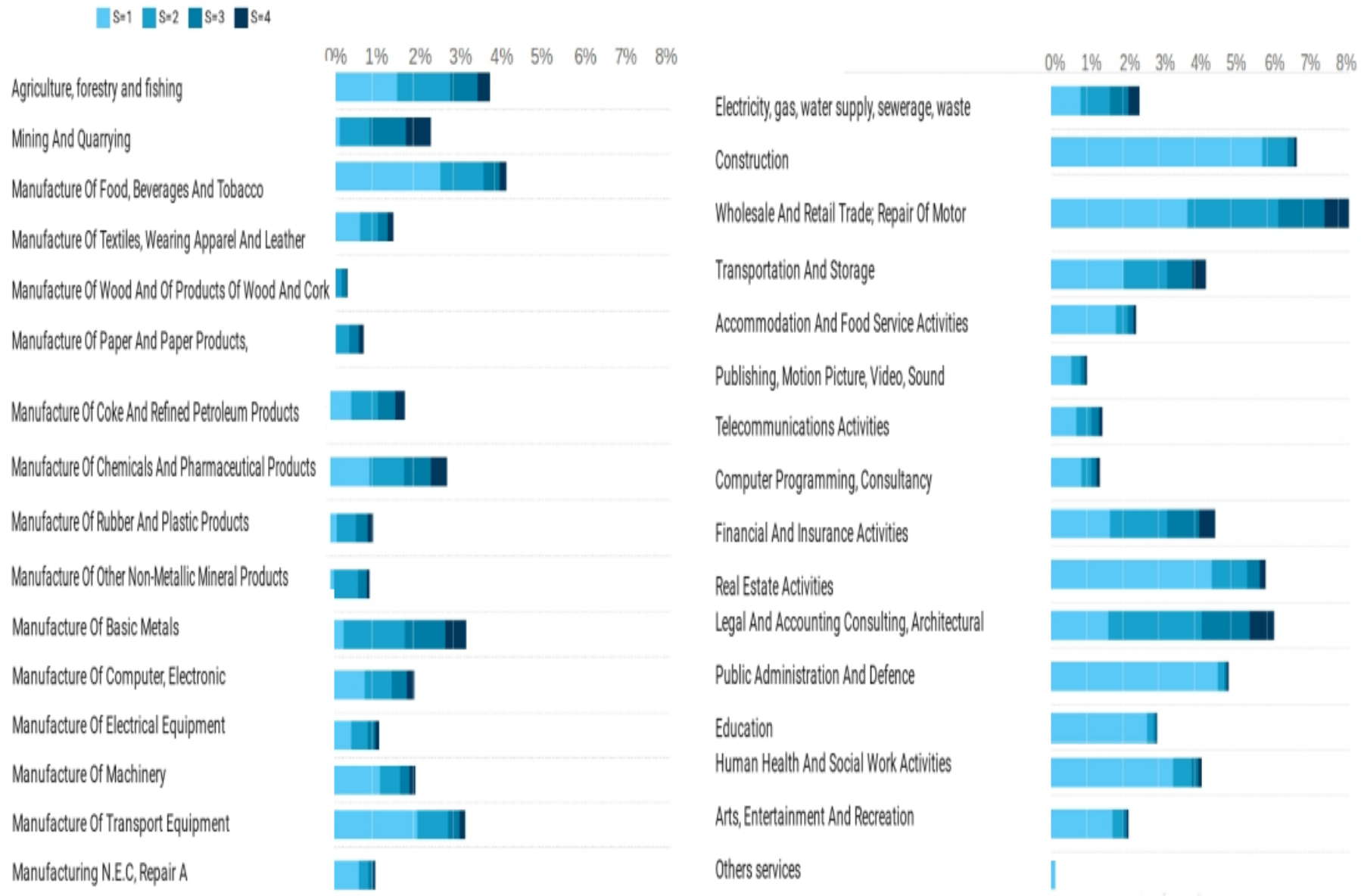
1. The COVID-19 contagion dynamic still presents a considerable level of heterogeneity among the Italian regions;
2. The distribution of economic activities on Italy's territory is very asymmetric and highly concentrated in some regions
3. Production systems are strongly interconnected and integrated both horizontally and vertically.

Lockdown and aggregate production

- We started from a condition of complete closure of all economic activity and we studied a reopening in stages
- Few stages (4) are sufficient to reach about 90% of the pre-crisis level of production

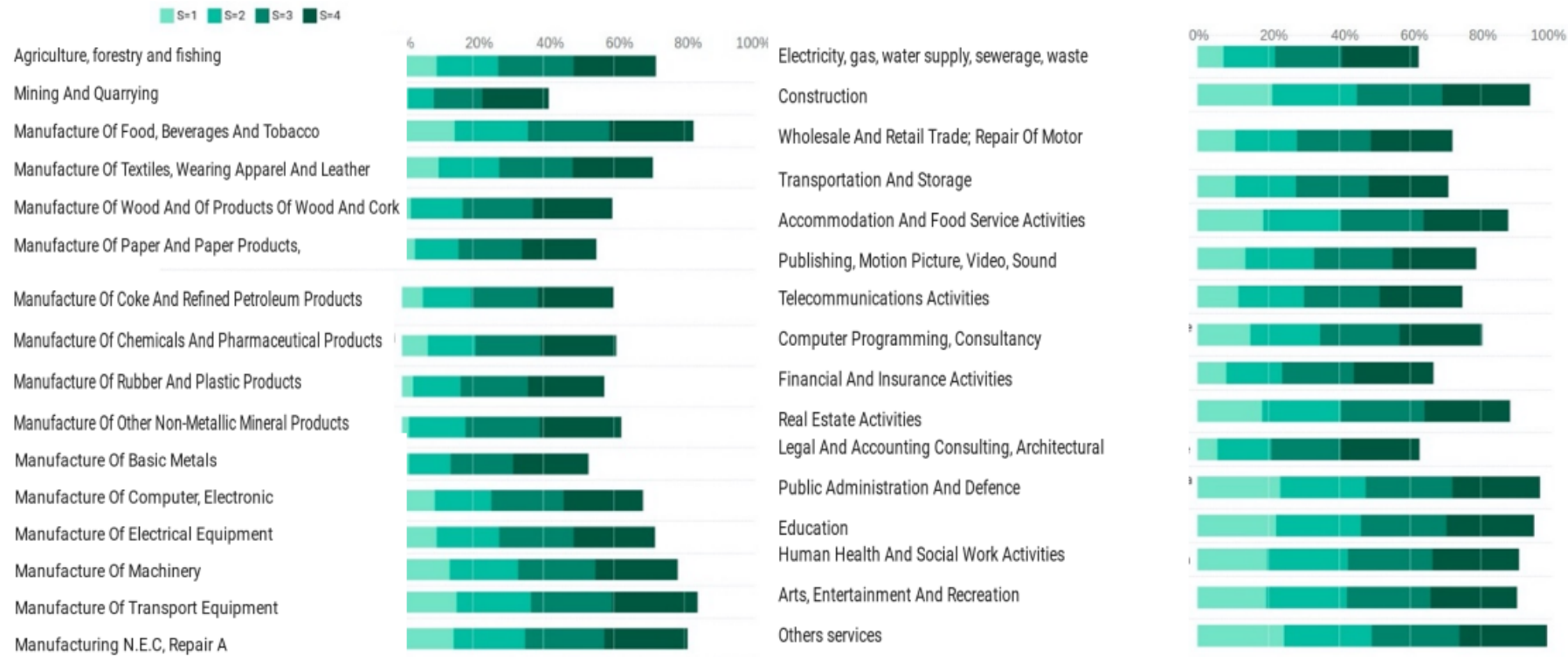


Which sectors should be reopened?



And how much?

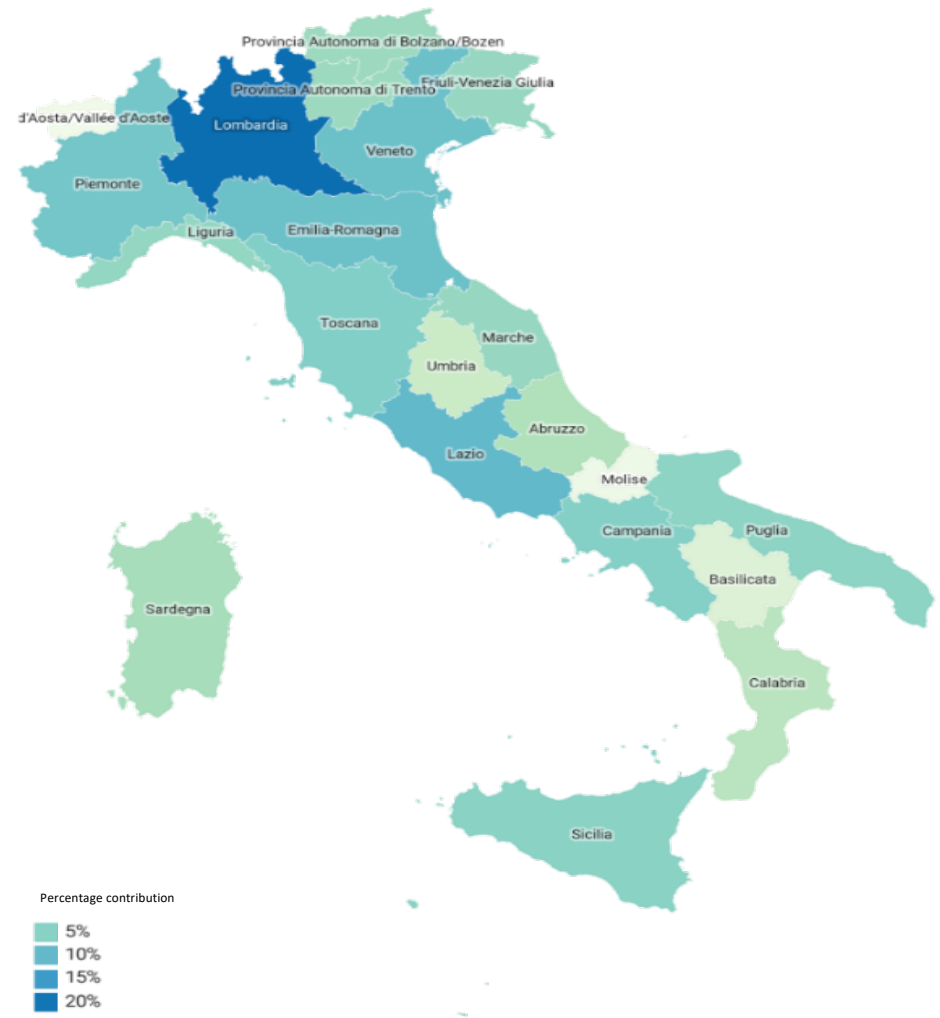
The recovery of economic activity to pre-crisis levels requires that most sectors of the Italian economy are able to operate almost at full capacity (between 60% and 90% of their pre-crisis level).



Which regions should re-opened (or closed)?

- The trade-off between economic and health objectives is further exacerbated if we consider the geographical dimension, due to the strong dualism of the Italian economy
- Lombardy, the region most affected by the epidemic, contributes 20% to total Italian production, while adding Piedmont, Veneto and Emilia-Romagna to 51%

Stadio 4



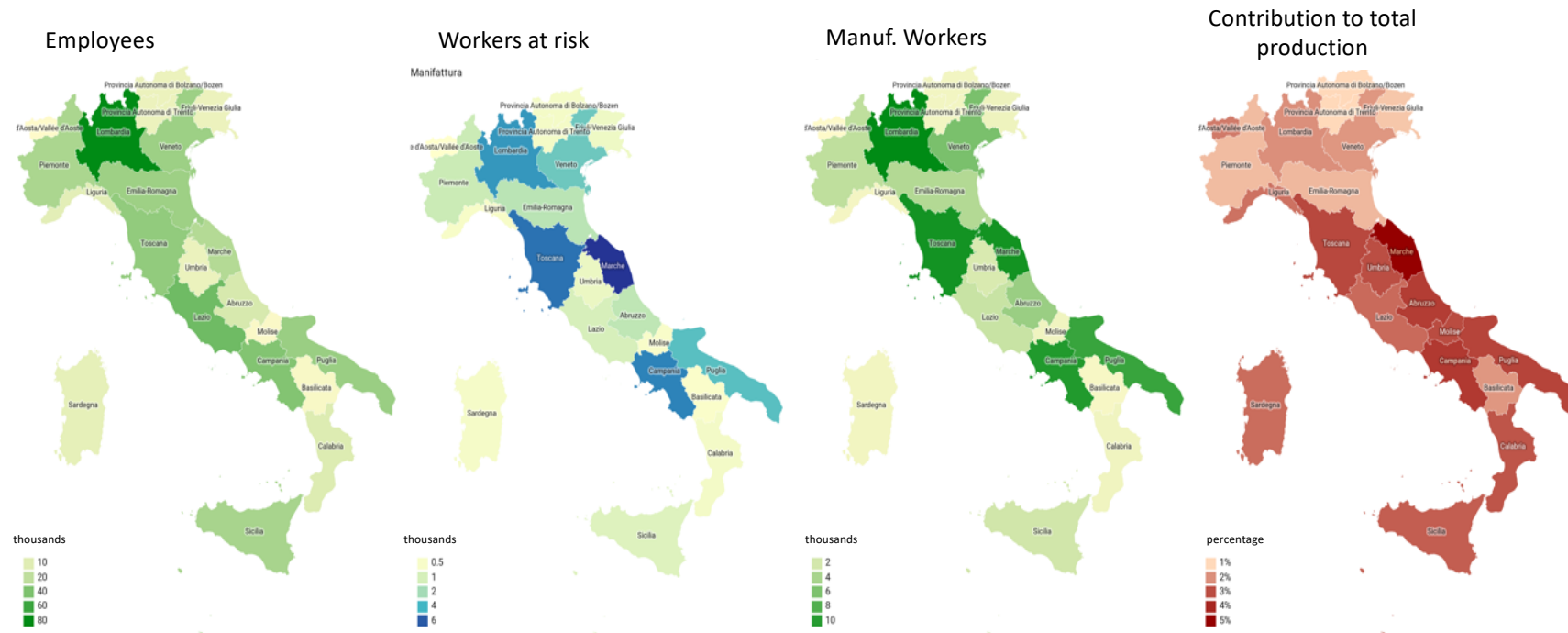
Covid19-GL2
Created with Datawrapper

Regional contributions to national output

From sectors to supply chains

- So far, we have taken a sectoral perspective, following the same logic applied by the Italian government.
- This approach has the limit of relying on a purely technological criterion, which aggregates companies on the basis of the product characteristics of a product, and not necessarily on the basis of a more economic criterion, which focuses on the final demand for which it is produced.
- We have therefore associated the sectoral analysis to one on supply chains, which meet specific final needs or foreign markets by considering the expenditure functions defined by the Italian national statistical office.
- In addition, for each chain we have identified the number of employees and their degree of exposure to COVID-19 risk on a regional basis (ISTAT and INAPP data). Our risk indicator accounts for two dimensions of a job
 - 1) Exposure to diseases
 - 2) Physical proximity implied by working tasks

The clothing and apparel supply chain



Although the most central region in this supply chain (in terms of employees) is Lombardy, some regions of central Italy have a high degree of exposure to Covid-19 risk due to their production specialization (e.g. in leather goods)

Contrib. to total production



Employees



Manuf. Workers



Workers at risk



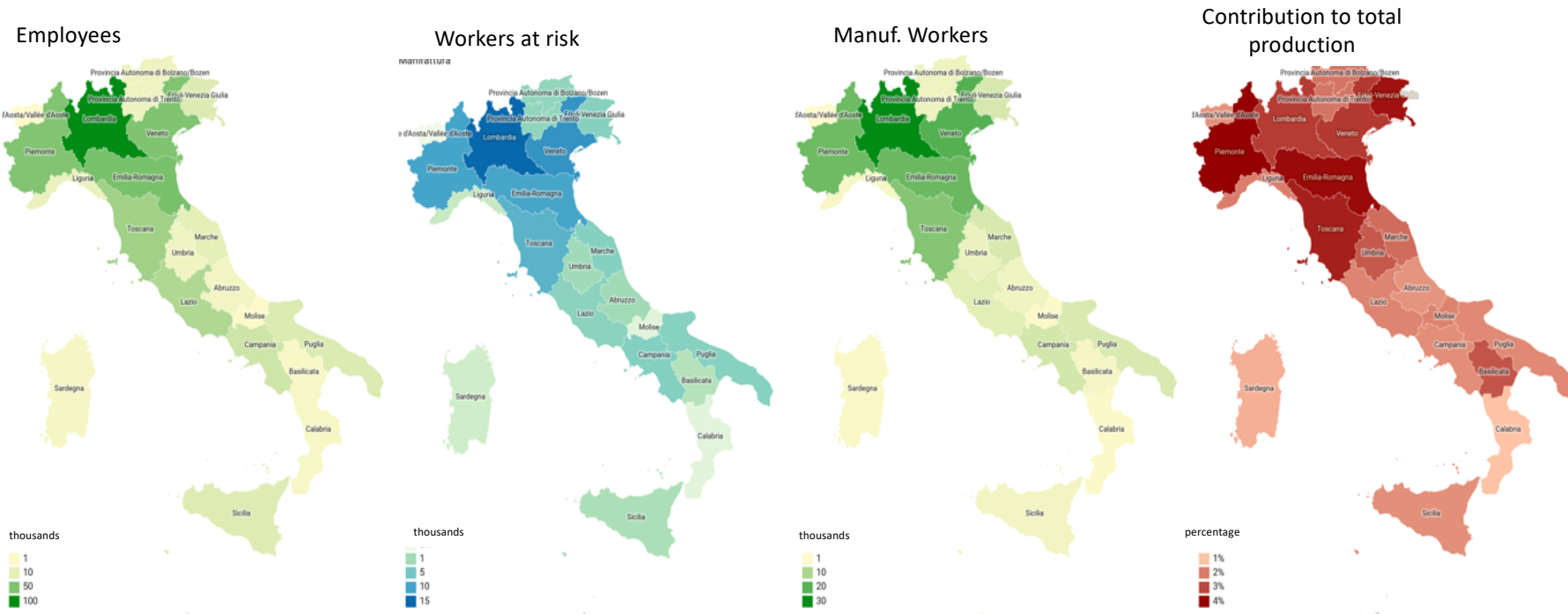
The supply chain for hotels and restaurants

- In terms of production, this supply chain is evenly distributed throughout the country
- However, in terms of employment (mainly manufacturing), Lombardy is still the central region (together with Apulia in the South)
- Clearly, the Covid-19 risk is higher whenever few tasks can be carried out in smart working

Table 3: Employment at risk and risk reduction potential from remote work in value chains activated by food and non-alcoholic beverages expenditures and hotels and restaurants expenditures

| Region | <i>Food & beverages</i> | | | <i>Restaurants & hotels</i> | | |
|-----------------------|-----------------------------|---------|------------------|---------------------------------|---------|------------------|
| | Employees | at risk | but can telework | Employees | at risk | but can telework |
| Piedmont | 70 | 48% | 19% | 72 | 78% | 9% |
| Aosta Valley | 2 | 53% | 15% | 4 | 84% | 12% |
| Lombardy | 187 | 45% | 24% | 198 | 74% | 12% |
| Trentino Südtirol | 19 | 48% | 19% | 45 | 78% | 9% |
| Veneto | 77 | 48% | 20% | 103 | 81% | 12% |
| Friuli Venezia Giulia | 18 | 49% | 18% | 18 | 77% | 9% |
| Liguria | 25 | 52% | 15% | 31 | 82% | 11% |
| Emilia-Romagna | 94 | 47% | 21% | 96 | 75% | 13% |
| Tuscany | 60 | 46% | 22% | 83 | 78% | 13% |
| Umbria | 15 | 46% | 20% | 14 | 77% | 13% |
| Marche | 26 | 49% | 16% | 24 | 78% | 8% |
| Lazio | 123 | 45% | 23% | 127 | 72% | 14% |
| Abruzzo | 26 | 50% | 18% | 19 | 79% | 8% |
| Molise | 6 | 51% | 13% | 3 | 79% | 12% |
| Campania | 109 | 48% | 14% | 59 | 78% | 10% |
| Apulia | 84 | 40% | 15% | 64 | 72% | 11% |
| Basilicata | 12 | 38% | 14% | 7 | 72% | 10% |
| Calabria | 49 | 35% | 14% | 26 | 66% | 7% |
| Sicily | 100 | 42% | 14% | 69 | 72% | 11% |
| Sardinia | 30 | 53% | 13% | 31 | 80% | 12% |

We also analyzed the supply chains for capital goods and those relating to exports to specific markets (Germany and the United States)

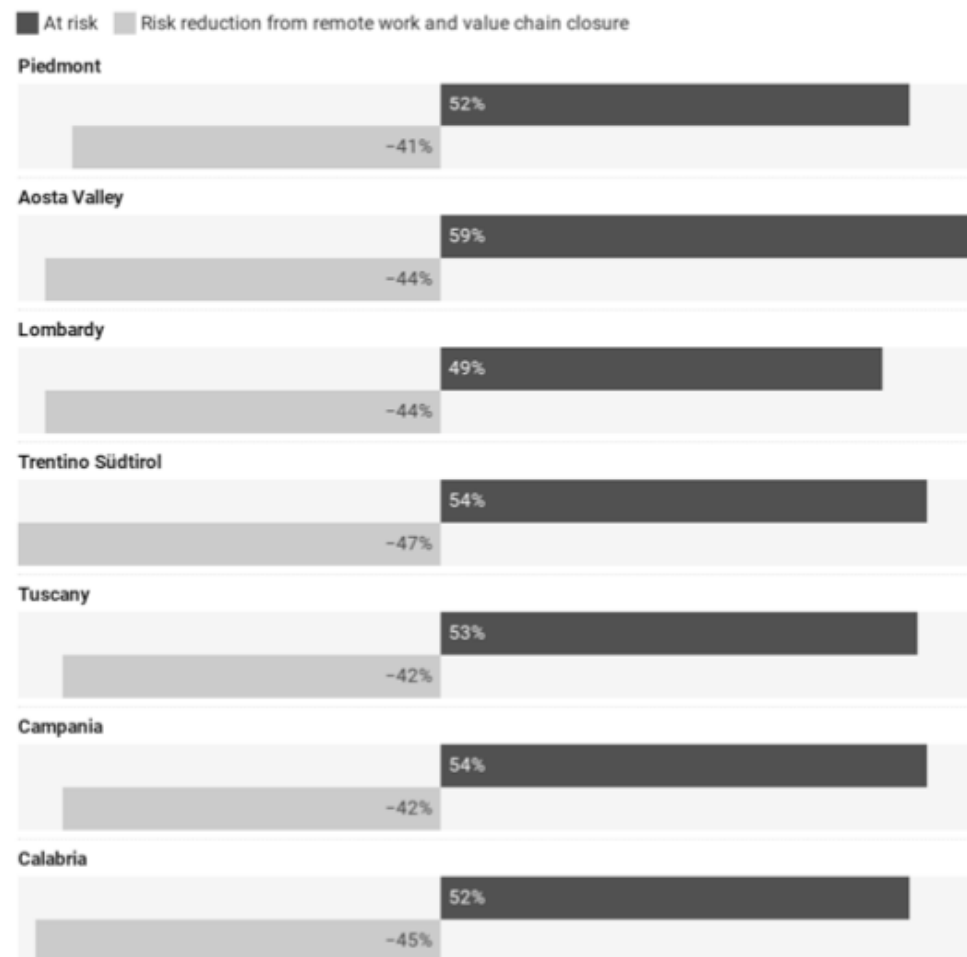


Regional distribution of the supply chain to meet export demand to the United States

Covid-19 risk reduction following from the value chain closure

- A 4 weeks closure of consumption chains that do not serve essential needs (e.g. hotels and restaurants, clothing and footwear, etc.) together with remote working in the chains that remains open bring sizeable reduction in Covid risk.

Figure 6: Share of total employment at risk of contracting the COVID-19 and risk reduction due to remote work and value chain closures.



Conclusions

- The strong interdependence between sectors and the strong spatial concentration of economic activity impose heavy constraints on lockdown management
- On the one hand, to avoid further falls in economic activity, almost all sectors must be able to operate at a rate of more than 50%.
- On the other hand, it is necessary that the most active regions are precisely those of the North, where the waves of contagion were strongest
- These conclusions, however, do not consider the risk of exposure to the virus of employees. Furthermore, they do not take into account the links between sectors to satisfy specific needs in terms of final goods and services; or demand from specific markets.

Conclusions

- The analysis by production chains allows to shed light on these aspects by considering the satisfaction of demand for final consumption, investments and exports and the exposure of workers to the risk of contracting the virus
- The six supply chains considered involve about 25% of Italian production and over 4 million workers. In Piedmont, Lombardy, Veneto, Emilia-Romagna and Tuscany are concentrated the major problems related to the exposure of the workforce to the risk of contagion, because they are characterized by tasks that cannot be carried out in telework mode.
- The results of the analysis by supply chains indicate a lockdown policy targeting specific supply chains brings significant reduction in exposure to Covid-19 risk while avoiding dramatic falls in total production

For more details...

- <https://innovazione.gov.it/impatto-economico-lockdown/>
- <https://www.lavoce.info/archives/69132/seconda-ondata-le-regioni-e-i-settori-piu-critici/>