

Numbers and society

EStà, May 2021

Economic and social phenomena cannot and are not discernible in numbers. Descriptive statistics helps to study quantitative and qualitative phenomena of the community, although the conditions of uncertainty, i.e. of incomplete knowledge of it or of a part of it, assign an even more stringent role to logic and intelligence. Merely recording a number, for example inflation, does not capture the phenomenon of inflation. Another survey must always be coupled to capture and interpret price growth: profits may be growing, the cost of raw materials may be rising, or investments may not have delivered the expected results. We can also argue that growth in the money supply has allowed the prices of listed securities to grow; is it growth in the value of traded securities or growth in the prices of traded securities?

This dissertation is a warning to mariners about measures and indicators. They are always useful and instrumental in interpreting phenomena, but it is only through method and intelligence that numbers can tell us something interesting, which is still partial and verifiable (Popper and the questionability of the thesis).

Experience and work help. Step by step it allows us to refine statistical information, test it and verify its (partial) reliability with respect to economic and social phenomena.

EStà has developed convictions about numbers, which more and better than others help to understand society. They are an invaluable support in capturing the community's wellbeing as reflected in changes in climate, employment and disposable income. With respect to disposable income, we use both factor and demand accounting. These are two sides of the same coin, but with quite different economic significance. The former measures income to some extent from the consumption, investment and government expenditure side; the latter looks at its distribution, i.e. the split between wages, profit and rents. Moreover, EStà always tries to compare statistical information with other socio-economic realities that can be better associated with the country or the Lombardy Region. Otherwise, the "numbers" collected have a clearly limited explanatory capacity. Comparison is a characteristic feature of our work.

Several research hypotheses developed over time and with a certain degree of refinement, albeit within the limits mentioned above, suggest that 1) some variables are more representative than others and 2) the combination of two variables makes it possible to capture (in part) certain features of the phenomena under investigation. Just to offer a first representation let us imagine capturing technological innovation and/or the technical content of investments. The first one could be linked to the innovation incorporated in the investments (investments on added value), the second one to the technological intensity (research and development on investments). Of course, the phenomenon is more complex, but over time some publications have shown a certain solidity, also in academic terms.

Some indicators are well-established in publications and can hardly be dispensed with:

- Consumption
- investments
- Public expenditure

To these we can associate:

- Labour income;
- Income from profit;

- Income from income, although the latter has many economic implications that are difficult to resolve.

As it is easy to understand, it is only by comparison with other homogeneous socio-economic realities that these variables can give us an adequate result to express any evaluation. Moreover, it is necessary to consider the items indicated using sub-categorisations: per capita, at constant and/or current prices, in relation to the aggregate and so on.

ESTà then investigated in its research the economic structure, i.e. the qualitative and quantitative content of supply. As a rule, we use value added per employee, essentially productivity, in the knowledge that value added is subject to many considerations. In fact, value added, as well as its dynamics, variation on a base year, is linked to the positioning of the sector with respect to demand, to the technical and technological content of output and to production specialisation. As a rule, we try to capture these phenomena as they convey the "resilience" of the sector and of the economic system. This could be represented as a qualitative-quantitative approximation and becomes even more meaningful if we compare the information considered. In particular:

- Investment on added value (income)
- Research and development on investment, which in some cases may also represent knowledge embedded in capital goods
- Incidence of aggregate added value by sector, which gives an idea of how much and how a business is specialised.

This approach appeared to be a useful starting point to capture the great techno-economic challenge underlying the green deal and digitalisation. In fact, if we combine the indicators mentioned above with climate-altering emissions (CO₂ eq.), we can "evaluate" certain correlations (links) between CO₂ emissions and investments, R&D, added value and production specialisation, obtaining indications on how a sector and/or territory is positioned with respect to the binding challenge of decarbonisation. More precisely:

- CO₂ on added value
- CO₂ on investments
- CO₂ on research and development
- CO₂ on technological intensity
- CO₂ on labour income.

ESTà has also attempted to estimate the employment and value-added effects of investments, research and development aimed at reducing the climate-changing impact of CO₂. A challenge that is rooted in methodological approaches that are diverse because they reflect different ways of seeing society, but are useful in constructing estimates, which remain such. Indeed, a model that captures the potential techno-economic paradigm does not exist, not even in the theory of complexity conveyed by Mauro Gallegati.

ESTà does not represent the world for what it is, rather it interprets and suggests ideas with respect to certain variables tested over time. Economics and statistics are not a neutral science. Those who look at the world always have glasses and photographs to use.