Application – Robert Summers Fellowship on Economic Measurement

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I work in the research department of the French National Institute of Statistics and Economic Studies (INSEE).[1] We aim at enhancing any aspect of measurement of economic statistical tools. In this summary, I present two 'projects I am currently working on.

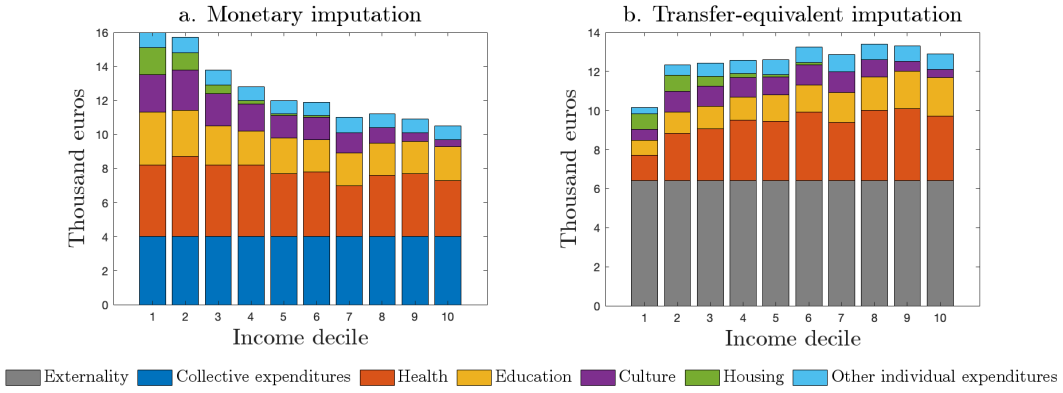
Project 1: Imputing in-kind benefits within Distributional National Accounts. As inequality has become a pressing issue, Piketty, Saez and Zucman (2018) developed the notion of Distributional National Accounts (DINA). They propose a methodology to allocate 100% of national income to households, bridging a gap between national accounts and inequalities. We propose a new formula to impute in-kind benefits to households.

Our idea is the following: since education and health are luxury goods, the poorest households do not consume them privately, because the marginal utility they derive is lower than the marginal utility of other type of consumption. This implies that one dollar of transfer provides more utility than one dollar of public goods for the bottom of the distribution. Therefore, we propose a new rule for converting in-kind benefits into transfer equivalents:

$$\frac{\partial u_i/\partial G}{\partial u_i/\partial T} = \min\left\{\frac{y_i/\bar{y}}{F^{-1}(S)}, 1\right\}$$

with where $y_i/\bar{y}$ is the ratio of household i's disposable income to GDP per capita, F is the cumulative distribution function of disposable income, and S denotes the share of households with zero private expenditure on the publicly provided good. In Figure 1, we show a comparison of our formula with DINA in French data for 2022. In the left panel, we reproduce the "monetary imputation" of DINA. In the right panel, we correct with our formula. Since our imputation assigns weights between 0 and 1, some euros are lost compared to the monetary imputation. We assume these lost euros can be recovered through a separable externality parameter, which may be equal across households or proportional to disposable income. With our new formula, the Gini coefficient increases by 16% and the redistributive effects of in-kind benefits are reduced by 30% compared to DINA usual imputation.

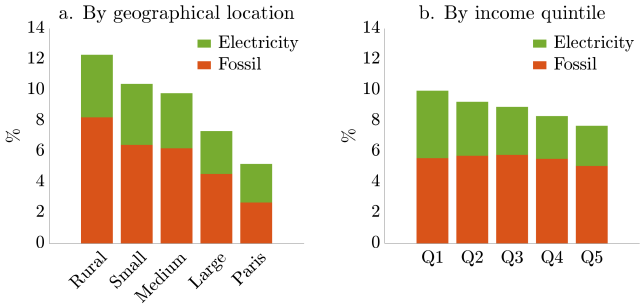
Figure 1: Distribution of in-kind benefits



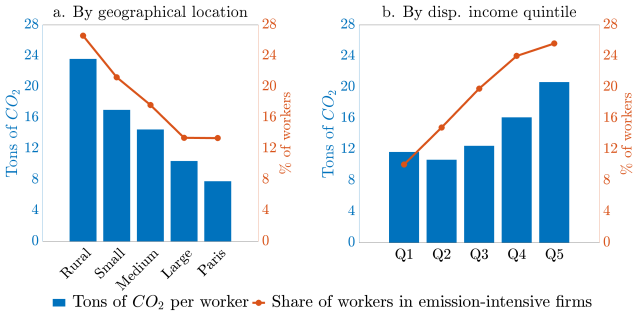
[1]Here is a link to my personal website. I am also a 4th year PhD student at Paris School of Economics.

Project 2: Distribution of direct emissions in France. A second project[2] studies the distributive effect of carbon taxes, which is particularly relevant as the EU-ETS2 for household heating and transport will become operational in 2027. Using several datasets covering the French economy, we systematically document the distribution of direct emissions across both households and firms. We link household-level surveys to fiscal declarations to estimate fossil fuel consumption for heating and transportation at a highly granular level. Worker-level emissions patterns are derived from matched employer-employee administrative data combined with firm-level emissions.

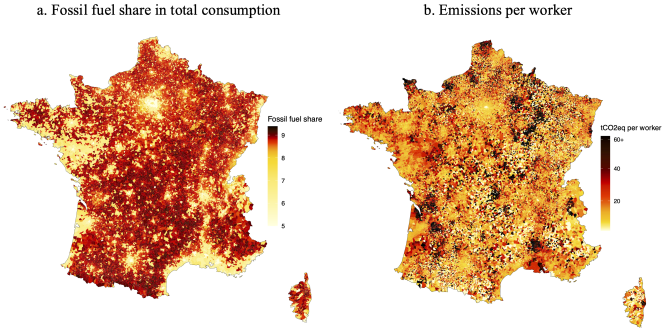
As illustrated in Figure 2, rural households spend 2.7 times more on fossil fuels than urban households and are employed in firms that emit 3 times more greenhouse gases. This implies that we need to take geography into account to understand the distributive effects of carbon taxation, which are key for its political acceptability. Our work may also lay the foundations for some "Distributional Carbon Accounts."



(a) Energy share in total consumption



(b) Emissions imputed to workers and share of workers in emission-intensive sectors



(c) Spatial distribution of fossil fuel share and emissions per workers

I hope you will consider my application for the Robert Summers Fellowship, as attending the NBER Summer Institute would be a great opportunity to learn from academics and practitioners.

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[2]see the full Working Paper here.