**TECHNOFIRMS ANR PROJECT: website, ANR webpage**

**Position (depending on seniority):**

## Postdoctoral researcher in Applied Economics [up to 2 years]
## Doctoral student in Applied Economics [3 years]

**Suggested deadlines: *December 15th, 2024* for an early start on the position,**
**or *March 1st, 2025* (except if position is filled) for a later start.**
***The call for applications will be extended until the position is filled. The starting date of the position can be determined by mutual agreement in 2025.***
***Send cover letter & detailed CV to claire.lelarge@universite-paris-saclay.fr and claire.lelarge@sante.gouv.fr***

**Topic:**

## Technological change and market structure in health industries

The project covers **several different sub-topics**. The cover letter should select specific elements from the following list and explain why the candidate is interested, how she/he could contribute given her/his experience, in the approximate format of a research statement – do not hesitate to insert precise scientific references when useful!

- **Data / methodological challenge** ***[sub-project A[1] of the TECHNOFIRMS grant]***
  The current state of the field is hampered by the lack of sufficiently detailed, disaggregated (firm-level) and large-scale information describing firms' new technology adoption and usage[2]. The available case studies are incredibly rich, but they are too sparse and their external validity is too limited to confidently assert that all relevant mechanisms are detected, and correctly quantified. Conversely, some larger-scale datasets exist, but they often lack a sufficient intertemporal dimension to enable convincing (causal) analyses, and they are often only partial in their coverage of technologies.
  An important challenge of the research project is thus to **assemble and leverage the unique richness and granularity of the information system about health operators that is available from French administrations**, and to investigate whether alternative **machine learning methods** have the potential to deal with heterogenous statistical sources and **detect technology users at a large scale, ie. in population data**.

[1] "Transversal methodological challenge: data building via machine learning"
[2] See Assurance Maladie (2022, 2023, 2024) or Autorité de la Concurrence (2019) for a brief overview of the challenges raised by the past and ongoing waves of technologies in different sub-industries of the health sector, e.g automatized analysis methods in medical biology, AI-based detection methods in radiology, "digital healthcare" (including AI based technology, telehealth and telemedicine). Note that in economics terms, all these technologies have an automation component which is likely to interact with the institutional and regulatory environment and deeply affect industry structure.

- **IO vs. regulatory drivers of technology induced reallocations of market shares**
  **[sub-project B2[3] of the TECHNOFIRMS grant]**
  A second challenge of the project consists in uncovering the precise forces which are at play, first in terms of relevant model of competition, and second in terms of the firm-level mechanisms of comparative advantage determining their market power, and how these mechanisms are shaped by the regulatory environment and linkages (I/O and financial linkages within corporate group structures).
  Several strategies are likely to be fruitful. A first one could be fully a-structural and take advantage of a growing literature which proposes new econometric strategies to quantify the magnitude of spillovers, even in cases when the structure of the interactions between firms is unknown (e.g. De Paula, Rasul, and Souza, 2018 or Manresa, 2016). Identifying and estimating the matrix of spillovers across firms would deliver invaluable information about the magnitude and nature of competition within industries of interest.
  A second strategy could be based on estimating a more structural "Industrial Organization" model of competition. Of course, the precise nature of the considered technology as well as the institutional environment of the considered market(s) both matter and will have to be reflected in the quantitative framework to be developed.

Also possible, but less of a priority:

- What are the likely impacts of **telehealth and telemedicine** on the industrial structure of the health sector and what are the implications in terms of economic geography? [**sub-projects B.1 and B.2 of the TECHNOFIRMS grant**[4]]

The position will be **fully funded by ANR TECHNOFIRMS/ Université Paris-Saclay** (PI: Claire LELARGE) but **hosted by the French Ministry of Health** (**DREES**, Direction de la Recherche, des Etudes, de l'Evaluation et des Statistiques).

There is **no teaching load**:

- The successful candidate is expected to **work on the research project full time**
- However, cooperation with the Ministry of Health implies that she/he devotes time to the production of **detailed methodological notes** enabling to operationalize some of the statistical methods to be developed, as well as **syntheses of the main results** intended for a wide audience, and which will be disseminated on the DREES website.

Priority objectives are aligned with the **evaluation criteria of the ANR** (French equivalent of the NSF): production of **high-quality research output** to be presented at leading economics conferences and published in top field or general interest economics journals.

[3] "Market conditions: inspecting the drivers of technology induced reallocations".
[4] "Assessing the geographical drivers of technology adoption and impact" and "Inspecting the market level drivers of technology adoption and impact".

**Requirements**

Feel more than welcome to apply if:

- You have a MSc or PhD in economics (IO, health or related!), econometrics or applied statistics,
- You have the taste to dig into new, amazing but sometimes noisy, large scale and high-dimensional administrative and statistical data sources,
- You feel oriented towards both research and policy advice,
- You have a good command of French, as ChatGPT and DeepL can help, but the job is located in Paris, at the core of the French administration…