Research Statement

Guillaume Wilemme
Aix-Marseille School of Economics and Sciences Po
gwilemme.com

I am a postdoctoral researcher at Aix-Marseille School of Economics, and I received a PhD in Economics from Sciences Po in 2016. My research focuses on Labour Economics, and my approach relies on both Search and Matching Theory and Structural Econometrics.

I spent my first years of research working on search and matching theory, leading to theoretical contributions (Wilemme, 2018). I now incorporate empirical approaches into my research. I do so by applying my theoretical research to data on one the hand; and by discussing commonly used empirical designs from a theorist perspective on the other hand. My Job Market Paper structurally estimate a model of search across space using French data. In a second paper, I confront predictions of search theory to empirical evidence from quasi-experimental settings. Both of these projects are explained in more details in this research statement.

As a researcher, my future work and collaborations will build upon three main assets:

i. Theoretical skills and practice of structural econometrics. During my PhD, I consolidated my knowledge and practice of Economic Theory. Similarly, I have acquired technical skills and significant experience in numerical analysis and optimization methods. As a trained mathematician and statistician, I have a solid understanding of the econometrics behind simulation-based methods.

ii. Involvement in the search and matching literature. In the last six years, I attended four annual search and matching conference, where I presented my research. I carefully follow the research agenda of the leading academics in the field.

iii. Understanding of and access to French matched employer-employee database. These data offer a unique longitudinal description of employment situations that accounts with details for periods of unemployment. Compared to equivalent sources in Denmark or in Germany, this database provides distant access, which means that I can take my work with me to other countries. Accessing these data has significant costs in terms of time and understanding of French bureaucracy, and I have already overcome this barrier .

My research investigates the economic consequences of job search decisions, from a theoretical and an empirical perspective. I study in particular how search decisions explain empirical regularities in the geography of labour markets ([2] and [4]), and empirical patterns over the life cycle ([3] and [4]). I also explore welfare consequences of search strategies [1].

Part I: Frictional labour markets in theory

My research shows how search frictions affect different macroeconomic outcomes such as the quality of job matches or the geographic disparities in unemployment. The interest of this approach is answering economic questions that standard neoclassical models cannot answer.

Search frictions in the labour market are indeed all the forces that prevent workers from costlessly getting their best possible job. They can arise when information is imperfect, for instance when job seekers do not have all the information about jobs available, or when employers have similarly limited knowledge about potential candidates. They can also arise when agents fail to coordinate. The seminal contributions of the Nobel-prize winners Diamond, Mortensen and Pissarides created conceptual tools to account for this type of failures in labour markets.

1) Search decisions generate job mismatching

In my first article entitled "Optimal Taxation to Correct Job Mismatching"[1], I emphasise workers' search decisions in causing mismatch between workers' skills and firms' requirements. Existing research shows that job mismatching naturally arises in presence of heterogeneity and search frictions, and that mismatch is not a concern for efficiency. Policy intervention for efficiency is not required in that case. My contribution is to consider that when workers adjust search efforts depending on the job type then job mismatching becomes inefficient. I then characterize the optimal policy in this situation. Workers generate negative externalities on firms by not being selective enough: they search excessively for low-quality jobs and insufficiently for high-quality jobs. They do so to leave unemployment quicker. Inefficiency derives from a general equilibrium effect. Workers' search strategies reduce the average quality, and therefore profitability, of jobs compared to a social optimum. Firms open less jobs as a result. I quantify the extent of welfare loss through a calibration exercise.

The paper is single-authored and currently under revision for resubmission at the *Review of Economics Dynamics* (Wilemme, 2018).

2) Search decisions amplify shocks on local labour markets

Workers' search decisions matter for the resilience of regional economy following negative shocks. My paper co-authored with Pierre Deschamps (Sciences Po), "Regional Unemployment Persistence with Agglomeration Effects" [2], shows that search frictions amplify labour demand shocks in local labour markets.

There are large and persistent disparities in local unemployment rates within developed countries that cannot not be explained by compensating differentials in housing cost or wages. They are not driven by the characteristics of the local population either. A solution to this puzzle has been proposed by Amior and Manning (2018): labour demand shocks persist over many years.

Our contribution is to highlight an original mechanism that generates the slow dynamics of local labour markets. The mechanism relies on agglomeration effects documented

in the urban economics literature. With agglomeration productivity gains, negative regional employment shocks are amplified by the self-reinforcing loop between two effects: i) profit opportunities that deteriorate from agglomeration productivity loss, ii) more workers who decide to leave the region. This theoretical mechanism can explain why the observed dynamics of local unemployment rates are so slow.

This work has been presented numerous times, including the last September meeting of the European Association of labour Economists at Lyon. We expect to submit the paper in 2019.

Part II: Empirics through the lens of search and matching theory

In my research, I also rigorously confront predictions of search theory to data. I have access to the confidential French administrative dataset (DADS), which I negotiated during my postdoc. These data are built from the administrative forms that French employers are required to fill annually for each employment contract. Information about employers, employment status, wages and hours worked are much more accurate than in a labour force survey.

My research then has studied the empirical role of search frictions, and the age dimension of search decisions. Accounting for search frictions sometimes enriches and sometimes challenges empirical approaches. On one hand, the seminal article of Postel-Vinay and Robin (2002) enriches empirical results in attributing a large part of wage dispersion to search frictions. My job market paper follows this approach to quantify barriers to geographic mobility. In my paper, search frictions a spatial dimension is added to search frictions. The barriers to mobility are structurally estimated using the DADS data previously described. On the other hand, I have realized that policy evaluation methods such as diff-in-diff and regression discontinuity designs (RDD) can sometimes overlook mechanisms that are evident from theoretical approaches. In another paper, I show that search theory predicts biases in policy evaluation methods based on age-related discontinuities. This work illustrates the benefits of a constant interaction between theory and empirics.

1) Job Market Paper: "A Dynamic Model of Frictional Spatial Job Search"

Despite large and persistent disparities across local labour markets, we observe low internal migration within countries. My job market paper, co-authored with Christian Schluter (Aix-Marseille School of Economics), "A Dynamic Empirical Model of Frictional Spatial Job Search" [3], explicitly investigates location choices accounting for search frictions within and between local labour markets. The goal is to explain the observed low internal migration rates.

We model the life-cycle location choice problem of workers in presence of spatial search frictions. Spatial search frictions capture the advantage of a worker located in A to find a job in A, compared to a worker located in B to find a job in A. This type of friction is thus a barrier to mobility that is distinct to moving costs.

Our contribution is both theoretical and empirical. First, by introducing spatial search frictions into a life-cycle search model, or search frictions into a model of location choice, we combine several distinct barriers to mobility that have only been examined in isolation

or in pairs. We provide a rich and tractable search paradigm by nesting the random utility framework, meaning the canonical econometrics model of discrete choices, into a search and matching model. This approach allows to understand low internal migration rates without needing to estimate extremely large moving costs.

Second, our work makes a significant improvement to the literature the literature with regards to the level of heterogeneity that the model can handle. On the one hand, the model accounts for rich individual heterogeneity observed in the data, namely education and age. On the other hand, the model is tractable enough to be estimated for a large number of locations.

2) Job search theory and policy evaluation with age discontinuity

In the benchmark job search model of McCall (1970), future plays a role in today's search decisions when labour markets are frictional. In a paper co-authored with Bruno Decreuse (Aix-Marseille School of Economics), "Age Discontinuity and labour Market Policy Evaluation through the Lens of Job Search Theory" [4], we discuss quasi-experimental policy implementation settings in which age is an eligibility criterion. For instance, in France, workers used to only be eligible to social assistance benefits only if they were older than 25 years-old. A regression discontinuity design (RDD) is typically applied to estimate the impact of such a policy on employment. One one hand, the RDD framework distinguishes two groups, a control and a treatment group depending on age. On the other hand, job search theory predicts that individuals below the age threshold already change their behaviour in presence of search frictions. In other words, workers below the age threshold are partly treated. Although theory predicts a bias, this bias can be quantitatively non-significant.

We focus on four papers: Lemieux and Milligan (2008) and Bargain and Doorley (2011) on social assistance benefits in Quebec and in France, and Lalive (2008) and Schmieder et al. (2012) on unemployment benefits duration in Austria and Germany. Our approach is the following. We first calibrate a job search model based on the RDD estimates. We then compare the RDD estimates to the pseudo-true effect that theory predicts. Our results suggest that the impacts of social assistance benefits are (significantly) under-estimated, whereas the impacts of unemployment benefits extensions are (not significantly) over-estimated.

As future work, I would like to start a research agenda on the transitions between unstable forms of employment and stable employment. In many developed countries, a large fraction of workers hold multiple jobs in short periods of time. Multiple-job holding, in particular in the *gig economy*, is an increasingly common form of arrangement in the labour market. This type of arrangement mainly concerns young and low-paid workers with short-term employment contracts. This dimension of employment should strongly affect both job and geographic mobility decisions. Since the DADS data records precisely short employment contracts, this is a question for which I have a rich source of information. I am particularly interested in the design of unemployment and partial-employment welfare schemes given these new structures of work. With the DADS specific

work arrangements can be investigated, such as the one of the art industry in France that was historically designed to insure art contractors (especially in the film industry) who faced high levels of job flexibility.

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