Application: NBER tutorial on the Economics of Digitization

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1 Contact information

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2 Description of the courses of graduate study pursued

Please find below a description of the courses of graduate study I pursued as part of the first two years of my Ph.D. (from September 2017 to June 2019), together with the names of professors and the grades I obtained (written in brackets). These courses are part of the Master in Economics jointly offered by HEC Paris, Ecole Polytechnique, ENSAE and ENS Paris-Saclay (http://www.master-in-economics.fr).

Major: Financial Economics (HEC Paris)

Corporate Finance Theory, *Denis Gromb* (18/20) - Dynamic Corporate Finance, *Bruno Biais* (18/20) - Empirical Corporate Finance, *David Thesmar and Adrien Matray* (18/20) - Banking and Financial Intermediation, *Guillaume Vuillemey* (16.23/20) - Digital Currencies and Blockchains, *Bruno Biais* (18/20) - Market Microstructure, *Stefano Lovo* (16/20) - Asset Pricing, *Thierry Foucault* (18/20) - Asset Pricing, Liquidity and Market Imperfections, *Johan Hombert* (18/20) - PhD Research Seminar - Topics in Finance, *Matthias Efing*

Minor: Labor Economics and Public Policy Evaluations (Ecole Polytechnique and ENSAE)

Microeconometric Evaluation of Public Policies, *Bruno Crepon and Anett John* (18/20) - Entrepreneurship, *Thomas Astebro* (17/20) - Urban Labor and Housing Markets, *Benoit Schmutz* (18/20) - Labor Economics, *Pierre Cahuc and Francis Kramarz* (auditing) - Economics of Education and Human Capital, *Christian Belzil* (auditing)

Additional courses: Macroeconomics (Ecole Polytechnique and ENSAE)

Macro-Finance, *Edouard Challe* (20/20) - International Macroeconomics, *Eric Mengus and Tomasz Michalski* (16.5/20)

Additional courses: Econometrics (Ecole Polytechnique and ENSAE)

Econometrics of Panel and Duration Data, *Laurent Davezies and Arne Ulhendorff* (auditing) - Structural Econometrics, *Christian Belzil* (auditing) - Machine Learning for Econometrics, *Christophe Gaillac and Jeremy l'Hour* (auditing)

3 Description of research interests and projects

My research interests lie in the fields of investment management, human capital and technological innovation. My main current project studies the impact of Big Data and Artificial intelligence (AI) on the Venture Capital industry. My goal is to assess how the use of such technologies by Venture Capitalists affects the allocation of capital across startup ventures and small companies.

AI is a form of automation that is expected to impact nearly all aspects of society, but in particular the financial sector. One reason is that this industry handles large amounts of data to form forecasts about asset returns and find profitable investments. As AI affects the scale and speed of data processing, its adoption by financial intermediaries might affect how capital is allocated in the economy and as a consequence have real effects on firms and investors.

Venture capitalists (VCs) are private equity investors that provide capital to young companies exhibiting high growth potential. These investors finance some of the least developed and most uncertain ideas. Hence, while they can earn a massive return on their investments if the companies are a success, VCs also experience high rates of failure due to the uncertainty that is involved with new and unproven companies. Many large venture capital funds use AI to support

their investment decisions. However, most VC investors still do things the old-fashioned way, i.e., rely on their relationships and networks to find and assess investment opportunities.

The objectives of my project are twofold. First, I will study the factors driving AI adoption by venture capitalists. I will focus in particular on the degree of competition among venture capital firms ("rat race" to find the next unicorn), and on the depth of potential investment opportunities ("needle in the haystack problem"). Second, I will study how VCs that use AI differ from other investors in how they deploy capital. I will concentrate especially on how AI-driven investment affects discrimination against startup founders belonging to minorities, and whether it draws capital to specific sectors and innovations the global economy can benefit from.

In a second project I study entry into entrepreneurship and subsequent entrepreneurial success, using French administrative data. The literature has shown that the majority of net job creations are done by a small fraction of specific startups (high-growth startups led by "transformational" entrepreneurs). Due to different levels and timings of adoption of digitization, returns to entrepreneurship and skills to be successful have varied over time and across sectors. This project aims to assess which entrepreneurial features matter for growth, and relate these characteristics to the technologies available at a particular time or in a given industry (e.g., advertising versus health sector).

My last project focuses on the effects of restricting labor mobility on capital misallocation, using evidence from the asset management industry. Exploiting the characteristics of this sector (the observability of the productivity of fund managers and the capital they manage), my main contribution is to show that the mobility of fund managers across firms is a key factor in the efficient allocation of capital in the mutual fund industry.

Academic references

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