NBER Digital Economics and AI Tutorial
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Application for Dafna Bearson
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Description of the course of graduate study pursued.

Dafna Bearson is a rising third-year PhD candidate in the Strategy Unit at Harvard Business School (HBS).

Dafna has completed two years of PhD-level coursework in Microeconomic Theory, Econometrics, Labor Economics (with Professor Lawrence Katz), Empirical Methods in Innovation and Digitization (with Professor Shane Greenstein), Field Experiments (with Professor Mike Luca), Economics of International Business (with Professor Laura Alfaro), Advanced Topics in Strategy Research (with Professor Juan Alcacer). She has also completed advanced coursework in data science at Harvard's Engineering School, through which she developed her statistical and machine learning methods to analyze data.

In June 2023, Dafna successfully passed her qualifying major exam in Strategy. She also passed her minor field exams in Labor Economics and Empirical Approaches to Innovation Strategy. Her examiners were Professors Juan Alcacer, Shane Greenstein, Raffaella Sadun, Jorge Tamayo, Andy Wu, and Dennis Yao.

Research interests and research projects that are in progress.

Dafna is interested in the effect of smart technologies, such as AI, platforms, and other digital technologies, on worker and business outcomes. She is interested in within and across firm outcomes such as the demand for skills, the structure of wages, and the composition of employment, as well as business productivity and profits. Specifically, how do technology development and deployment decisions differ across firms? How do deployment decisions differentially affect skill demands (i.e., is a skill augmented or substituted based on *how* the technology is deployed)? What complementary assets (e.g., skills, IT infrastructure, production processes) affect the productivity and performance gains from new technology? More broadly, what are the sources of variation in the distribution of productivity gains across firms? To study these questions, she hopes to explore data from multinational firms across advanced industrial economies.

As she transitions from coursework to full-time research, Dafna is actively designing a research agenda and dissertation proposal on these topics. Therefore, the NBER Tutorial on Digital Economics and AI would serve as a fantastic opportunity to learn from and connect with scholars conducting frontier research on these topics, as well as provide key insight into promising areas for future research for emerging scholarship.

Since joining HBS, Dafna has worked on three projects on related topics through HBS' Digital Reskilling Lab in the Digital Data Design Institute at Harvard, which is run by HBS Professors Raffaella Sadun (NBER Affiliate) and Jorge Tamayo. Each project is described below:

1. How do managers affect worker and firm outcomes after a technology shock? In this project, we explore panel data from an automobile manufacturing plant. Within the plant, there are multiple assembly lines that are managed by different individual managers. We exploit the movement of workers and managers across lines in an AKM-style analysis to estimate the effect of a particular manager type on worker and plant outcomes. Our main analysis is an event study, which estimates how managers differentially respond to a technology shock. We find significant variation across managers that matters for worker and performance outcomes.

2. How can managers increase participation in available digital skill building training opportunities for employees? In this project, we ran a RCT in a major multinational automotive company. We designed three interventions that communicate different incentives for employee participation in a digital skills training program offered by the firm. The interventions were randomly sent to 19,000 employees across four countries. While the experiment did not yield results (unfortunately due circumstances beyond the researcher's control), it did inform a related review article, "Take-Up," that Dafna and Professor Cass Sunstein co-authored on the factors that affect the take-up of opportunities broadly, which is forthcoming in *Behavioural Public Policy*.

3. What are the appropriate measures of digital skills among adult populations? What are the frontier approaches to closing digital skill gaps? This project synthesizes the literature on digital skill gaps among adult populations. Specifically, it offers an overview of how countries monitor digital skills and invest in digital skill development in adult populations. Both private and public sector offerings are discussed. It assesses the existing theoretical and empirical research, as well as gaps in our current understanding, to develop a future research agenda.

Prior to joining HBS, Dafna worked with Professor Laura Tyson on the effects of broad structural forces, particularly globalization and technological change, on the labor market, business strategy, and public policy in advanced industrial economies. Their research confirms that although firms across advanced industrial economies have deployed similar technologies, labor market outcomes have varied depending on policies and institutions. They continue to discuss avenues for collaboration on these topics.

She also worked with Professors John Zysman and Martin Kenney. Their research led to two co-authored papers on the labor market and concentration effects of digital platform firms. In an article in *Industrial and Corporate Change*, they ask if labor in the platform economy extends beyond gig workers and present a diverse ecosystem of value-creating activity and remuneration levels generated by platform firms. In another paper for the *Socio-Economic Review*, they ask how platform firms have developed over time. In this paper, Dafna conceptualized and operationalized a framework to demonstrate how dominant platform firms transcend traditional sectoral boundaries and rapidly spread across the economy. They continue to explore areas for additional research on these topics.

Please feel free to reach out with questions or comments. Thank you very much for your consideration!