

Research Statement

Tristan Potter

Summary

My research focuses primarily on issues at the intersection of **macroeconomics and labor**. Specifically, I am interested in the forces that shape individuals' labor market outcomes—including forces operating at the individual level, at the aggregate level, and labor market policies. At the individual level, my research examines how people make decisions while searching for work and during unemployment more generally. At the aggregate level, I investigate the role of expectations and beliefs in driving macroeconomic fluctuations. At the policy level, my work analyzes both the positive and normative impacts of policies that prohibit contractual restrictions on worker mobility, such as non-compete agreements. Throughout much of this work, two themes emerge consistently: First, my research emphasizes the role of *information*—including uncertainty, learning, beliefs, and expectations—in accounting for observed phenomena in the labor market. Second, my work frequently considers how technology—including specific technologies such as the internet, social media, and online job search tools, as well as broader notions of technology associated with labor productivity—can affect labor market outcomes, both by shaping individuals' search decisions and as a driver of aggregate fluctuations.

More recently, I have also begun working on issues related to **environmental economics**. My ongoing work in this area examines how individuals form their beliefs about environmental issues such as climate change and subsequently act on those beliefs. Specifically, one strand of this research agenda examines how conservation-oriented public employment programs, such as the Civilian Conservation Corps, can arouse environmental awareness among participants and lead them into environmental careers and to become green innovators. This work represents a synthesis of my research in labor and a long-standing interest in environmental conservation. Another strand of this new research agenda quantifies how climate change itself (as manifested in air quality deterioration) shapes individuals' concerns about the environment and views about the government's role in enacting climate policy.

Beyond these two primary focuses, my research occasionally touches on issues in other fields and disciplines—for example, I have written on trade policy, media content analysis, and technological addiction.

Methodologically, my research is equal parts theoretical and empirical. My theoretical work uses decision-theoretic and partial equilibrium models of search, coordination games and games of asymmetric information, and dynamic general equilibrium models. My empirical work spans reduced-form dynamic panel data methods, structural vector autoregressions, simulation-based estimators, text analysis/natural language processing, and both qualitative and quantitative analysis of primary historical documents.

1. Macroeconomics and Labor

My research in macroeconomics and labor examines the forces that shape individuals' labor market outcomes. This work can be organized around three such forces: (i) How *individuals* make decisions during unemployment and the job search process; (ii) the role of beliefs and expectations in driving *aggregate* fluctuations; and (iii) the role of labor market *policy* in influencing outcomes.

1.1 Search and unemployment

An important force governing individuals' labor market outcomes is job search. A substantial part of my research agenda, which I discuss below, studies the nature of search decisions, both on and off the job, as well as other aspects of decision-making during unemployment.

Information, beliefs, and job search

The structure of information is a central component of job search. This fact can be seen starting with the earliest theoretical work on search decisions (Stigler, 1961; McCall, 1970),¹ all the way through modern empirical work testing these (and related) theories using data on, e.g., workers' perceptions of the search and job-finding process (Mueller and Spinnewijn, 2022). My work engages with both the theoretical and empirical aspects of this literature.

A central assumption in much of the search literature is that job seekers know precisely the rate at which job offers will arrive. In “**Learning and Job Search Dynamics during the Great Recession**”,² I challenge this assumption. The paper begins by revisiting an important empirical observation made by Krueger and Mueller (2011): During the Great Recession, search effort declined the longer a worker was unemployed.³ Revisiting their analysis, I document two new facts: (i) The observed decline in search effort over the spell is explained by variation in workers' search effort since job loss—i.e., it is past search effort, rather than unemployment duration per se, that explains declining effort over the spell, and (ii) receiving (and rejecting) a job offer stimulates search effort. These facts suggest that workers are uncertain about their job-finding prospects and learn from their experiences searching. I formalize this idea by considering a model of sequential search in which job seekers are uncertain about the rate at which offers will arrive and learn as a result of both their past search effort and the returns to that effort in the form of job offers. This model explains the facts documented at the start of the paper, provides theoretical insight into the phenomenon of “discouragement,” and, when estimated via a simulated method-of-moments procedure, reveals that job seekers substantially overestimate their job-finding prospects at the time of job loss, consistent with outside evidence from subjective probability elicitations. Taken together, these results point clearly towards an important role for uncertainty and learning in the search and job-finding process that has long been neglected in the literature.

The preceding suggests that the phenomenon of discouragement may be an important feature of the experience of joblessness. This idea has a long history: In its 1979 report to Congress, the Levitan Commission identified non-participation due to discouragement as not just a problem of unused productive capacity, but as one of three principal sources of labor market hardship.⁴ In my short paper, “**The Discouragement Rate: An Index of Discouragement-Induced Hardship**,”⁵ I turn to the largely overlooked Chapter 5 of the Levitan Commission's report, and find in it an exhortation for the construction of an index to measure the extent of discouragement-induced hardship.⁶ Accordingly, I propose such an index that is both easy to construct and interpret, and

¹Stigler's paper was entitled “The Economics of Information,” while McCall's was “Economics of Information and Job Search.”

²*Journal of Monetary Economics* (2021).

³This finding is based on the Survey of Unemployed Workers in New Jersey (SUWNJ), a weekly longitudinal survey that followed unemployed workers for up to 26 weeks during the height of the Great Recession. See Krueger and Mueller (2011) for details.

⁴National Commission on Employment and Unemployment Statistics, *Counting the Labor Force*. G.P.O., 1979. The so-called “Levitan Commission” is well-known for Chapter 4 of its report and for deciding to not include discouraged workers as part of the labor force.

⁵*Applied Economics Letter* (2021).

⁶Currently, the only widely reported statistic reflecting the extent of discouragement in the United States is the U4 unemployment rate, which makes no distinction between discouraged workers and unemployed workers; the groups

use it to document several stylized facts about the evolution of discouragement over time and across demographic groups.

While the two papers above focus on how the *experience* of unemployment can influence search decisions—reduced search effort or even complete labor force withdrawal in the case of discouraged workers—it is also possible that *expectations* of unemployment can influence search decisions of employed workers, albeit through a different informational mechanism. In “**Wage Offers and On-the-job Search**” (with Dan Bernhardt),⁷ we study the possibility that, when firms have private information about their future viability, the wages they offer will potentially convey information to workers, who in turn may wish to engage in precautionary on-the-job search to avoid a spell of unemployment if shutdown is likely. Because such search is costly to firms that remain viable, a firm’s wage-setting decision will reflect not only the direct labor cost of a higher wage, but also the information that any particular wage offer will convey to its workers. We identify the unique perfect sequential equilibrium wage strategy for firms, and show that it is characterized by a large pooling region in which wages are invariant to a firm’s private information about future viability, as well as a discontinuous fall when remaining viable is unlikely. We argue that these implications can help to explain downward wage rigidity (Altonji and Devereux, 2000), the existence of advance notice laws (e.g., the Worker Adjustment and Retraining Notification Act of 1988), and excess kurtosis in earnings growth distributions (Karahan et al., 2020).

Unemployment and habit formation

In the recent podcast “Rabbit Hole,” *The New York Times* chronicles how the internet is changing how we spend our time, beginning with a story about how immersive YouTube viewing led to the political radicalization of an unemployed college dropout.

Interested in whether this type of immersive internet use can be detected in quantitative data on the behavior of unemployed workers, in “**Down the Rabbit Hole: Habit-formation in Internet Use among Unemployed Workers**”,⁸ I return to the SUWNJ data described above and ask a simple question: Is internet use habit-forming for unemployed workers? Unemployment represents a unique opportunity to study habit-formation in internet use because, among other things, it usually entails a windfall of time that can be allocated to new forms of leisure. Exploiting this observation, I adapt a standard model of habit-formation in consumption (as in, e.g., Deaton (1992)) to leisure choice and derive a test for habit-formation in various leisure activities. The results show robust evidence of habit-formation in internet use, driven, somewhat surprisingly, by Generation-X workers rather than by Millennials. Moreover, I find no evidence of habit-formation in most *offline* leisure activities. These observations have potentially important implications for the tradeoffs governing the labor supply of unemployed workers, such as those considered by Aguiar et al. (2021), as well as for policies aimed at influencing labor supply decisions and recent policies intended to limit social media use.⁹

1.2 Expectations, beliefs, and aggregate fluctuations

Aggregate fluctuations in unemployment also influence individuals’ labor market outcomes. There is a long history in macroeconomics of the idea that such fluctuations could be driven by autonomous changes in individuals’ beliefs or expectations of the future. My research studies two modern manifestations of this idea: One building on the idea that news about the future can produce booms

are simply added together to form a broader measure of excess productive capacity.

⁷ *Canadian Journal of Economics* (2022).

⁸ *Economics Letters* (2022).

⁹ For example, the 2019 Social Media Addiction Reduction Technology (SMART) Act proposed a daily 30-minute limit on social media apps.

and busts in the economy, and one proposing that modern search technologies have a tendency to destabilize the economy by giving rise to non-fundamental fluctuations in unemployment.

News shocks

Beginning with the work of Beaudry and Portier (2006), a recent literature has revived the idea of Pigou (1927) that news about future changes in technology can potentially drive substantial fluctuations in unemployment. This idea has been debated empirically in terms of how such shocks should be identified using structural vector autoregressions (SVARs) and theoretically in terms of whether workhorse macroeconomic models are consistent with the identified effects of such shocks.

In “**Anticipated Productivity and the Labor Market**” (with Ryan Chahrour and Sanjay Chugh),¹⁰ we argue that news about the future is an important source of fluctuations in the labor market and the economy more broadly. Empirically, we propose an approach to identifying news shocks that targets predictable fluctuations in productivity at a range of intermediate horizons, thus incorporating the recent insights of Kurmann and Sims (2020) and Barsky et al. (2015).¹¹ The shock that we identify in this way explains a large fraction of variation in employment and output at all horizons and has other hallmark features of a news shock. Theoretically, we first equip a standard macroeconomic model of the labor market with a flexible reduced-form model of the wage and show that, when unencumbered by familiar structural models of wage determination, the model generates responses to a news shock that are extremely similar to what we find in the data, provided that wages fall on impact before eventually rising to keep up with productivity. We then argue that this response of wages, which is required for the model to fit the data, is nearly identical to the response implied by a simple cash-flow sharing model of wage determination in the spirit of Akerlof and Yellen (1990), which accounts for the data both in and out of sample nearly as well as our reduced-form wage rule. We interpret these results as strong evidence that the data support an important role for shocks to expectations in driving labor market fluctuations.

Self-fulfilling beliefs

Separately, a literature beginning with the work of Diamond (1982) and Diamond and Fudenberg (1989) has shown how strategic complementarities in search can lead to multiplicity of equilibria and thus self-fulfilling fluctuations in unemployment.

In “**Destabilizing Search Technology**,”¹² I argue that modern search technologies will tend to expose an economy to such self-fulfilling fluctuations in unemployment. The paper begins from the observation that an important feature of modern search technologies is that they allow workers to *monitor* the arrival of new job postings and thus confer a first-mover advantage to workers who do so.¹³ I show that a consequence of this observation is the emergence of a novel form of strategic complementarities in search that can give rise to multiple equilibria. Intuitively, if an unemployed worker believes others are monitoring new job postings, she must do the same to avoid falling to the back of the queue for jobs and remaining unemployed. In the context of a quantitative macroeconomic model of the labor market, I first show that the model has three Pareto-ranked steady states such that the high-search steady state features lower welfare due to excessive search despite more workers taking advantage of a more efficient matching technology. I then show that for

¹⁰ *Quantitative Economics* (2023).

¹¹ Kurmann and Sims (2020) argue that zero restrictions on productivity can lead to misleading and unstable results due to mismeasurement of productivity. Barsky et al. (2015) argue that identification of news shocks should not actively reward fluctuations in utilization-adjusted productivity that quickly follow the arrival of news.

¹² *Journal of Monetary Economics* (2024).

¹³ For example, most online job boards feature “job alerts” that notify workers of new listings as soon as they are posted.

a range of initial conditions, the economy can converge to any of these steady states. This implies that autonomous changes in unemployed workers’ beliefs can permanently shift the path of the economy from converging toward one steady state to converging toward another. In this way, the model offers a novel theory of non-fundamental belief-driven labor supply shocks. Moreover, when the economy is hit with a sufficiently large demand shock (e.g., as in 2007), it can be forced onto a trajectory that converges to the high-monitoring steady state. Put differently, purely transitory demand shocks can permanently affect labor supply decisions. I show that this observation can explain several anomalous features of the recovery from the Great Recession that both standard models and models of multiple equilibria with demand-side mechanisms cannot explain.

1.3 Labor market policy

A third force that influences workers’ labor market outcomes is policy. Over the past decade, it has come to light that workers for a number of large, well-known, low-wage employers are subject to non-compete agreements (NCAs).¹⁴ This observation has led to intense public and media scrutiny of the use of such contracts, culminating in the Federal Trade Commission imposing a near-total ban on NCAs in early 2024. Two recent projects explore the normative implications of such bans.

In “**On the Inefficiency of Non-Competes in Low-Wage Labor Markets**” (with Bart Hobijn and Andre Kurmann),¹⁵ we contribute to this policy debate by seeking to understand the implications of mobility-restricting policies, such as NCAs, for social welfare in low-wage labor markets. Our work is motivated by the observation that, while there is some evidence on the empirical effects of NCAs for low-wage workers,¹⁶ there is virtually no existing theoretical work studying what such policies do—and, in particular, how they influence welfare—in a workhorse general equilibrium model of labor turnover. Accordingly, we consider the role of mobility-restricting policies in a variation on the classic model of labor turnover in Burdett and Mortensen (1998). We first document that our model is consistent with empirical work on the effects of NCAs on low-wage workers. We then theoretically characterize optimal NCA policy, emphasizing interactions with the minimum wage. Finally, we propose two approaches to quantitatively assess the efficiency of NCAs. First, using a robust sufficient statistic approach derived from the model, we show that NCAs are likely to be *inefficiently restrictive* in low-wage U.S. labor markets. Second, we use a calibrated version of the model to show that Oregon’s 2008 NCA ban for low-wage workers was efficiency enhancing. We thus conclude that there is a strong efficiency rationale for restricting the use of NCAs in low-wage labor markets.

In a related on-going project, “**Pessimism and the Incidence of NCAs**” (with Bart Hobijn and Andre Kurmann) we ask: Why do some low-education workers sign non-compete agreements while others do not? We argue that pessimism about upward mobility can help answer this question. Using data from the 1997 National Longitudinal Survey of Youth (NLSY97), we document that observable worker- and job characteristics, including the wage, can only account for a small fraction of variation in the incidence of non-competes among low-education workers, whereas unobserved worker characteristics account for a substantially larger share. Informed by recent empirical work on workers’ beliefs about job mobility (Jager et al., 2024), we conjecture that latent pessimism about the availability of high-wage jobs can help explain these observations, and find evidence supporting this hypothesis from workers’ labor market histories: Workers who have had high wages in the past, and are thus less likely to be pessimistic about the availability of high-wage jobs, are significantly less likely to subsequently take jobs with NCAs. We propose a general equilibrium model in which firms optimally post wage-NCA contracts and workers endogenously learn about

¹⁴Examples of such employers include Amazon, Jimmy John’s, McDonald’s, Burger King, and Jiffy Lube.

¹⁵*Economica* (2024).

¹⁶See Starr et al. (2021) and Lipsitz and Starr (2021).

the availability of high wage jobs through their labor market experiences. We demonstrate that the model can account for our empirical findings as well as several other important stylized facts about NCAs documented in recent empirical research.

2. Environmental Economics

More recently, I have begun working on several projects related to environmental economics. These projects are tied together by an interest in understanding the factors—ranging from public jobs programs to natural disasters—that influence individuals’ beliefs about environmental issues, and how those beliefs can have long-lasting effects on career choices and can influence views on public policy.

2.1 Environmental Labor Mobilization

In recent years there has been renewed interest among policy makers in large-scale efforts to mobilize young workers to help mitigate the effects of climate change and environmental degradation.¹⁷ Franklin D. Roosevelt’s Civilian Conservation Corps (CCC), which over the course of nine years employed roughly three million young men, provides a historical model for understanding the implications of such programs. In an on-going project, **“Planting the Seeds of Environmentalism: How the CCC Shaped Enrollees’ Career Trajectories and Green Innovation,”** I study whether participation in the CCC influenced young participants to pursue careers in environmental fields or become green innovators.

This idea is motivated by new evidence—drawn from an archival database of letters from CCC participants that I recently digitized with the help of two students—that enrollees frequently cite a heightened awareness of environmental issues and a newfound concern for environmental stewardship as among the principal benefits of the program. The qualitative evidence from these letters suggests a hypothesis: Participation in the CCC may have influenced the career paths of its young enrollees, who often explicitly express a lack of direction in the same letters, guiding them toward professions in environmental work.

To evaluate this hypothesis quantitatively, I will link rich CCC enrollment and application data from New Mexico and Colorado with (i) recently released 1950 Decennial Census records, which include information on industry of employment after the CCC ended, and (ii) patent records related to green innovations. This linked dataset will allow me to study how time spent in the program, as a measure of exposure, correlates with environmental career outcomes or green innovation. Additionally, the richness of the archival data—including geographic and socioeconomic information on enrollees’ backgrounds—enables me to address endogeneity concerns by instrumenting for program duration using local unemployment rates and proximity to Dust Bowl-affected areas. Ultimately, by rigorously examining how CCC participation influenced long-term career trajectories and green innovation, the project aims to provide insight into the program’s lasting impact and to provide evidence-based lessons for modern employment initiatives designed to combat environmental degradation.

¹⁷For example, in 2020 Senator Dick Durbin proposed the RENEW Conservation Corps Act, which was intended to enroll over one million unemployed Americans in environmental and conservation-related work (<https://www.congress.gov/bill/116th-congress/senate-bill/4538/text>), while the Biden administration recently proposed the American Climate Corps (<https://www.acc.gov/>). Over 100 similar programs already exist in the United States, typically run by state governments and non-profits.

2.2 Air Quality and Demand for Climate Policy

In addition to economic and social influences, immediate environmental conditions, such as changes in air quality, may play a critical role in shaping beliefs about the environment and the role of government intervention. In a new working paper, **“The Magnitude and Durability of the Effect of Air Pollution on Support for Environmental Policy,”** I study how air quality deterioration associated with, e.g., the recent spate of wildfires in Canada and the American West impacts individuals’ views on the role of the government in addressing climate change. To do this, I combine a county-level dataset on six daily air quality indicators from 2016 to 2024, which I recently constructed from EPA monitoring station data, with restricted-use data from the General Social Survey (GSS) that includes respondents’ county of residence as well as their attitudes toward climate policy.¹⁸ Because the GSS data identifies a respondent’s county and exact survey date, I can link it to the EPA data to capture daily changes in air quality leading up to each survey response. The frequent and often unpredictable nature of wildfires and the associated distribution of smoke then provides a quasi-experimental setting for assessing how sudden changes in air quality might influence climate policy preferences. I find that exposure to elevated levels of certain pollutants is associated with significantly greater support for climate policy, but that this effect disappears almost immediately once concentrations return to normal ranges. This suggests that environmental crises have only a transient effect on support for climate policy, which in turn has implications for the speed with which society will be able to find the political will to address the on-going climate crisis.

3. Other Topics

While most of my research has been focused on topics related to macroeconomics and labor economics, and more recently environmental economics, my interests are broad and I occasionally work on projects in other areas. Below, I briefly describe on-going work on media content analysis and previous work I have done on trade policy.

3.1 Differential language in media coverage of homicide

In a recent working paper, **“Demographic Correlates of Humanizing Media Coverage of Homicide: Evidence from the Boston Globe, 1976-1984”** (with Emily Ocasio), we use natural language processing to explore how news coverage of violent crime varies in its portrayal of victims from different demographic groups. We begin with the observation that media coverage of violent crime both reflects and shapes societal perceptions of different demographic groups. By examining this coverage through an intersectional lens, we gain nuanced insights into how the media influences public perceptions of the humanity of different groups.

We merge FBI data on homicides in Massachusetts from 1976 to 1984 with articles from the Boston Globe to analyze how race, age, and sex of homicide victims and offenders—along with the interactions of these characteristics—relate to the humanizing nature of media coverage, while accounting for detailed circumstantial factors. Our findings reveal several key patterns of differential coverage: (i) Among male victims, white victims are significantly more likely to receive humanizing coverage than Black victims; (ii) for female victims, there is no significant racial difference in coverage, except among those aged 18-29, where Black victims are portrayed with less humanizing coverage; (iii) female and juvenile victims tend to receive more humanizing coverage overall; and (iv) the race or sex of the offender does not significantly correlate with the humanizing nature of the coverage.

¹⁸Specifically, the GSS asks respondents whether they think the government is spending too much, too little, or the right amount on “improving and protecting the environment.”

These results highlight how demographic factors intersect to shape media portrayals of homicide victims and suggest that media coverage plays a role in shaping broader societal perceptions of different groups.

3.2 Interwar trade policy

I have a long-standing interest in interwar trade policy in the United States that dates back to my years as an undergraduate, during which time I worked with Mario Crucini to digitize a comprehensive archive of line-item tariffs from 1929 to 1933. In “**Misallocation and Productivity Effects of the Smoot-Hawley Tariff**” (with Rick Bond, Mario Crucini, and Joel Rodrigue),¹⁹ we use this archival tariff data to construct industry-level wedges associated with the underlying tariff structure before and after the Smoot-Hawley legislation was passed. The wedges, in turn, map into distortions to aggregate productivity, which we directly measure. Using a structural general equilibrium model, we compute the impact of the legislation on macroeconomic variables such as employment and consumption. Furthermore, we quantify the productivity and welfare losses associated with the legislation and the subsequent deflation (the latter due to the use of specific tariffs) and conduct a battery of counterfactual experiments that consider alternative policy scenarios, elasticities, and import shares. The data lead us to several interesting conclusions: (i) The pre-Smoot Hawley tariff structure contributed to a -1.2% reduction in measured total factor productivity (TFP) relative to free trade; (ii) Smoot-Hawley, combined with the ensuing deflation, contributed to an additional -0.5% reduction in TFP; and (iii) even in the absence of Smoot-Hawley, the deflation of the early 1930s would have reduced TFP by -0.3%.

¹⁹*Review of Economic Dynamics* (2013).

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