Data-driven economic models can deliver general insights into human behavior, and can in turn be used to evaluate the *ex ante* impact of policies. My research agenda develops such models, and combines them with techniques and data from the physical sciences. I use this general framework to provide insights into how individuals and firms anticipate and adapt to environmental change. These insights can be used to provide valuable information to policymakers on the role and limits of policy in aiding adaptation to such environmental change.

In my job market paper, I study the role of, and the dynamics behind, the decision to migrate in limiting the damages of future changes to the climate. I find that migration is an effective dampening force against the damages of climate change. The degree of effectiveness depends not only on the degree of warming that we will face, but also on the ability of the population to correctly anticipate future warming. To demonstrate this fact, I use frontier econometric methods to structurally identify the portion of the population forming naive and fully-informed expectations of the climate system, which is modeled as changing heterogeneously across both space and time.

I find that the climate-naive would experience 2% fewer lifetime climate damages if they were to both become informed on the climate system and to use this information when making their adaptation decisions. Moreover, I find that the majority of the welfare losses experienced by the population come from a reduced propensity to move, rather than the decision to move to suboptimal locations. This leaves the door open for policy to assist them. I demonstrate that migration subsidies at the level of the average internality close the gap between the climate-naive and the fully-informed by 19%. In the paper, I argue that both the reduced rate of adaptation to warming from the climate-naive and the policy prescriptions are general results that speak to the literature seeking to understand the origin of an observed "adaptation gap" to the damages of climate change. In future work on this topic, I anticipate using a similar modeling framework to understand how past exposure to extreme weather and natural disasters impacts the formation of beliefs over the climate.

I anticipate that much of my future work will similarly look to the interactions between individuals and their environment to inform policy. As an example, I plan to study how future warming will exacerbate the tragedy of the commons amongst municipal water providers and other users sharing groundwater supplies in California. Such a phenomenon occurs because groundwater is a renewable resource whose extraction by one agent affects the outcomes and decisions of another. Moreover, water demand is increasing with warming, both for residential and agricultural users. One way to close this gap is through different water pricing schemes. I plan to look at how pricing water at its marginal cost, taxing agricultural users, and taxing excess water use on high demand days can help to reduce the over exploitation of the groundwater supply. To do so, I will estimate a model of demand and supply for water, in the spirit of Timmins (ECMA, 2002). I will combine this with a climate model to simulate how demand will change with future warming. California provides a unique setting to study this question; it has begun to enact a plan to achieve sustainable groundwater use in the near future. As such, I will be able to predict how effectively stated plans will achieve their goals, and how outcomes under different pricing schemes compare to those from the policy.