Research Statement

My research interests are broadly in line with the Macroeconomic fields of Endogenous Growth, International Trade, Development, and Environmental Economics. My current paper deals with the issue of renewable resource management. In particular, I show that by better managing renewable resources, a country will enjoy better welfare and more quickly reach a developed stage, as defined by the level of R&D activity. Though my current and previous papers are mainly theoretical, I plan to broaden my research agenda with new topics and engage more in empirical research in the future. Below are brief descriptions of my current paper, work in progress, and planned future projects.

Job Market Paper

The paper aims to understand how resource management regimes can contribute to economic development, growth, and welfare. I incorporate renewable resources in a tractable model of endogenous growth driven by horizontal and vertical innovation. The model is tractable in that it yields a complete, analytical characterization of the path of utility and the associated welfare level. This property is exploited to compare two cases of renewable resource management: open access and full property rights. The first case involves a common property problem in which agents ignore the long-term resource viability; the second fully internalizes the dynamics of the resource stock. Analysis shows that if the regeneration rate is too low, the tragedy of the commons occurs. The resource stock converges to zero and the economy collapses. If, instead, the regeneration rate is sufficiently high, the steady-state growth rate of the economy is identical across the two management regimes because there is no scale effect. However, the development path on which the economy transits from the developing stage (no R&D activity) to the developed stage (positive R&D activity) depends on the management regime. In particular, a developing economy under full property rights will cross its development threshold prior to one under open access. Moreover, switching from full property rights to open access is welfare reducing due to the gradual increase in the price of harvest good and a fall in expenditure per capita.

Work in Progress

“Short-Term Gain for Long-Term Pain? Trade, Growth, and Open-Access Renewable Resources”
The paper attempts to analyze the effect of trading open-access renewable resources on economic growth. In the conventional theory of trade, both countries would gain from trade due to specialization, technological transfer, and larger market share. However, the gain from trade might be hindered if one of the trading goods is an open-access renewable resource. According to Brander and Taylor (1998), the resource-abundant country might lose from trade in the long run because free trade exacerbates the exploitation of the natural resource so that the steady state stock is lower than in autarky. However, their analysis did not incorporate technology-derived goods, which are an important part of the economy and a source of long-run growth. The paper will introduce this factor and analyze whether countries would gain or lose from trading open-access renewable resources given this additional consideration.
Future Projects

“Unemployment, Resource Management, and Welfare”
The paper will introduce the effect of unemployment into the framework of endogenous growth and resource management. In the standard model, switching the resource management regime from open access to full property rights is welfare enhancing. However, if unemployment is incorporated into the model, switching from open access to full property rights would lead to temporary unemployment in the resource sector. Specifically, labor from the harvest sector cannot move to the manufacturing sector immediately; the workers would need to learn a new set of skills beforehand. In this case, the welfare gain from the regime switch might not be obvious because the economy would initially have a lower level of output as a result of the rise in unemployment.

“Endogenous Property Rights, Trade, and Growth”
The paper will introduce the degree of property rights enforcement and incorporate the role of property rights into the endogenous growth framework. Most theoretical models only consider two extreme cases of property rights: full property rights or no property rights (open access). Although these are theoretically useful concepts, they do not describe many real cases that fall in between these two extremes. It would be more suitable to consider the degree of property rights enforcement as falling within a continuous range. Moreover, it would be useful to allow for the degree of enforcement to change along this continuum, such as when a country opens to trade and gains a larger market for resource-based commodities. The paper will construct a theoretical model with flexibility in the degree of property rights enforcement to address these issues. It will also analyze the effect of trade on the degree of enforcement and empirically test the model using China as a case study.