Three Essays on Sustainable Development in China: Social, Economic and Environmental Aspects

China’s rapid economic growth in the recent three decades has contributed to the accumulation of internal contradictions in its own development model. With China’s deep involvement in the global economic activities, economic instability as a result of unsustainable development on the China side has the potential to affect the world economy as well. It is therefore crucial to examine the unsustainable elements in China’s development model, to identify the causes and to assess its trend. My dissertation explores these issues from social, economic and environmental aspects in three essays. The abstract for each essay is as follows.

1. Renewable Energy Investment and Employment in China (Job Market Paper)
   The potential trade-off between environmental protection and employment stability has been a concern in the literature regarding the economic impacts of substituting fossil fuel energy with renewable energy. However, in the case of China, the employment issue has not been adequately addressed despite the fact that a big push on investing in renewable energy has been proceeding since 2007. To date, there are no reliable estimates of the employment impacts of renewable energy investments in China. This essay addresses the employment issue through estimating the relative employment impacts of renewable energy investments versus spending within the traditional fossil fuel sectors based on input-output modeling with China-specific data of sector and sub-sector weighting techniques. I find that spending within three segments of the renewable energy sectors—solar, wind and bioenergy, will produce in combination about twice as many jobs per dollar of expenditure than an equal amount of spending on fossil fuels. This demonstrates that there need not be any significant tradeoff between environment and economic stability in a transition to a renewable-based economy. I also find that, more than 70% of jobs from renewable energy sectors are created in the informal economy. This raises questions about the quality of the jobs created through renewable energy investments, even though the informal sector share of jobs is equivalent in the fossil fuel sectors as well. Overall, the results of my estimates demonstrate that, for the case of China, the project of building a clean energy economy does not face the prospect of a massive obstacle in terms of negative employment effects.

2. Does the Form of Agricultural Lending Affect Agricultural Investment Patterns? Evidence from China 1979-1989
   The relationship between agricultural lending and agricultural investment has been intensively studied in the exiting literature. However, these works have not adequately addressed the form of agricultural lending. They also haven’t examined how the impact of lending changes according to the specifics of the mode of production in agriculture. This essay compares the different agricultural investment patterns when agricultural
credit is borrowed on a collective basis versus on an individual basis. I construct a model of agricultural investment explained by factors of income, weather and geography and the form of agricultural lending. Specifically, I use a two-way fixed-effects model for the estimation based on a panel data on the ratio of agricultural credit borrowed on individual base versus on collective base, irrigation, income and weather, covering 11 years and 28 provinces in China. I find that on the same income level, a 10% increase in the ratio of loan made on individual base relative to on a collective base leads to a 0.1% to 0.4% decline on irrigation investment. This negative impact is even more significant for low-income rural households (with annual real net income per capita level of 191 RMB at 1978 price level). Based on these results, I argue that the form of agricultural lending (i.e. on a collective or individual base) matters significantly in decisions regarding agricultural investments. Collective-based agricultural lending tends to be channeled to investment that contributes to more sustainable agricultural development yet with returns only in the intermediate or long run (such as irrigation). This crucial finding contributes to the understanding of the transition in agricultural mode of production and its impacts on agricultural investment.

3. The Hukou System and Its Implication for a Sustainable Development Model

The Household Registration System, or hukou system is typically treated as an institutional base for rural-urban chasm in the literature regarding internal migration in China. However, these works rarely separate hukou’s social impacts from that caused by the changes in the economic system. This essay focuses on the role of the hukou with full awareness of the economic system it operates under, and the development model it assists. Specifically, I use a comparative economic system approach to examine interacting effects of the hukou and different economic systems based on a review of historical policy documents, data on migration from rural to urban sectors, agricultural output and industrial output growth. I find that hukou’s main role in the planned economy was to assist socialist industrialization while averting the Lewis development model, a development strategy based on unlimited supply of labor from the rural sector, largely adopted in developing countries. In the market reform period, hukou performed exactly the opposite function, which is to assist the Lewis model based on the unlimited supply of rural surplus labor “released” from the rural de-collectivization. When the Lewis turning point is approaching, the repeal of hukou will further assist the capital accumulation through land privatization. Based on these analytical results, I argue that the interacting effects of the hukou and the economic system, rather than hukou alone, should be the analytical focus to address important development topics such as industrialization, urbanization, spatial and social inequality. This finding contributes to the understanding of policy discussion of hukou in the context of the overall development model in China.