Intuition suggests that water is critical for economic growth. However, formal models, as well as empirical evidence for this hypothesis are scant. This dissertation fills this gap in existing literature by proposing analytical and empirical approaches to examine the role of water in multiple uses, specifically those in agricultural and urban sectors. Chapter 1 examines whether an increment in water availability at a given time would generate an increment in economic activity in the future, and if so, by how much. We use neoclassical growth theory to formulate a conditional convergence hypothesis that relates water availability to long run economic growth. One of the main contributions of this paper is that we present the case for using the water availability measures which incorporate institutional or legal availability of water to users rather than the more commonly used conception of natural or geographical availability. We therefore use aggregate agricultural water rights that are enabled by the prior appropriation doctrine in the western United States and find that these water rights have been significant in generating long run economic growth in our case study of Wyoming. Chapter 2 builds on this approach and extends the model to analyze the decision of the agricultural household to fully or partially use its water right endowment by investing in irrigation technologies. Investment in irrigation capital increases output from the fixed water right. The model identifies the possible saddle paths of agricultural economies and shows that while a larger water right enables the household to achieve higher long run growth in agriculture, water right may not be the constraint on agricultural growth. The results are strongly supported by econometric evidence from Wyoming. Finally, Chapter 3 examines the problem of urban growth where water provision is best understood as an
impure public good. We present an economic growth model where urban residents rely on a composite private good and publicly-provided water services. The model demonstrates that the lack of investment in the capacity of the publicly-provided water services is compatible with long run welfare of the city if it has large capacity endowment as an initial condition and population growth rate is slow.