

## **Chapter 9. The distributional consequences of climate change policy: new model simulations**

### **9.1 Abstract**

In recent years, IGEM along with other computable general equilibrium (CGE) models frequently has been applied to analyses of the economic costs of climate change and climate change policy. As a result, the range of outcomes for the macro-economy and its industries and factor markets now is much better defined. Less so, indeed in its infancy, is a common understanding of the distributional and equity effects of climate change and climate change policy. The most recent version of IGEM incorporates our new econometric model of aggregate consumer behavior for the United States. This model allocates full wealth among time periods for households distinguished by demographic characteristics and also determines the within-period demands for leisure, non-durable consumer goods, consumer services and household capital (durable goods) services. We characterize households by size (twelve possibilities), region of residence (Northeast, Midwest, South and West), location of residence (urban or rural) and gender (male or female) and race (white or non-white) of head. The model is estimated using micro-level data from the *Consumer Expenditure Surveys* supplemented with price information obtained from the Consumer Price Index. An important feature of our approach is the development of a closed form representation of aggregate demand and labor supply that accounts for the heterogeneity in household behavior that is observed in micro-level data. Equally important is our unique ability to measure the welfare costs of public policy at the level of full wealth for these demographic groups under differing time paths of full consumption expenditure.