Evaluation of Climate Policy

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IGEM:

An Intertemporal Model of the U.S. Economy for Modeling Energy and Environmental Policy

Household Model Incorporates Demography

Demand for Leisure and the Supply of Labor

Production Model Incorporates Technology

Endogenous Technical Change

Resources and Energy Supply

Growth

VOLUME 2

Energy, the Environment, and Economic Growth

Dale W. Jorgenson

AGGREGATE IMPACTS OF CAP-AND-TRADE POLICIES

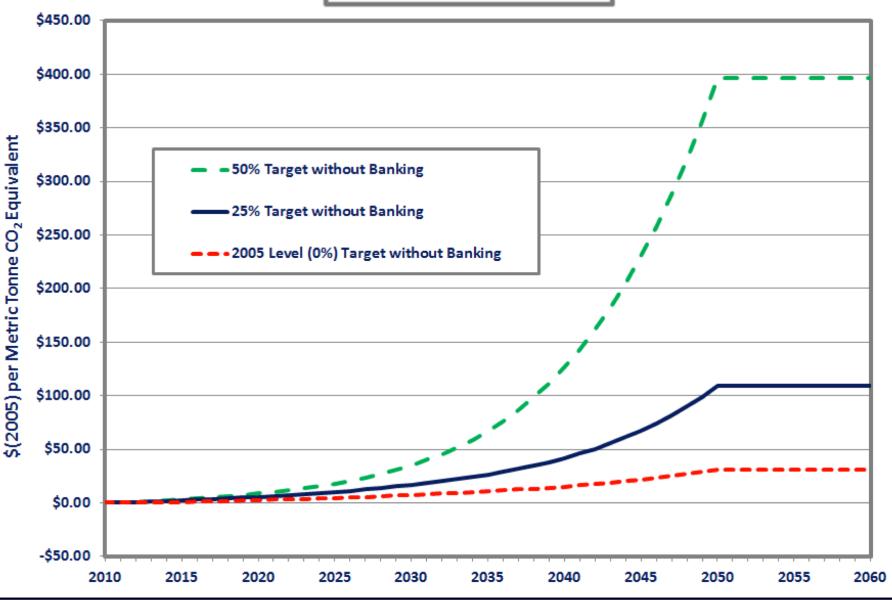
Establishing a Permit Price

Total Greenhouse Gas Emissions

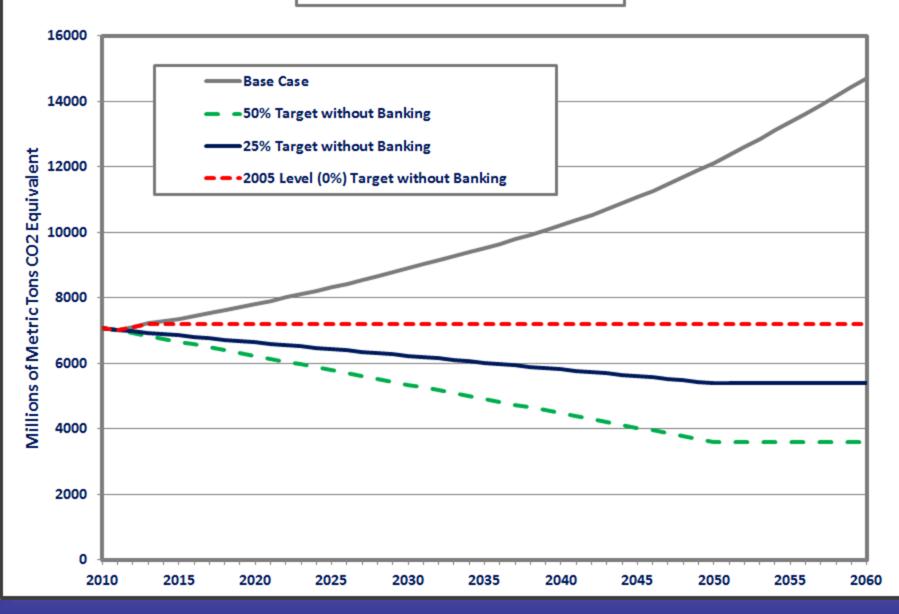
Impacts on GDP

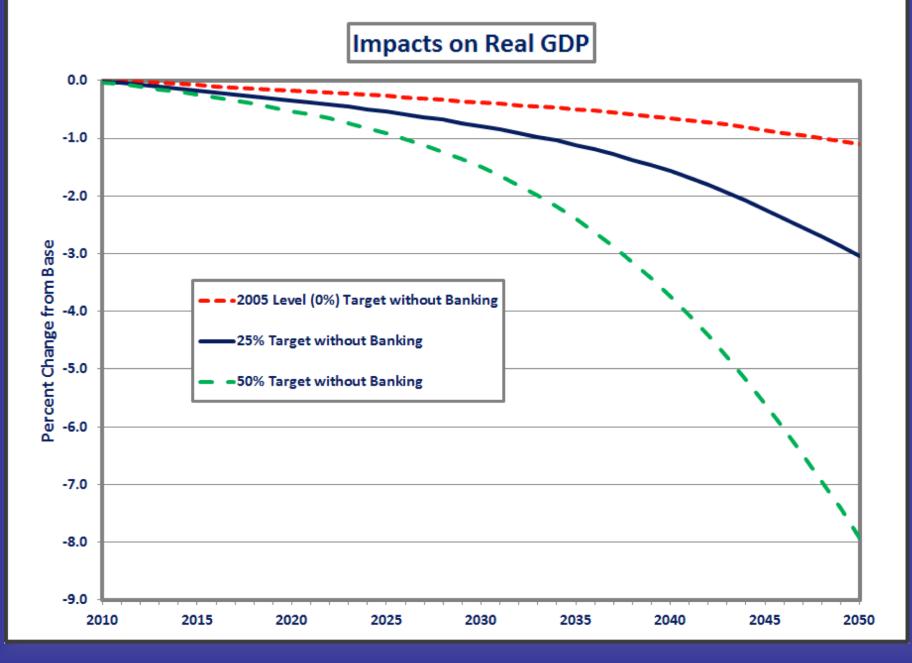
Impacts on Welfare

Allowance Prices

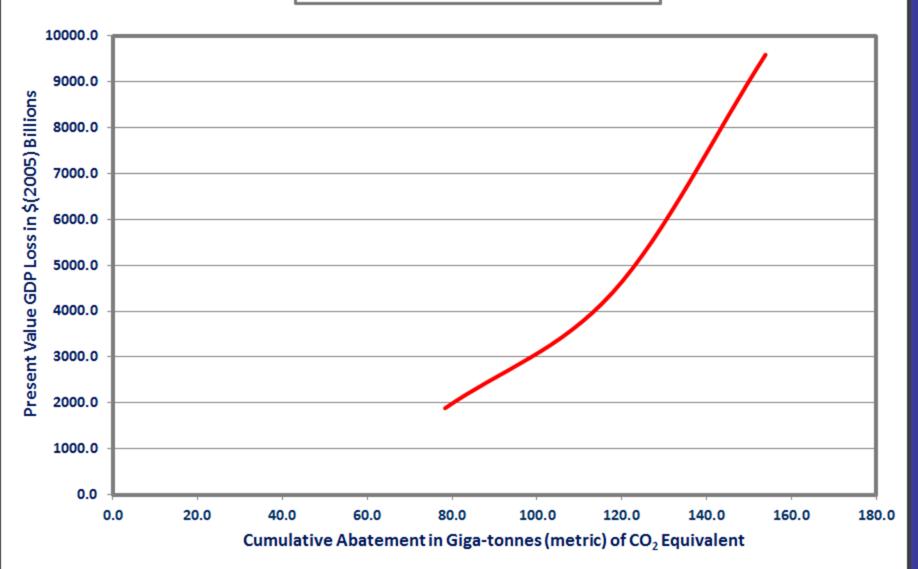


Total Greenhouse Gas Emissions





GDP Loss vs. Abatement, 2010-2050



INDUSTRY IMPACTS OF CAP-AND-TRADE POLICIES

Changes in the Composition of GDP

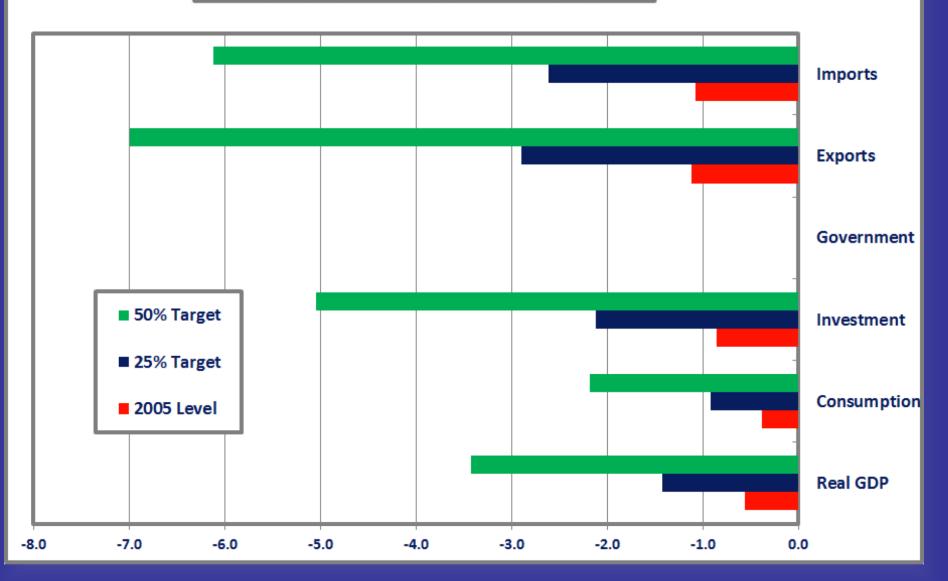
Composition of Output and Losses

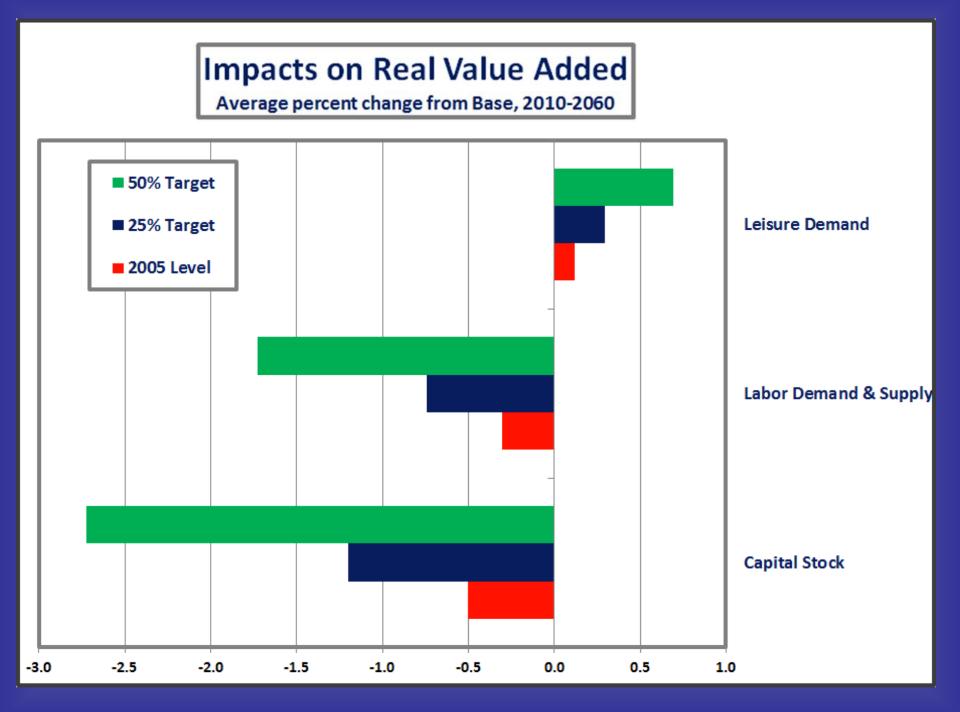
Impact on Induced Technical Change

Econometrics 0 U M т Econometric Modeling of Producer Behavior Dale W. Jorgenson

Impacts on Real Final Demand

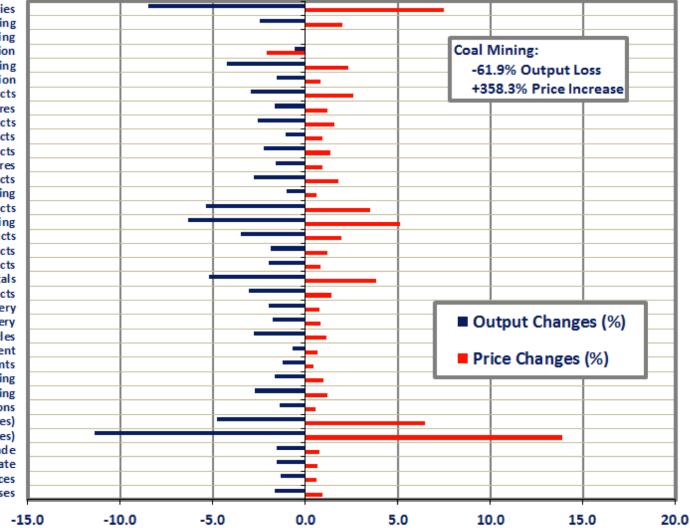
Average percent change from Base, 2010-2060



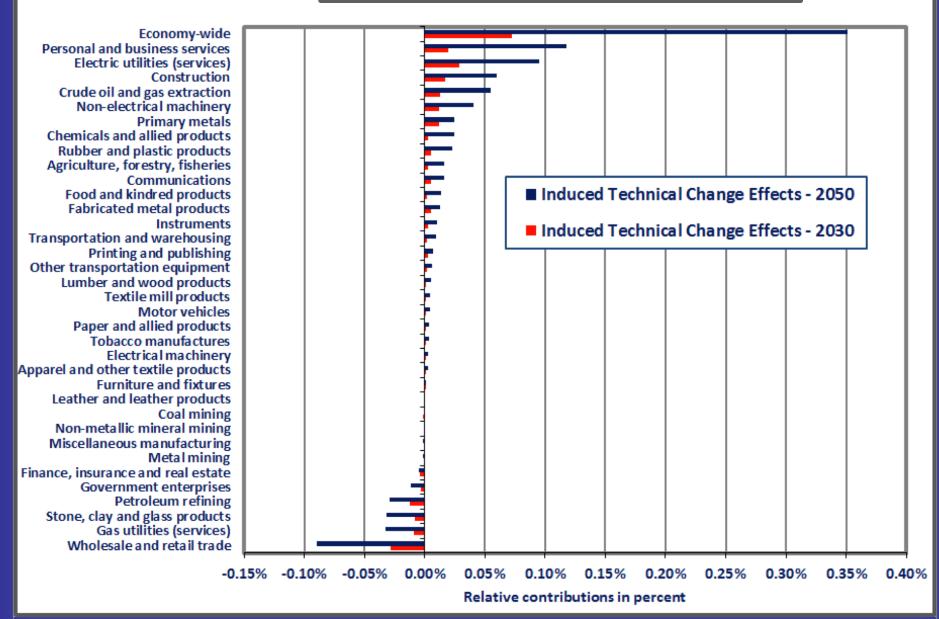


Output and Price Changes from Base, Average 2010-2060 25% Target without Banking

Agriculture, forestry, fisheries Metal mining Coal mining Crude oil and gas extraction Non-metallic mineral mining Construction Food and kindred products Tobacco manufactures Textile mill products Apparel and other textile products Lumber and wood products Furniture and fixtures Paper and allied products Printing and publishing Chemicals and allied products Petroleum refining Rubber and plastic products Leather and leather products Stone, clay and glass products Primary metals Fabricated metal products Non-electrical machinery Electrical machinery Motor vehicles Other transportation equipment Instruments Miscellaneous manufacturing Transportation and warehousing Communications Electric utilities (services) Gas utilities (services) Wholesale and retail trade Finance, insurance and real estate Personal and business services Government enterprises



Price-induced Technical Change



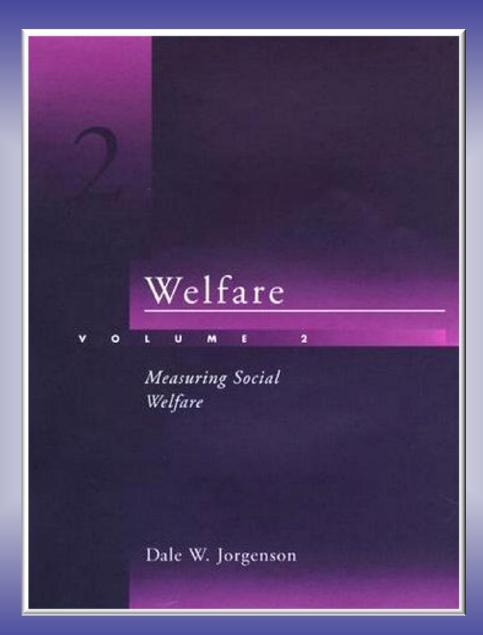
WELFARE IMPACTS OF CAP-AND-TRADE POLICIES

Household Welfare Effects and Full Wealth

Variations in Full Wealth

Household Welfare Effects

Distribution of Household Welfare Effects



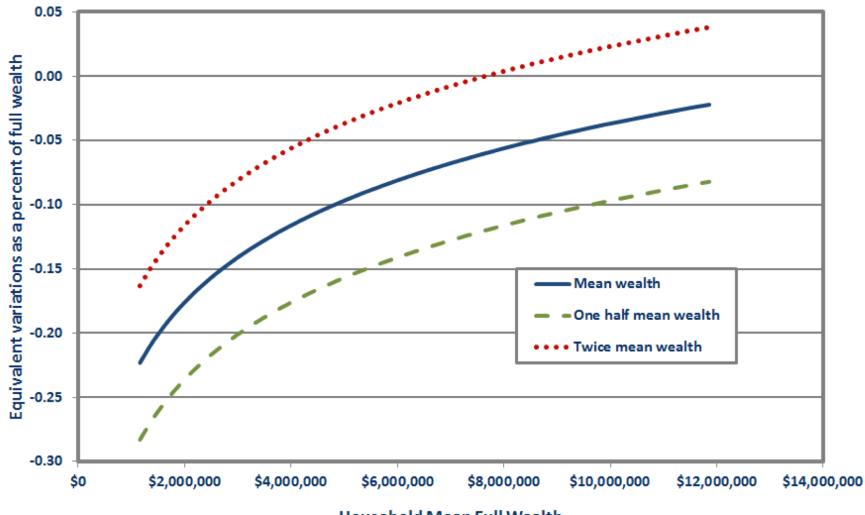
Household Welfare Effects and Full Wealth

(At Mean Wealth without Banking, 244 Household Types)



Household Mean Full Wealth

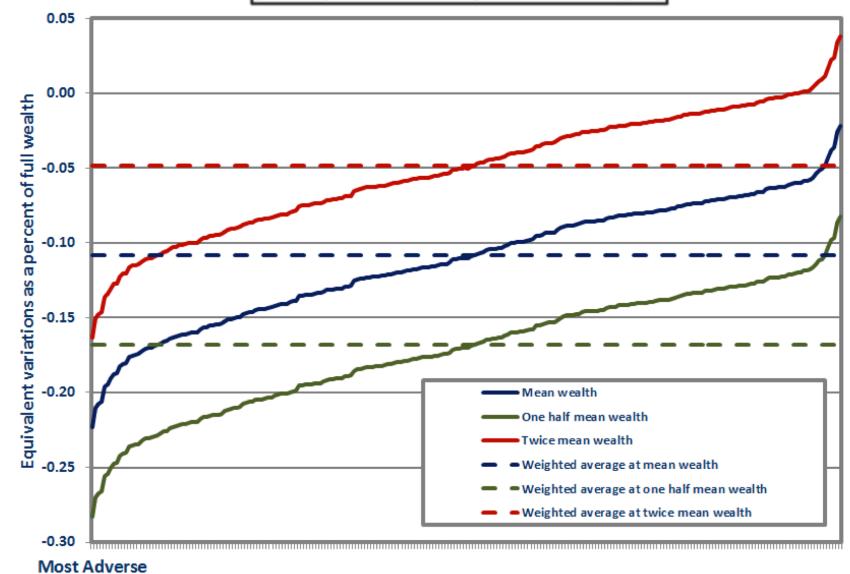
Household Welfare Effects and Full Wealth (25% Target without Banking, 244 Household Types)



Household Mean Full Wealth

Household Welfare Effects

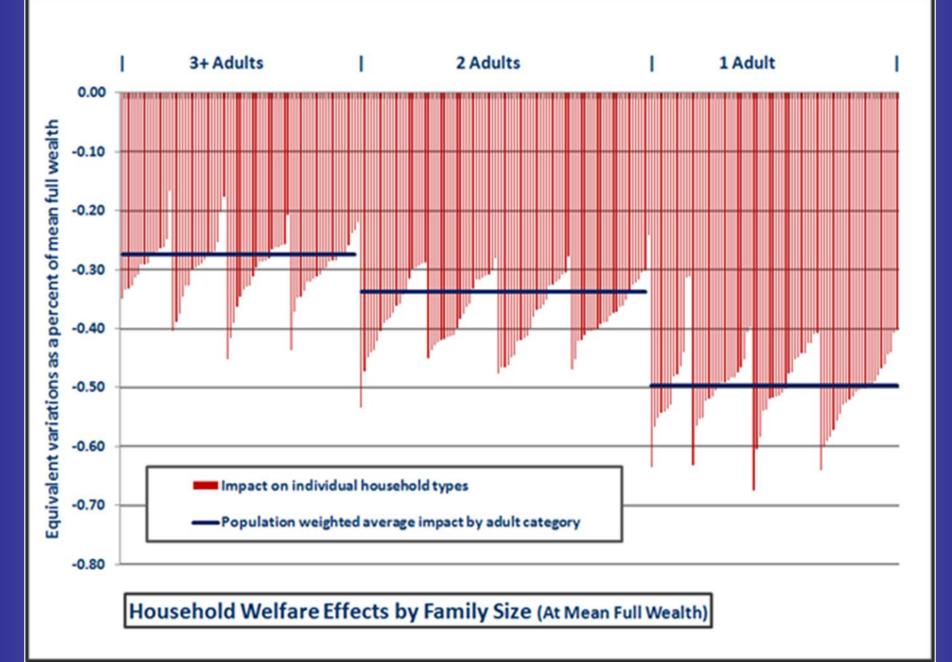
(25% Target without Banking, 244 Household Types)

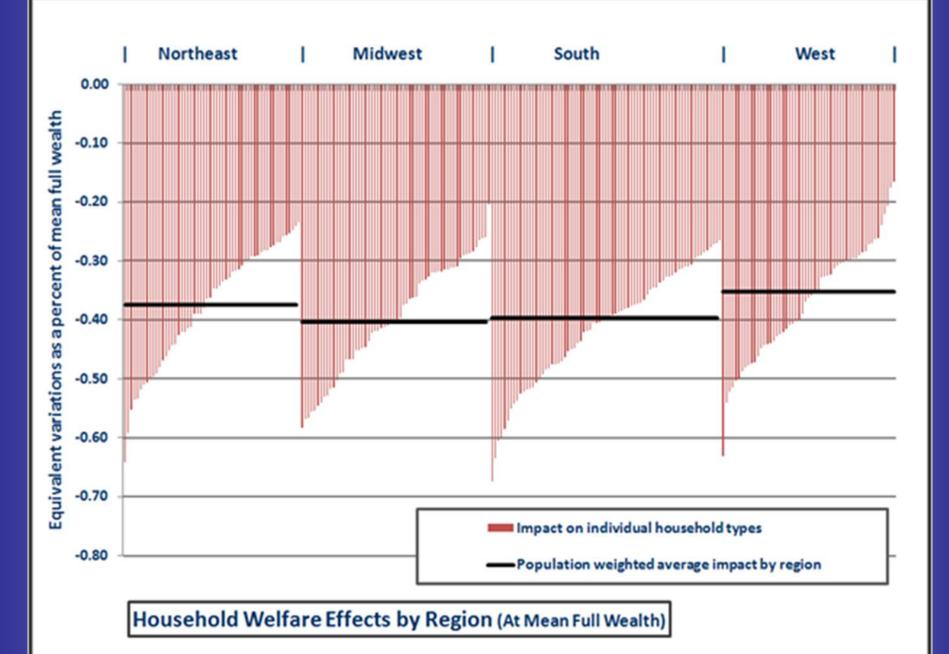


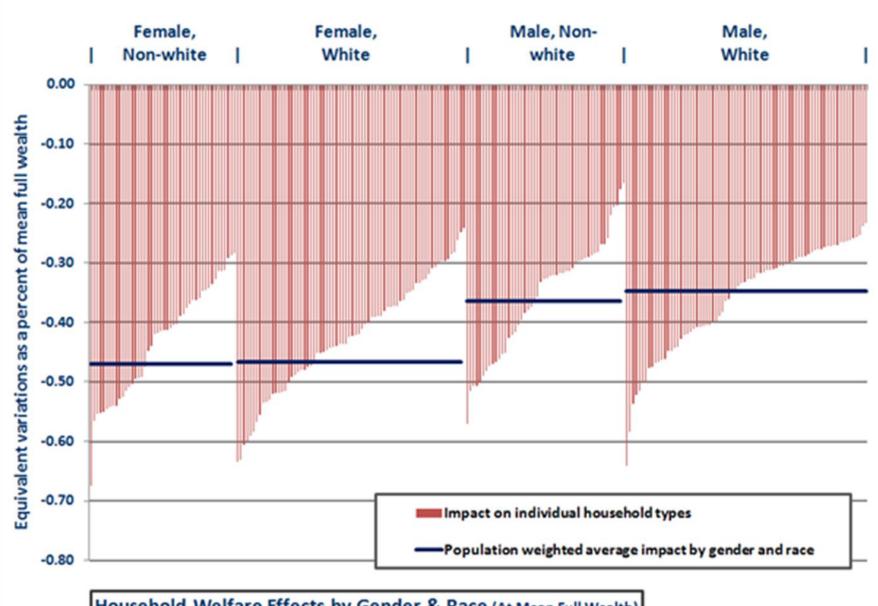
Decomposition of Household Welfare Effects (25% Target without Banking at Mean Full Wealth)



Household Mean Full Wealth



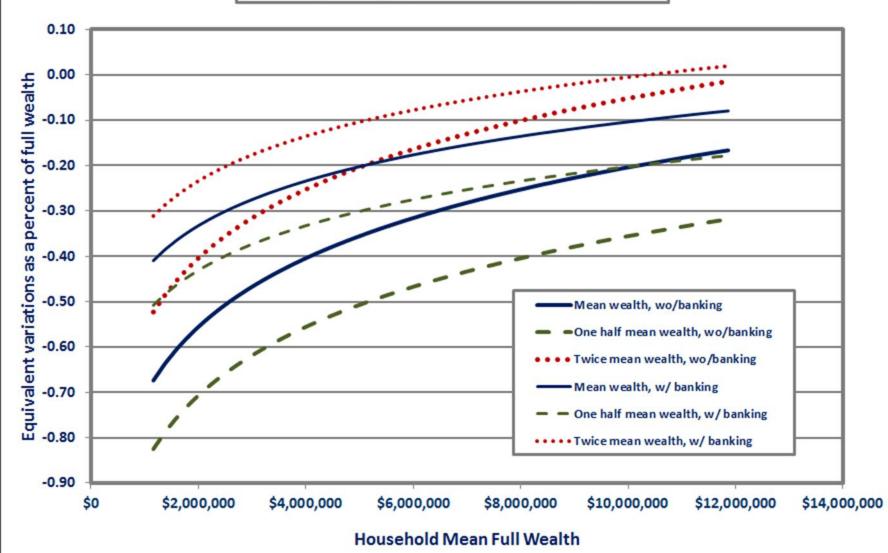




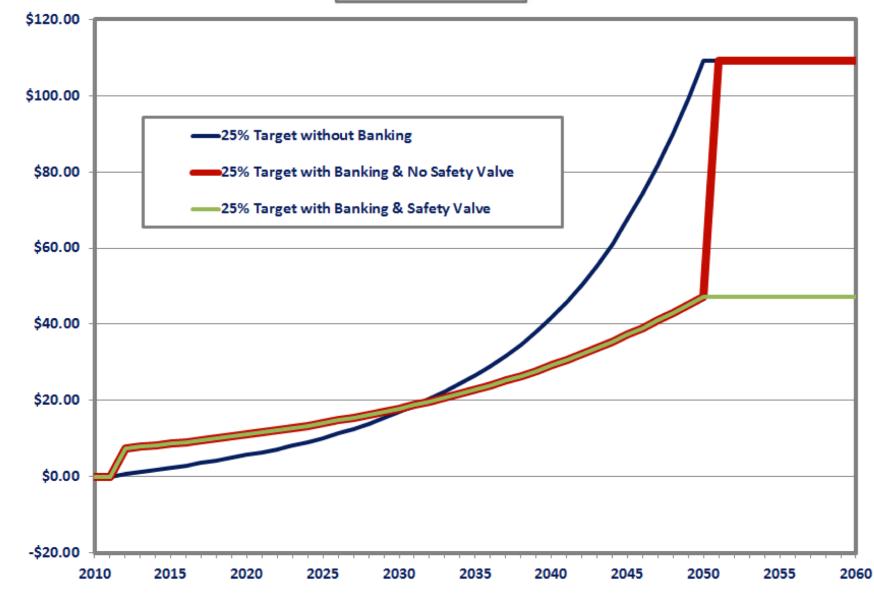
Household Welfare Effects by Gender & Race (At Mean Full Wealth)

Household Welfare Effects and Full Wealth

(25% Target , 244 Household Types)



Allowance Prices



\$(2005) per Metric Ton CO2 Equivalent

AN ECONOMETRIC APPROACH TO GENERAL EQUILIBRIUM MODELING:

SUMMARY

Econometric Modeling of Producer Behavior: Substitution and Technical Change

Rate and Bias; Autonomous and Induced Technical Change

Econometric Modeling of Consumer Behavior: Demand for Goods and Leisure Intertemporal Allocation of Full Consumption

IGEM, Version 16: Controlling Emissions of Greenhouse Gases