

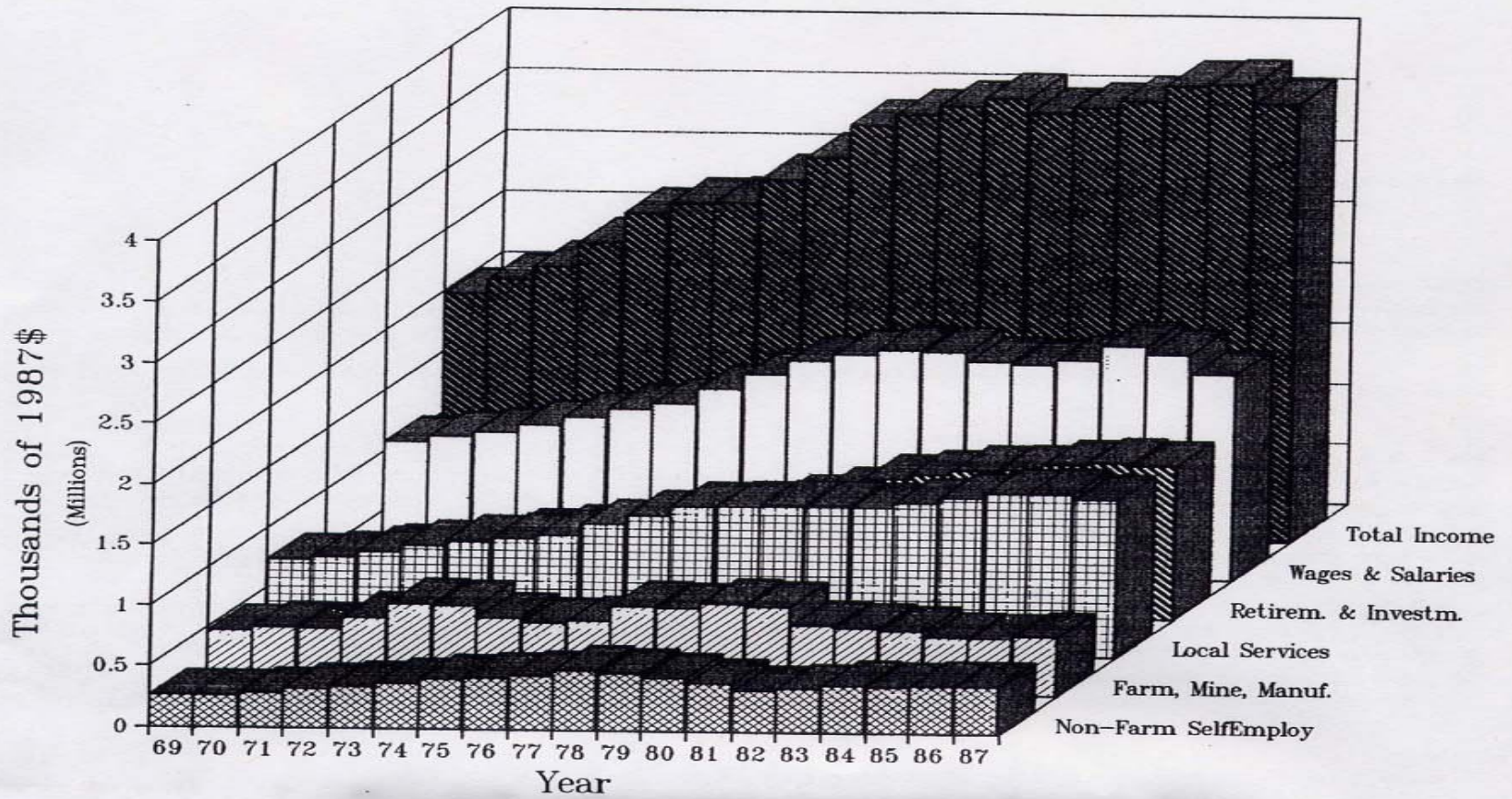
Ecosystem and Economy in Greater Yellowstone

Research Questions (Thomas Michael Power)

- Is there really a conflict between ecosystem protection and economic welfare?
- How important are extractive industries to overall economic welfare? The “rearview” perception of economic activities

Three Major Changes in GYE Economy

1. Since 1960s, proportion of economy in extractive industries declining
 2. Replacement of extractive industry income by service jobs, self-employment, and “non-labor” income (e.g., retirement and investment dividends)
 3. On GY National Forests, over 80% of jobs and economic benefits related to recreation
- No statistical relationship between extractive industry income and wealth in rest of economy
 - Some of this new economic activity occurring because people moving for quality-of-life issues
 - These trends not limited to Greater Yellowstone Ecosystem; defining economic patterns of the “New West”
 - Consequences?



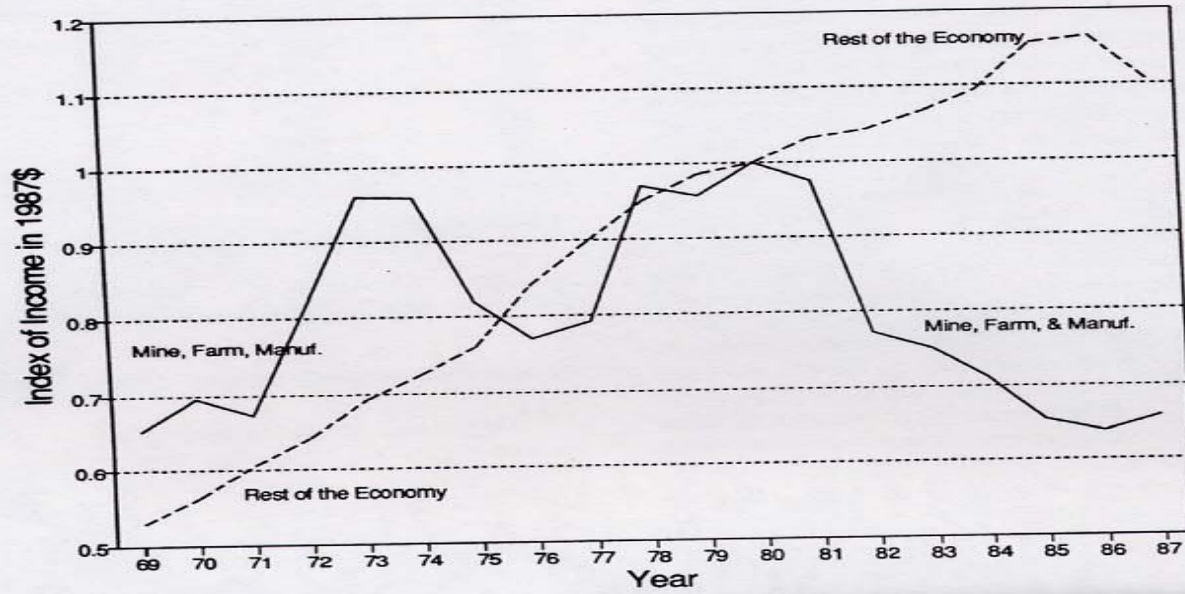
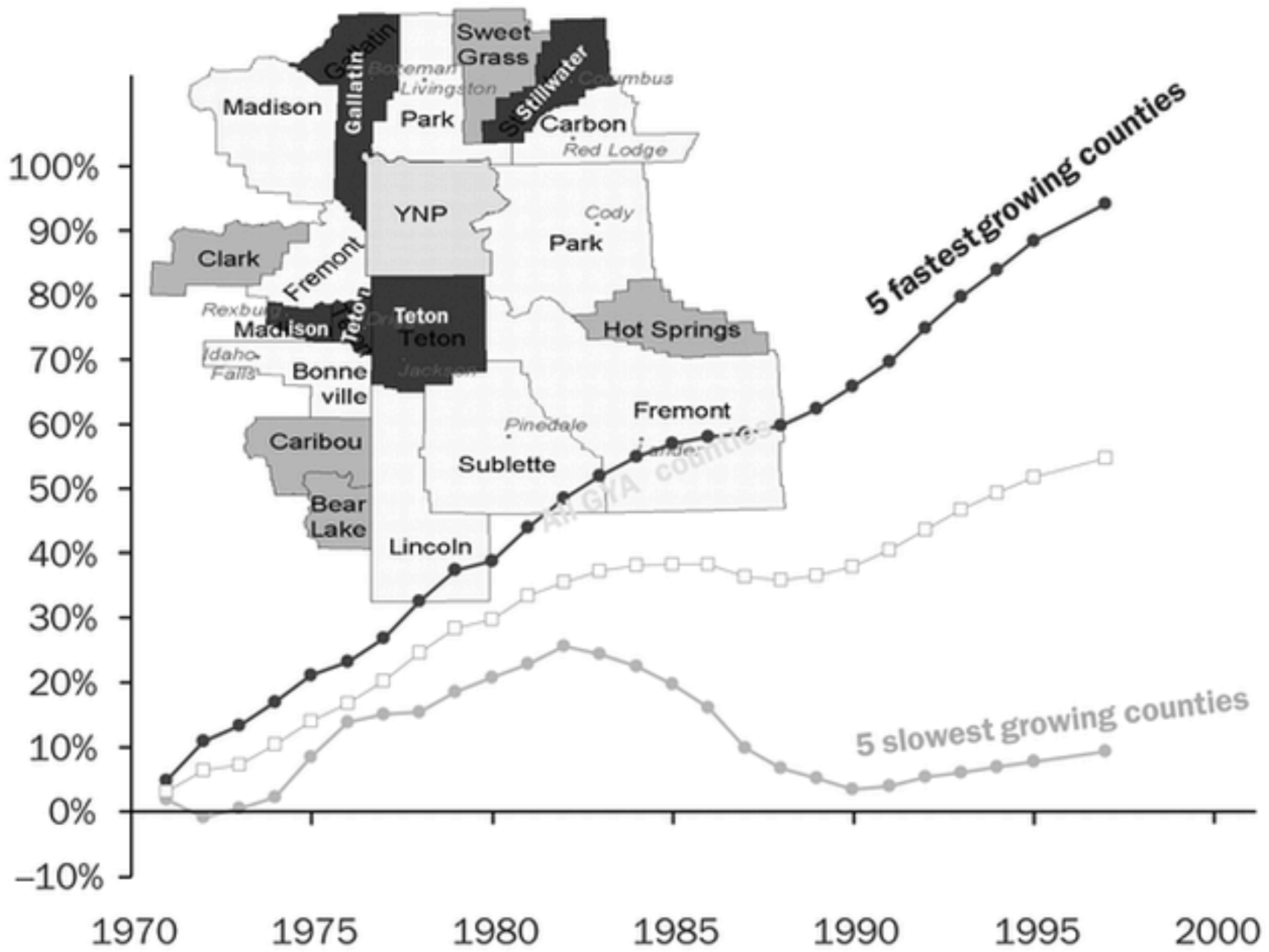
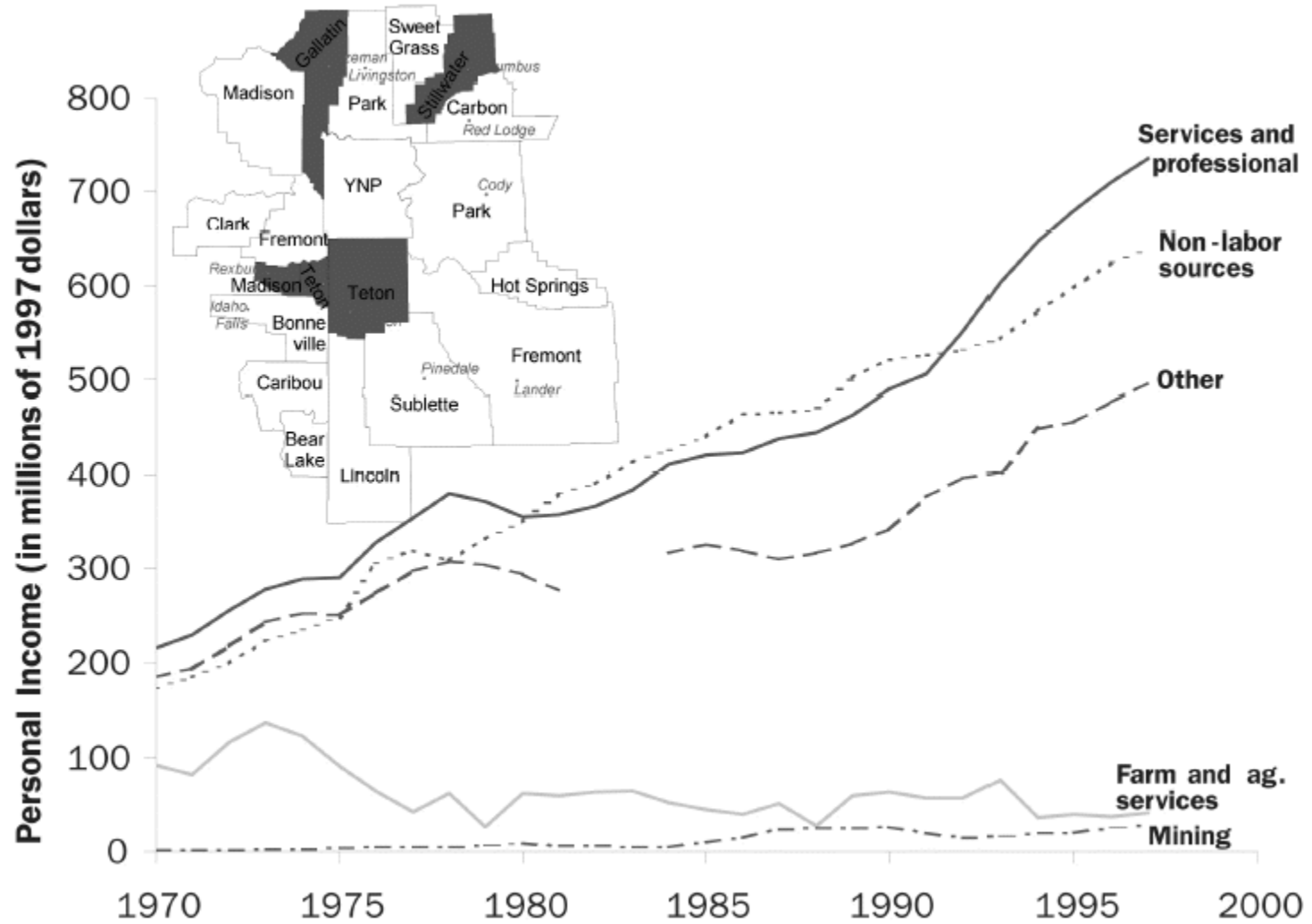
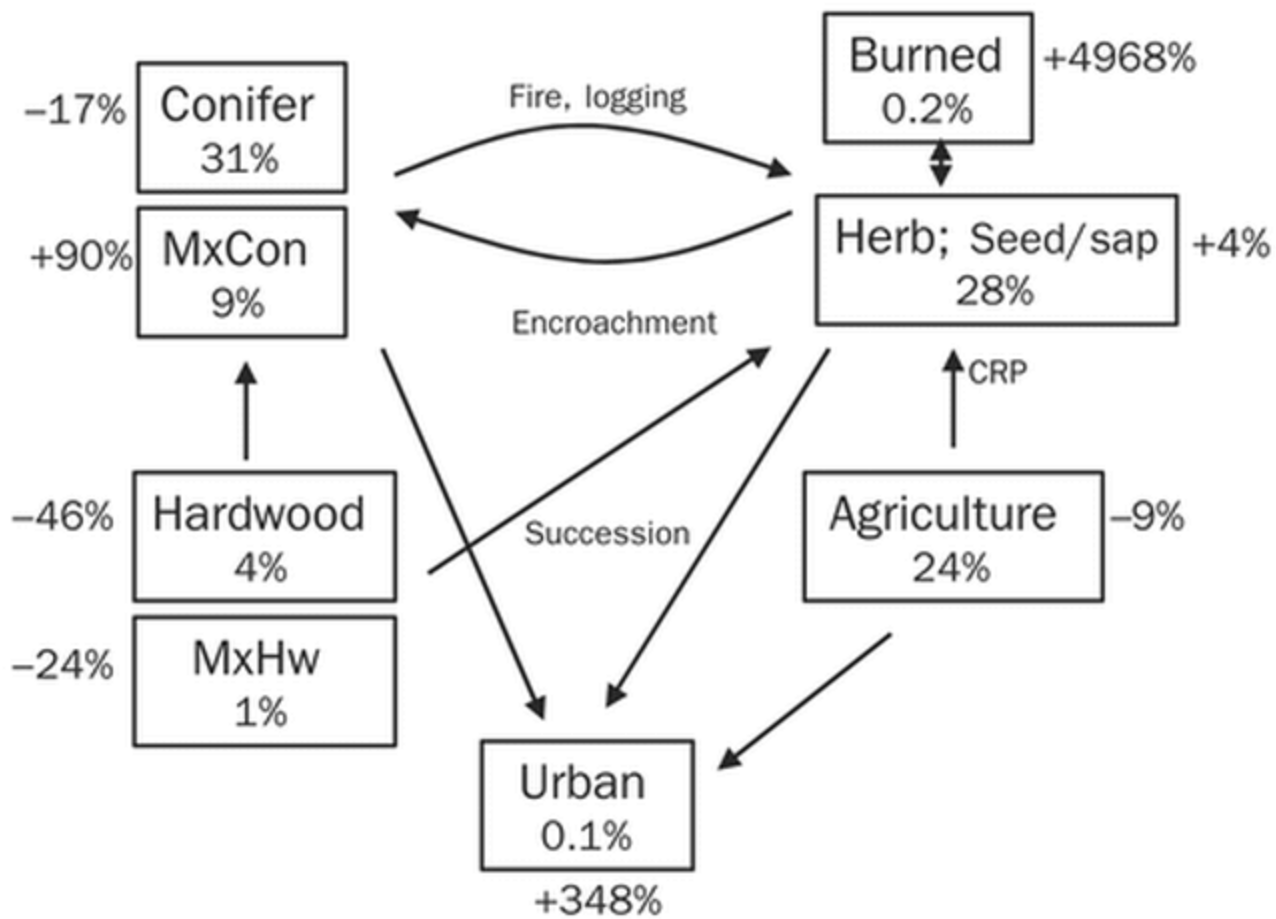


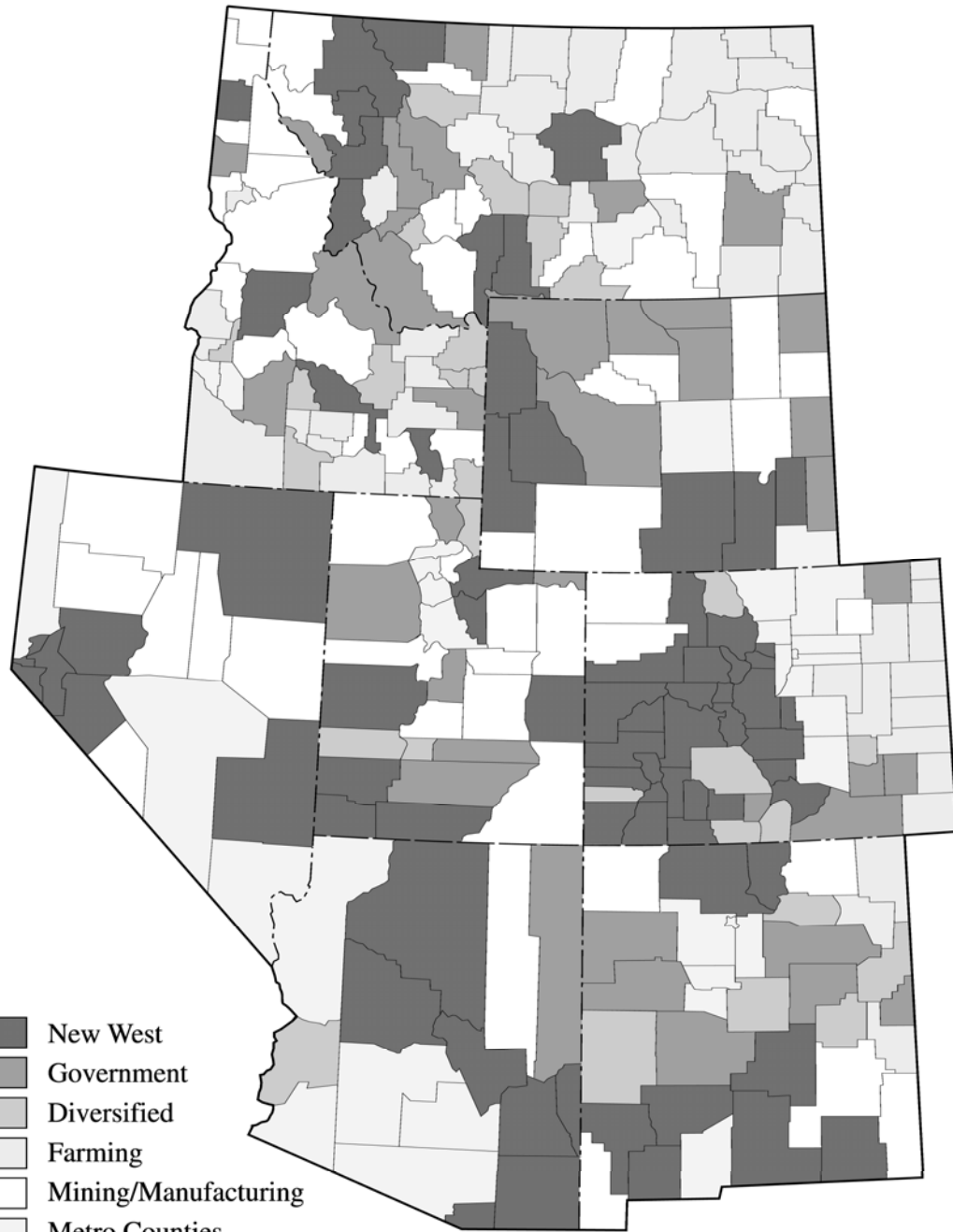
Figure 5. Export income versus the rest of the economy in the GY area, 1969-87 (1987\$)







Biggest changes is loss of agriculture land, increased urban land. This is happening at edge of cities



- New West
- Government
- Diversified
- Farming
- Mining/Manufacturing
- Metro Counties

Ecological Causes and Consequences of the New West

- The West is one of the fast growing regions in the US: 25% population growth, 67% of counties above nat. avg.
- population growth was significantly associated with mountainous topography, forest cover, greater precipitation, and the presence of nature reserves. In Yellowstone, the biophysical factors explained 60% of growth; education was also important
- Two very important ecological effects: 1) growth happening rural areas replacing habitat and agricultural open space; 2) increasing recreation pressure on public lands
- Bird population example: Land development biased toward the productive, low-elevation settings that were especially important for native species. Among the areas in bird hot spots, 67% were on or within 6 km of private lands, while only 6.5% were in nature reserves. Within private lands, RRD was placed disproportionately close to bird hot spots. For example, home densities within 2 km of hot spots were 67% higher than they were at random locations on private lands.
- Consequence: Rural development changing population sources into population sinks for birds; “nature reserves” are sinks due to elevation and climate conditions
- Any species with lowland population sources are likely to be negatively affected

Ownership	Area (ha)	Estimated current population size	Simulated net change in annual population without home effect	Simulated net change in annual population with current home densities
Private	808	2942	309	-85
Public—general	4251	2003	41	6
Public—nature reserves	984	804	-28	-35
Total			322	-114

Simulations suggest bird species may decline as rural development increases