

# Transitions in pathways of human development and carbon emissions

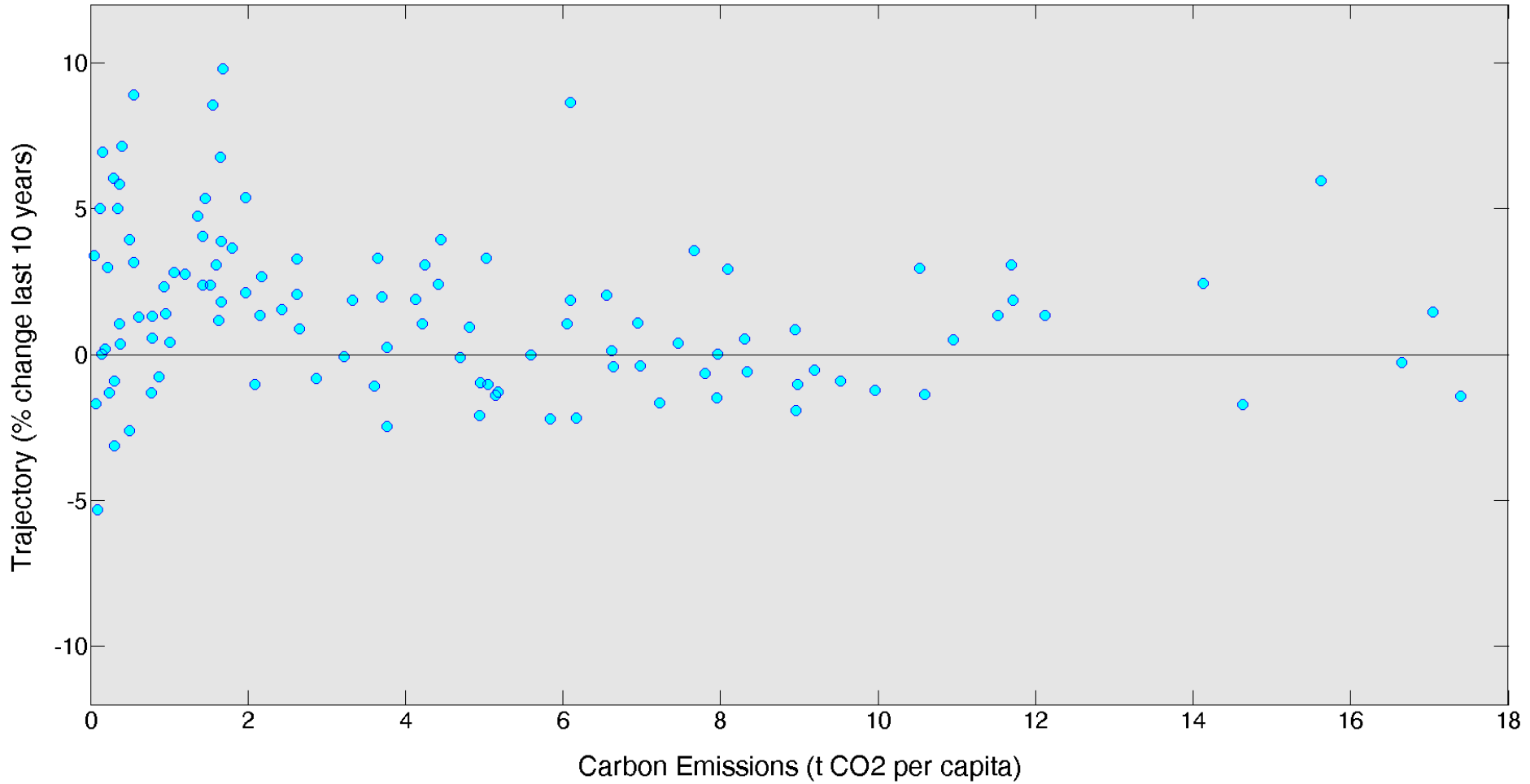
Radical Emissions Reductions Conference

10<sup>th</sup> December 2013

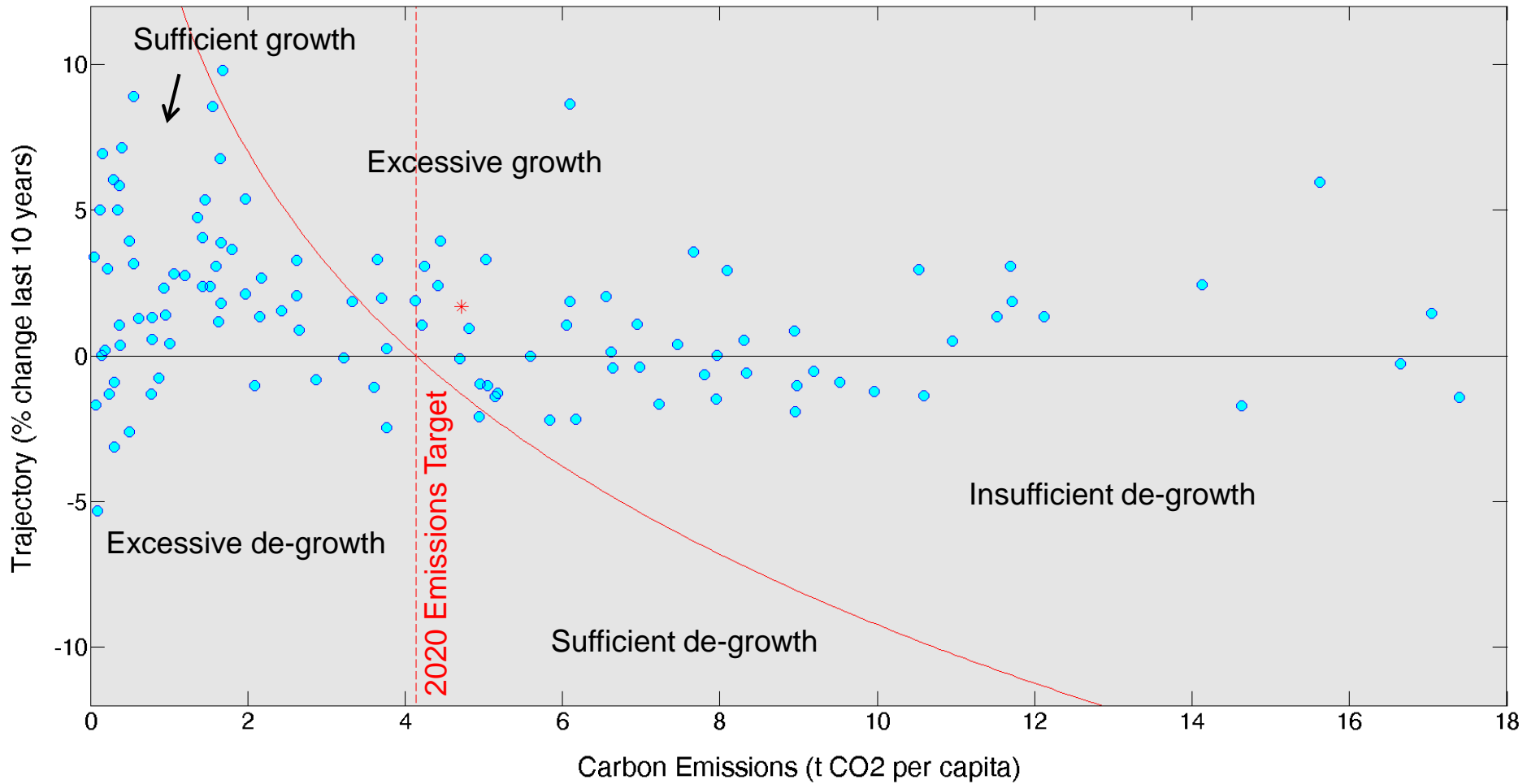
William F. Lamb

Tyndall Centre for Climate Change Research  
School of Mechanical, Aeronautical and Civil Engineering  
University of Manchester

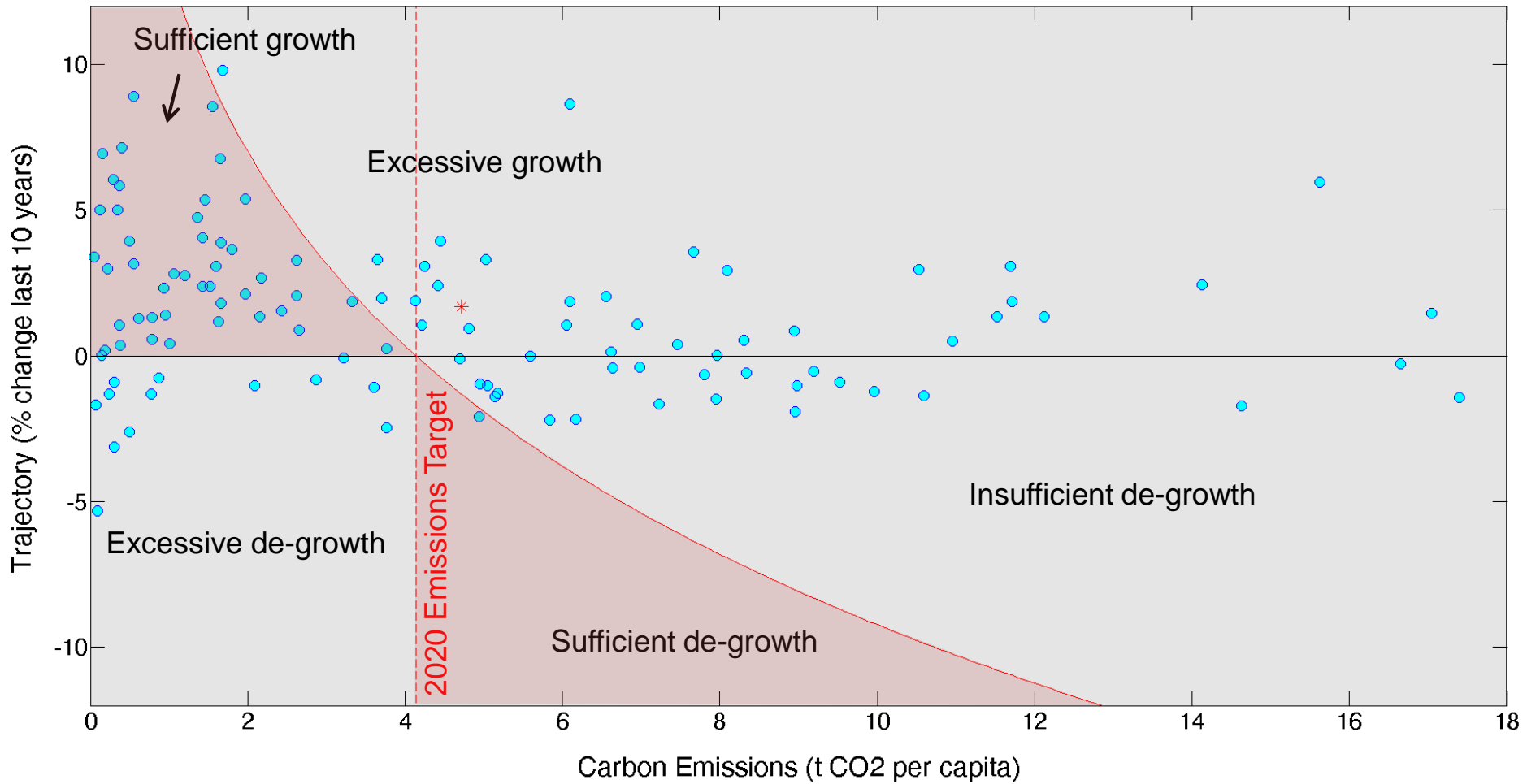
# Country pathways



# Emissions targets



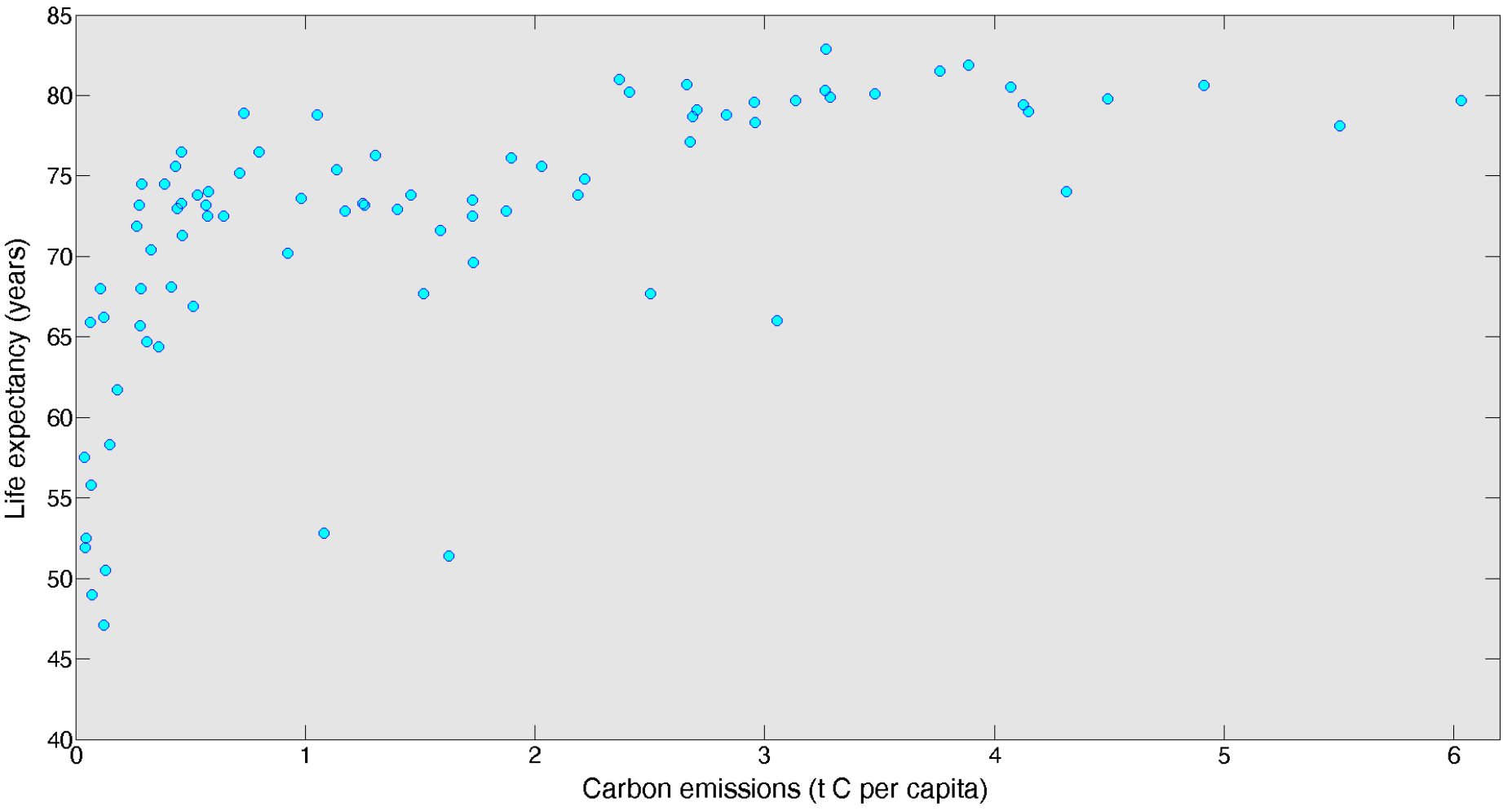
# Types of transitions

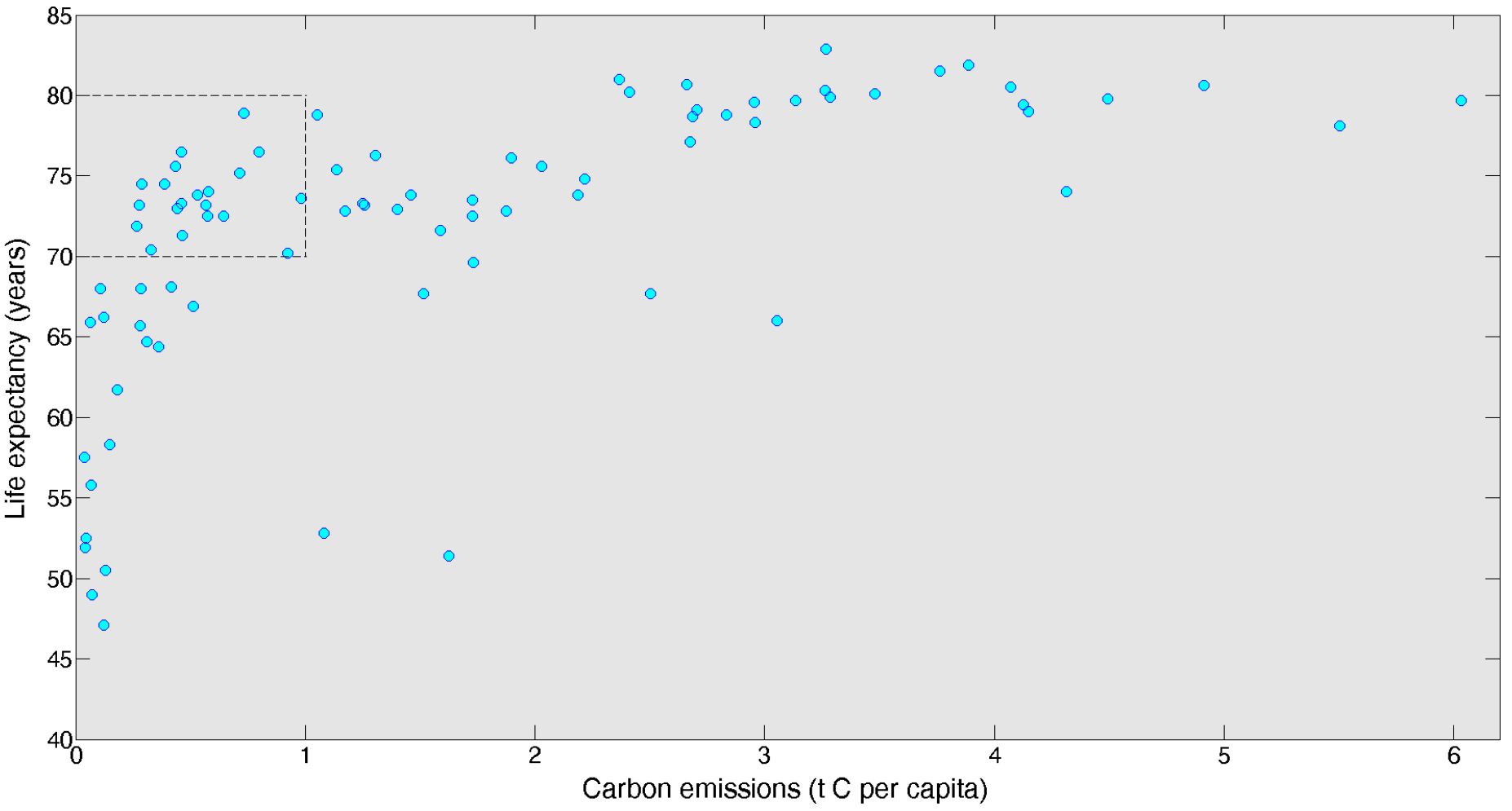


# Social sustainability of transitions

---

- Economic performance  $\neq$  social performance
- Non-income indicators: options for decarbonisation?

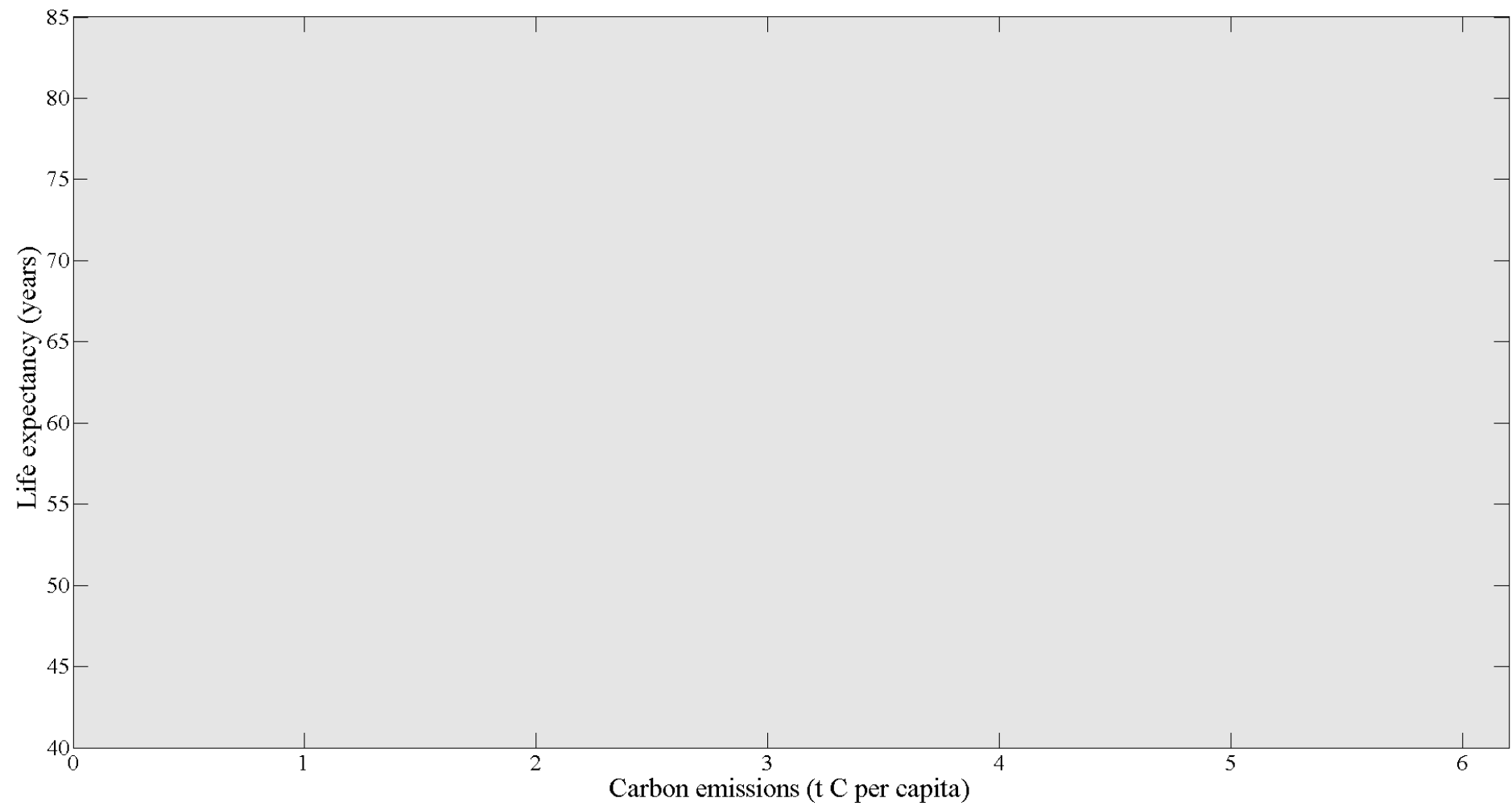


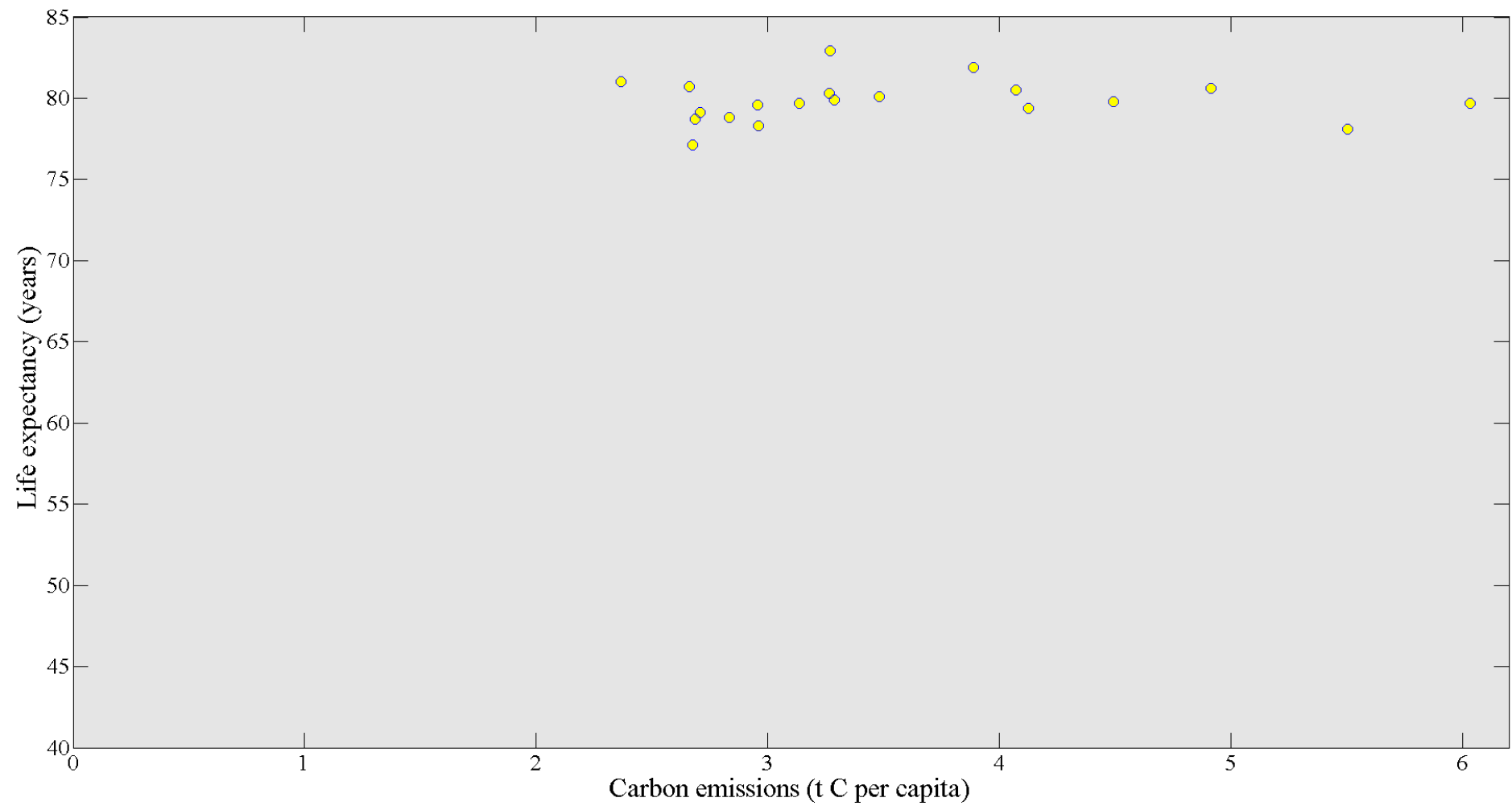


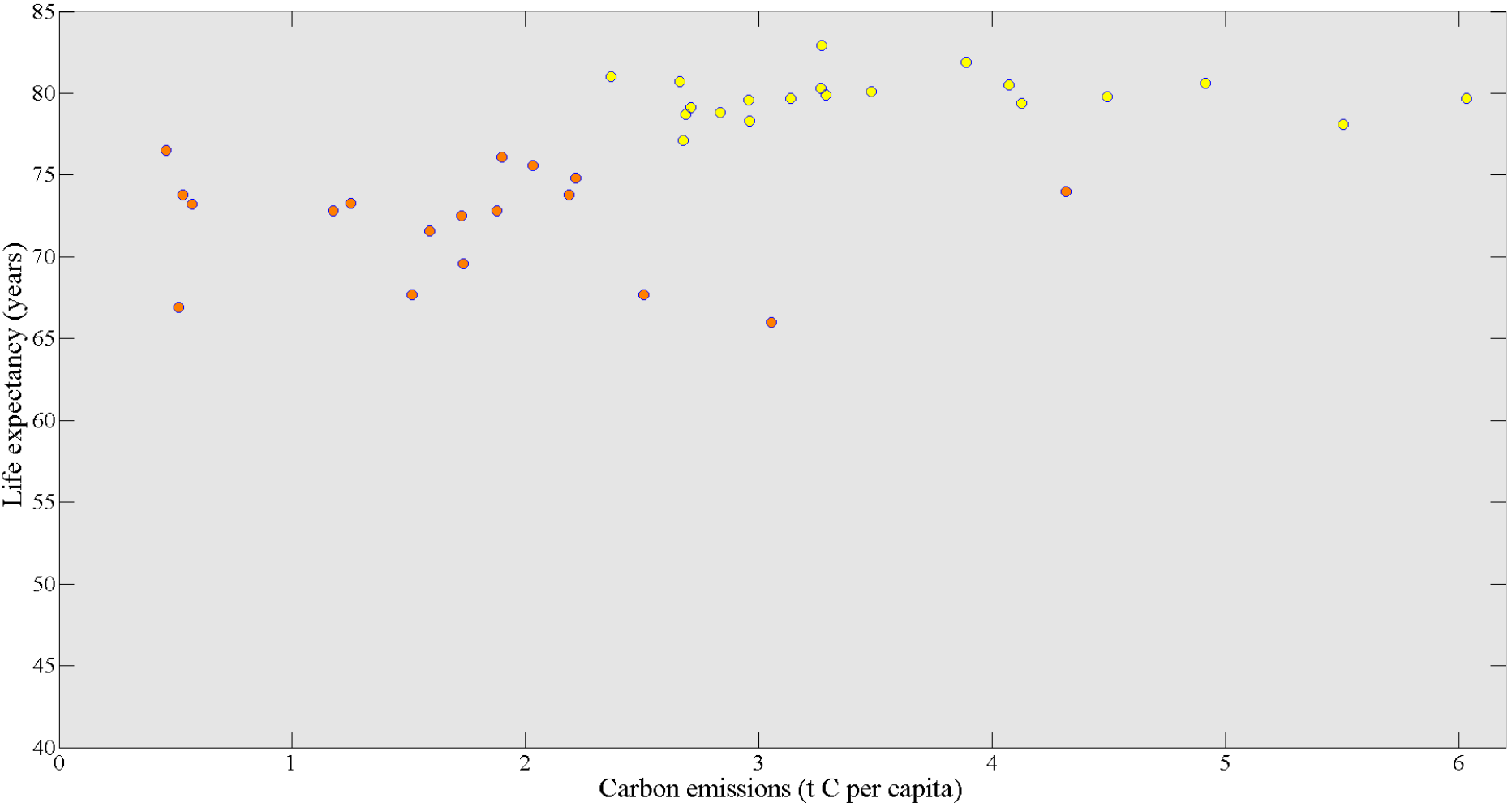
# Drivers of carbon emissions

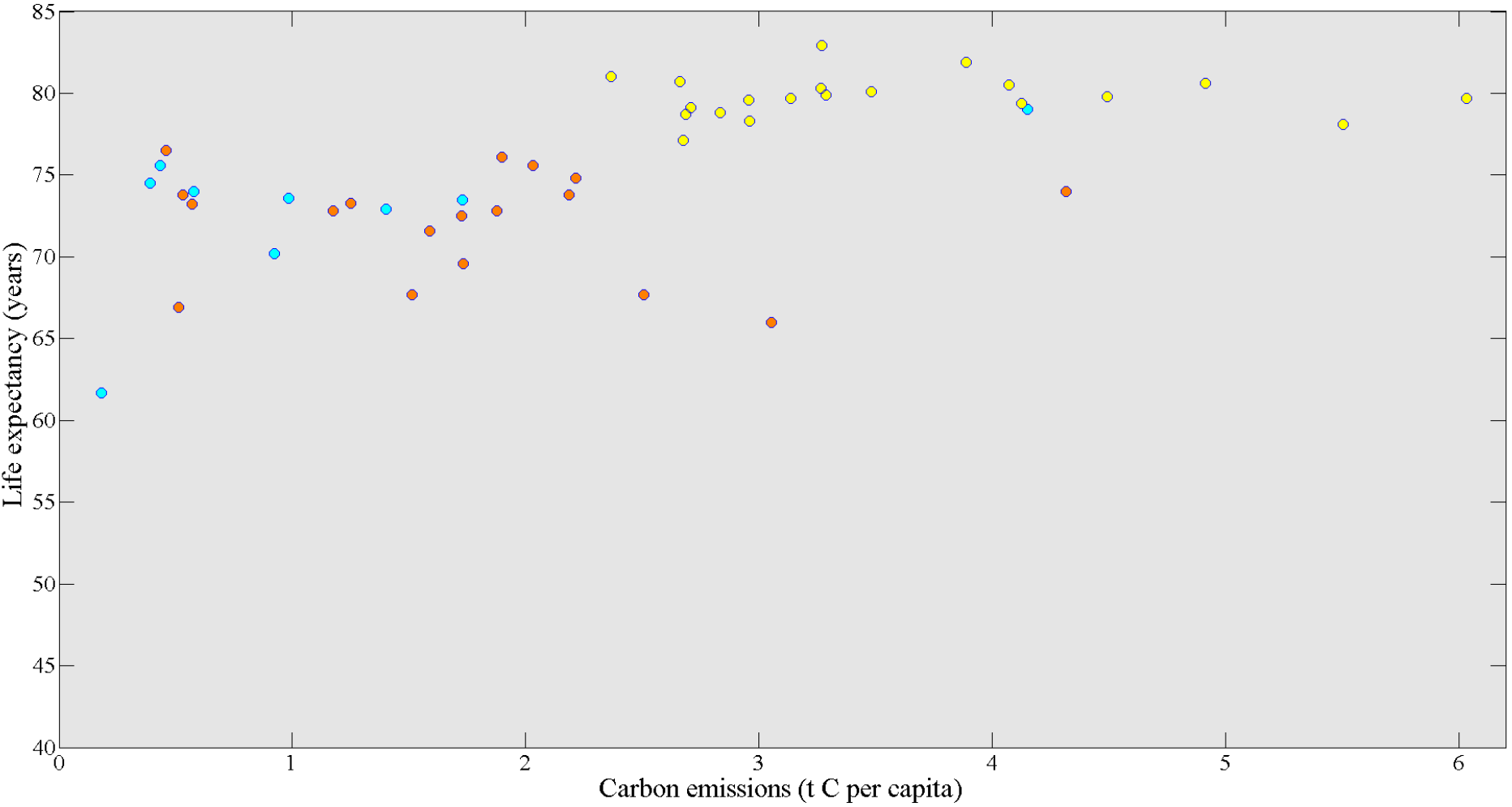
Variable	Significance
Income per capita	✓ ✓ ✓ ✓
Exports / GDP	✓ ✓
Population growth	✓
Climate	✓ ✓ ✓ ✓
Urbanisation	✗
Population density	✗

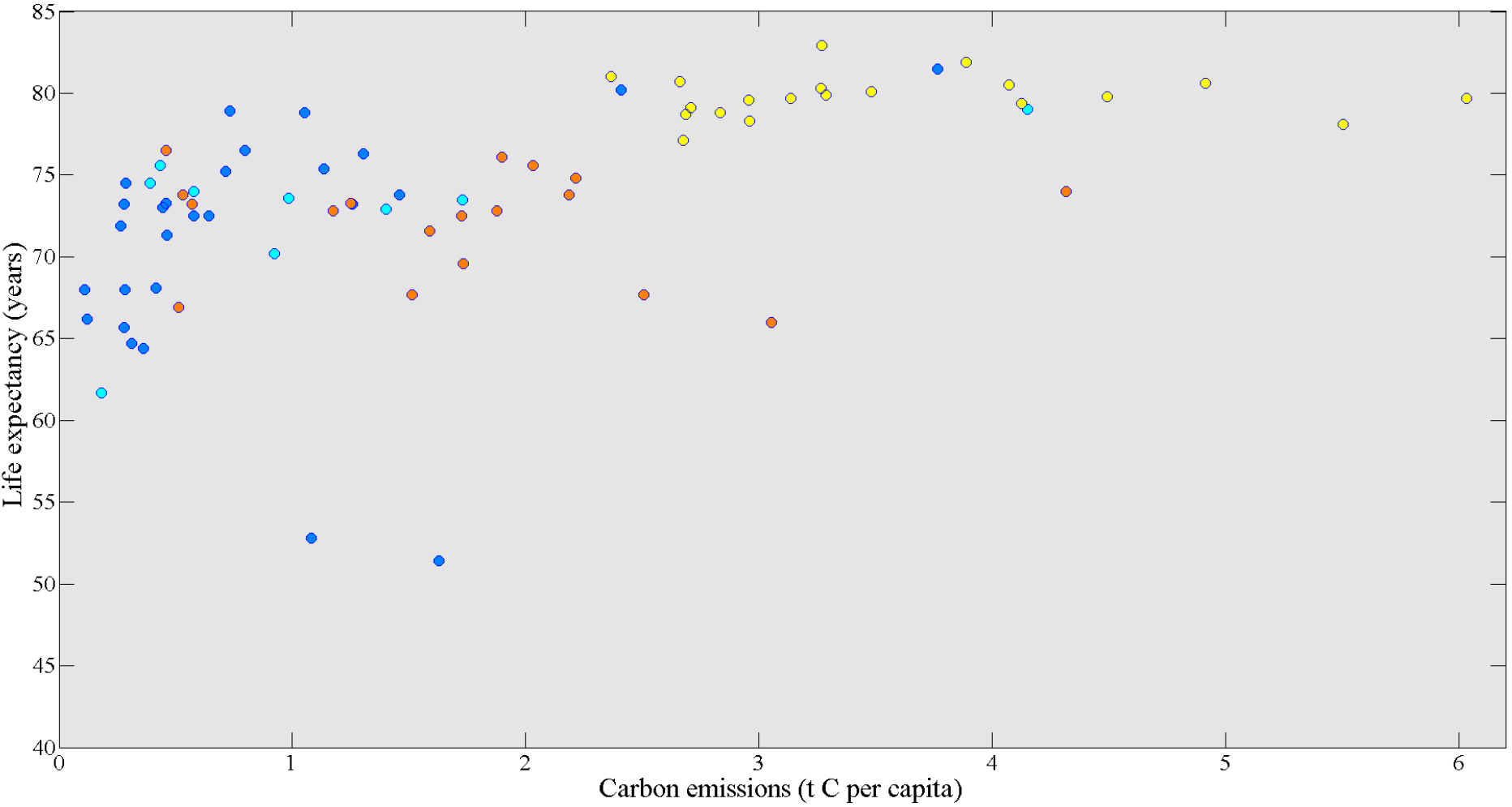


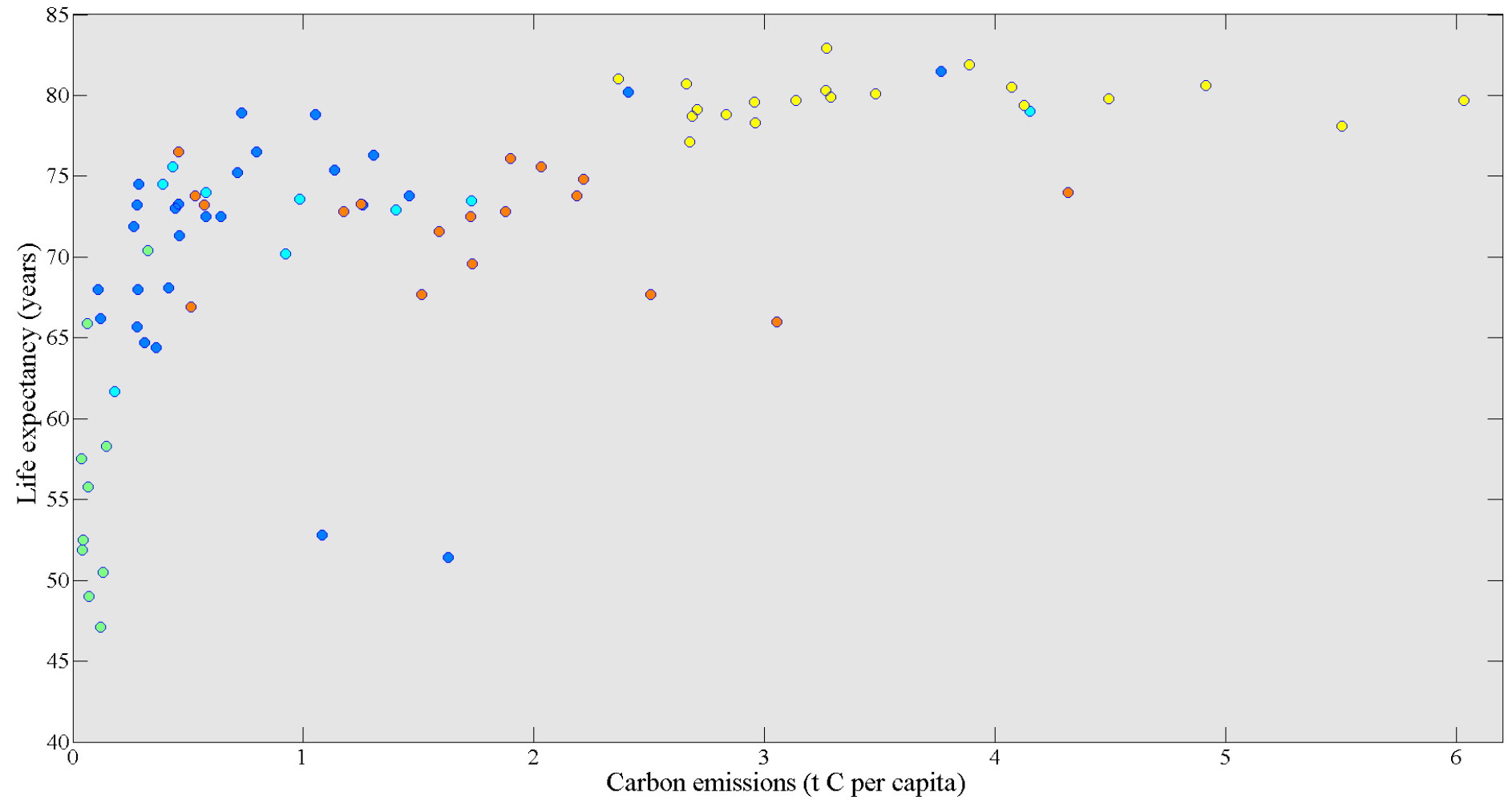


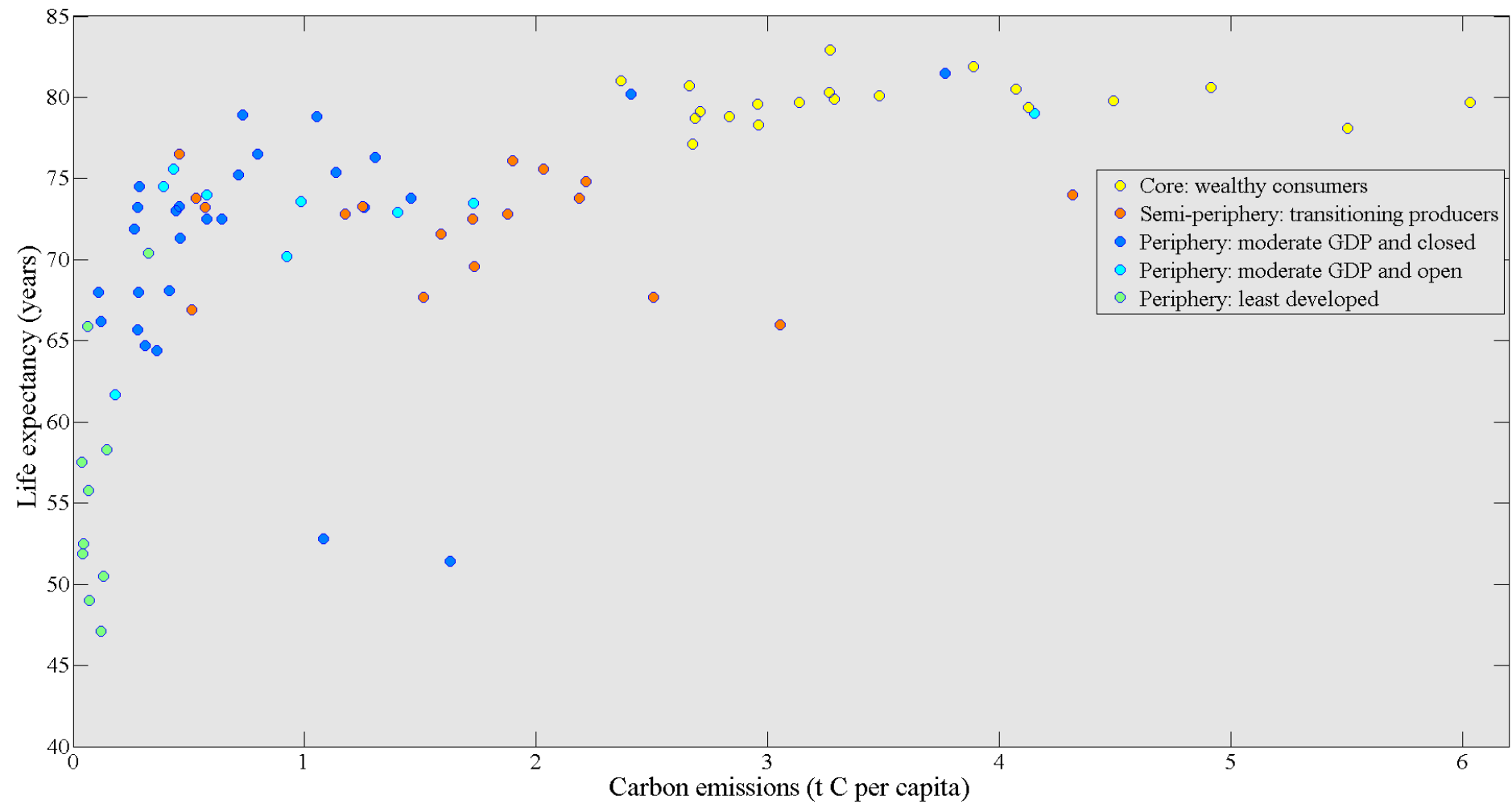


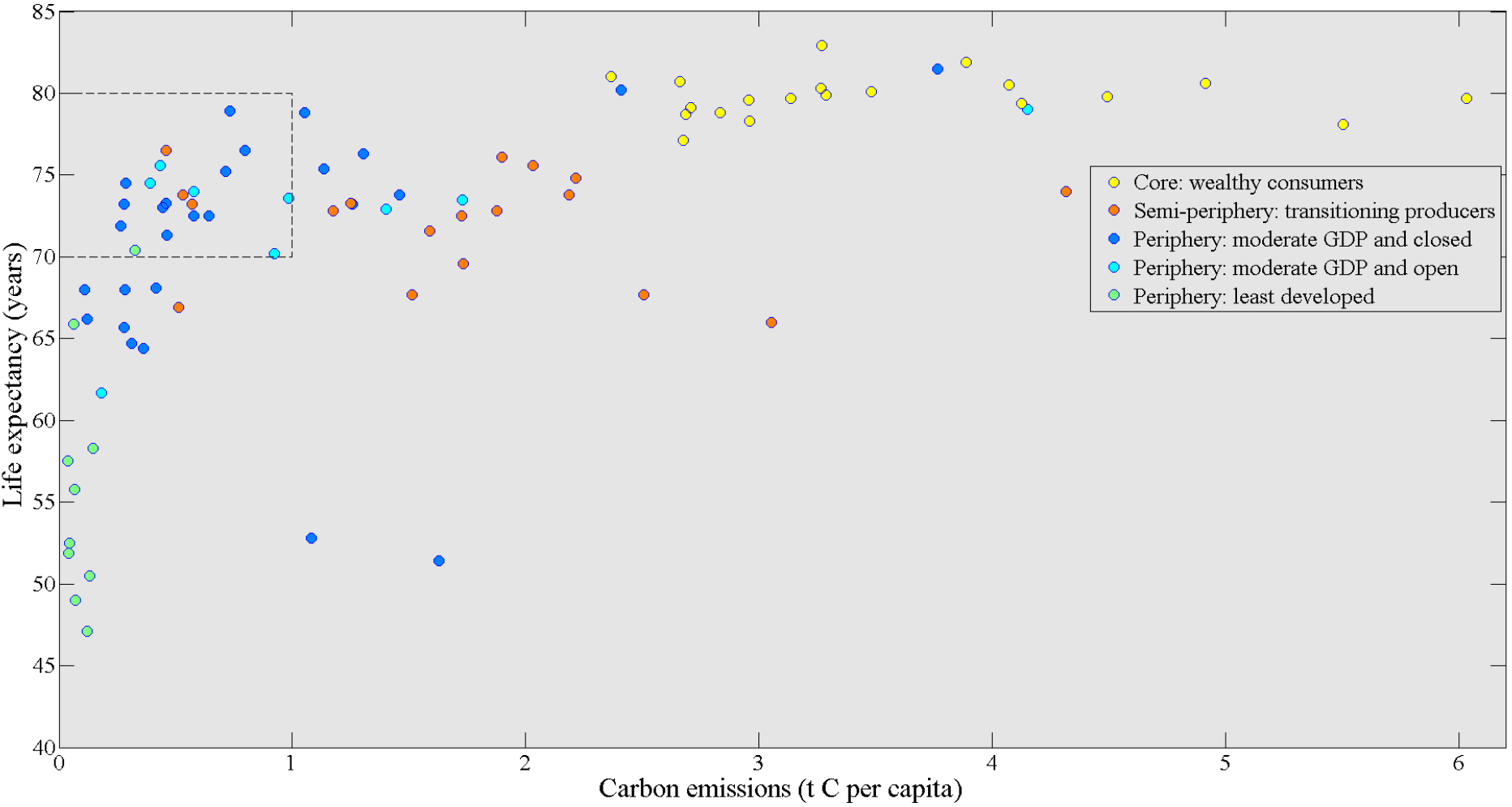




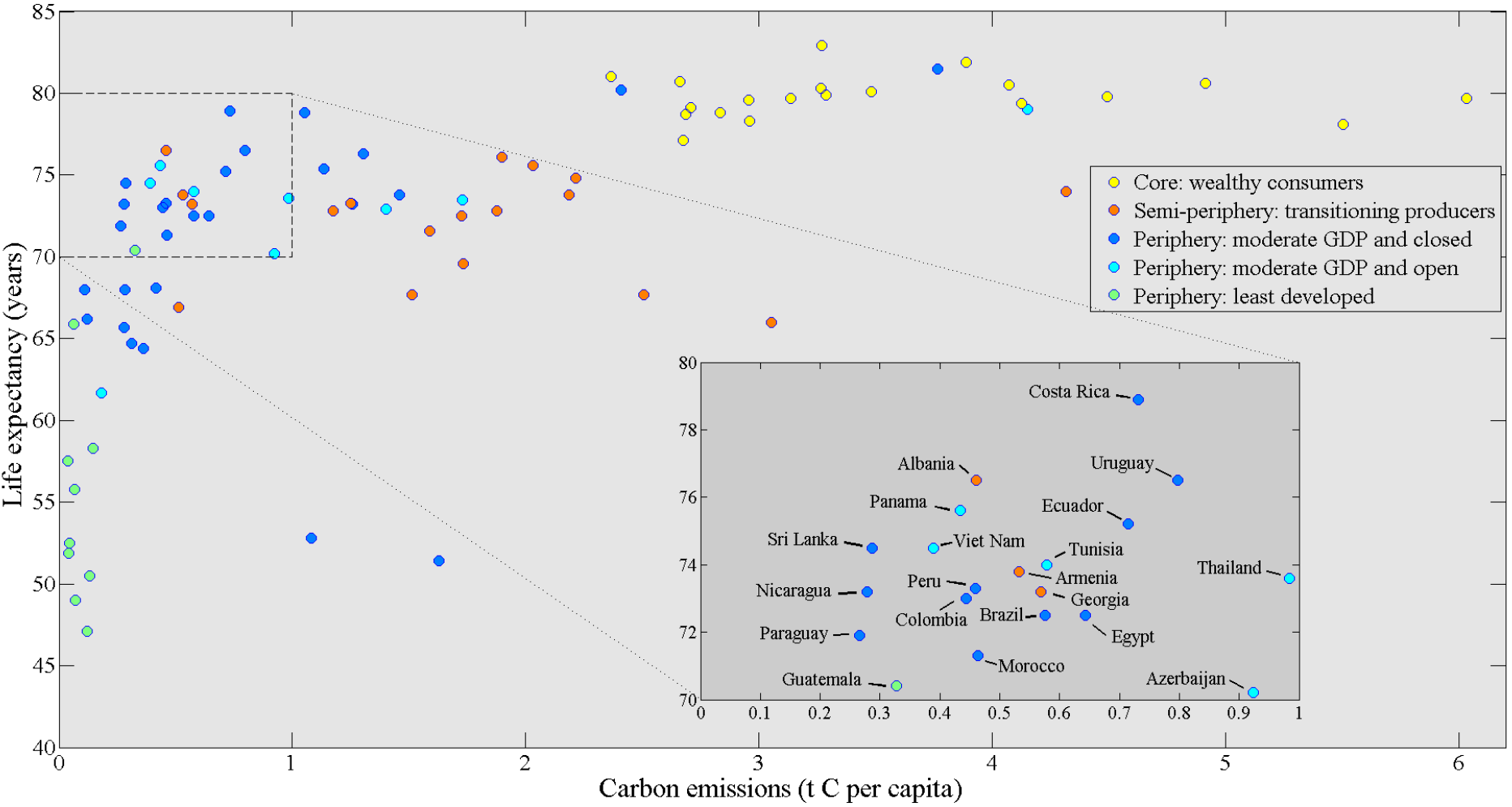












# Conclusions

---

- Focus on social rather than economic performance for low carbon pathways.
- High human development is compatible with climate goals, high national incomes are not.
- *How will rapid emissions reductions effect human development?*