

Data as a Bridge Between Worlds

Integrating Research on the Human
Dimensions of Arctic Change

Lawrence Hamilton
University of New Hampshire

Physical “Arctic Observing Networks”—Science Goals for IPY

- Arctic climate and ecological changes are large, rapid and important to understand
- Humans in the Arctic will be affected by environmental changes—“human impacts”
- But we know social dynamics are complex
 - Anticipation, adaptation (or mal-adaptation)
 - Social heterogeneity (gender, age, identity)
 - Feedbacks to environmental change
 - Non-environmental change also large, rapid

For IPY, a Human-Dimensions “Arctic Observing Network”?

- Not a physical network of ocean buoys, river gauges, weather stations etc.
- Instead, a social network of Arctic HD researchers pooling data and findings
- Tracking changes in Arctic societies
 - Geographic scales from local to regional
 - Time scales from years to decades
 - What are directions, patterns, *variations* in change?

Integration across disciplines

- Natural/social science integration is challenging
 - Social science often perceived as non-science, lacking data or rigor
 - Social scientists useful for “outreach” and to build public support for real science
- *Within* social science, integration challenging too
 - Wide variety of data types and ways of knowing—some claim the deeper Truth
 - Data are seen as means to support theories, rather than test or develop them

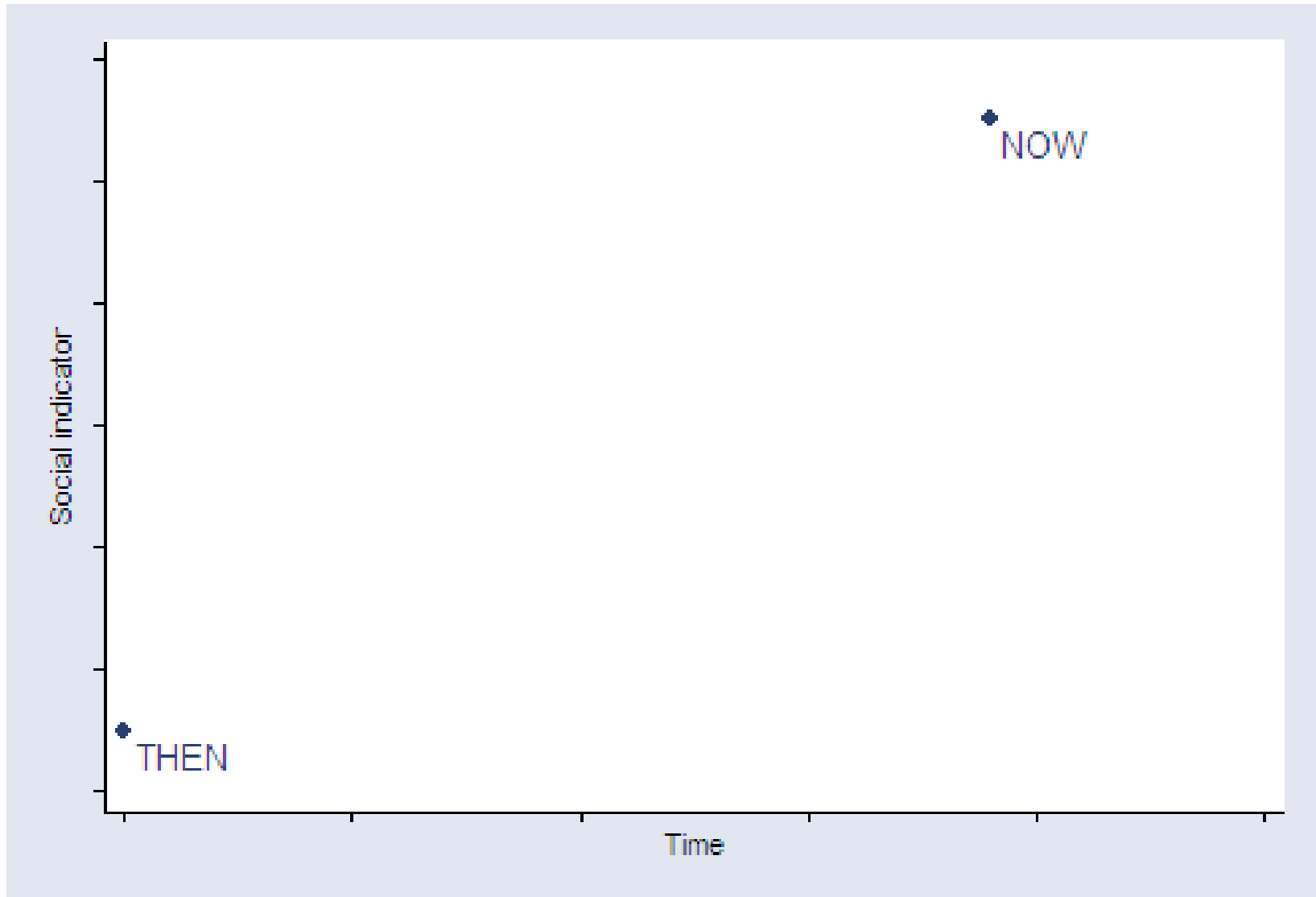
Change data as an inter- and intra-disciplinary bridge

- Time dimension supports integration of:
 - Local or regional multi-year time series of social indicators, such as population
 - More qualitative but time-specific historical, ethnographic or life-history accounts
 - Political, environmental or other events
 - Economic time series, such as fisheries
 - Natural-science time series, such as climate

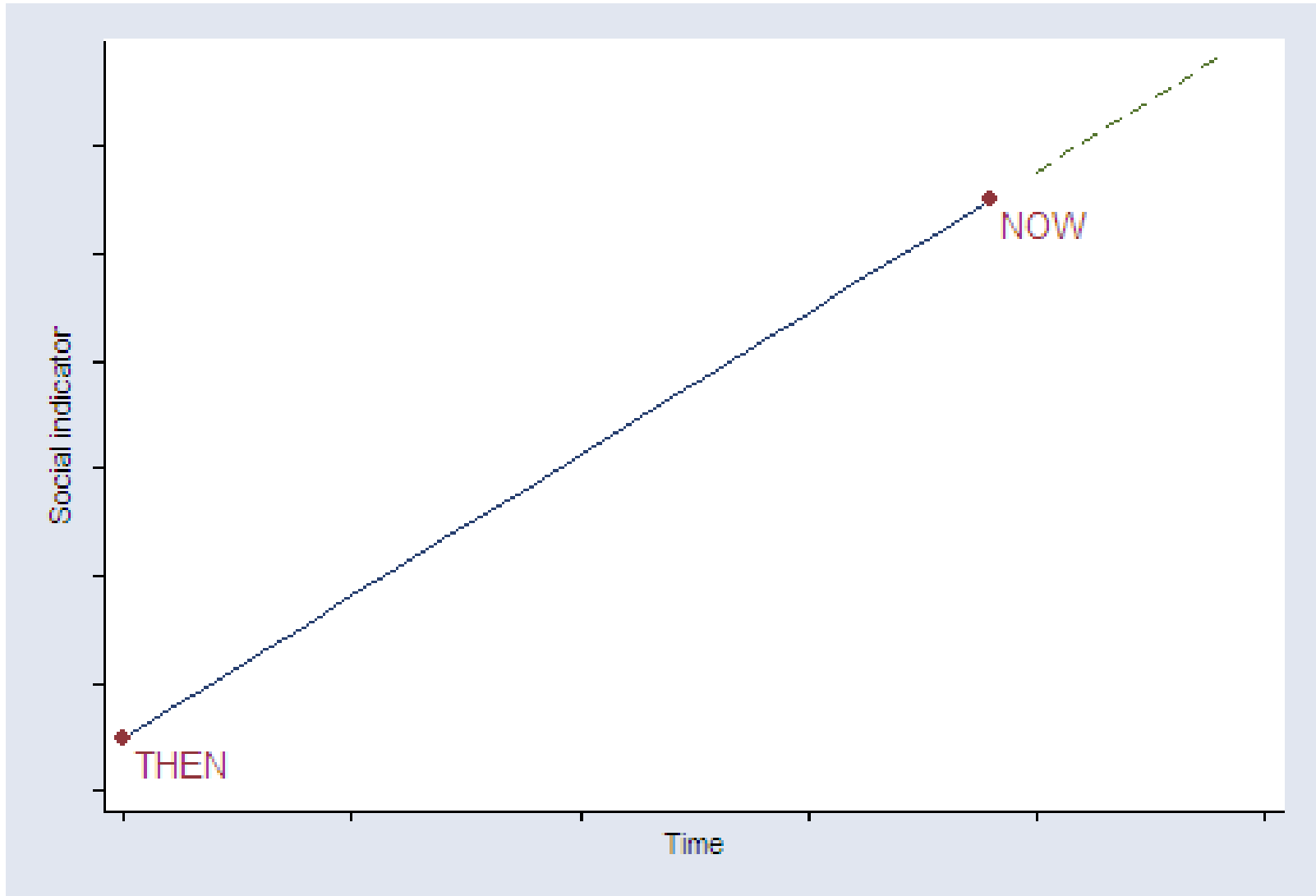
One point in time — “This is how things are”



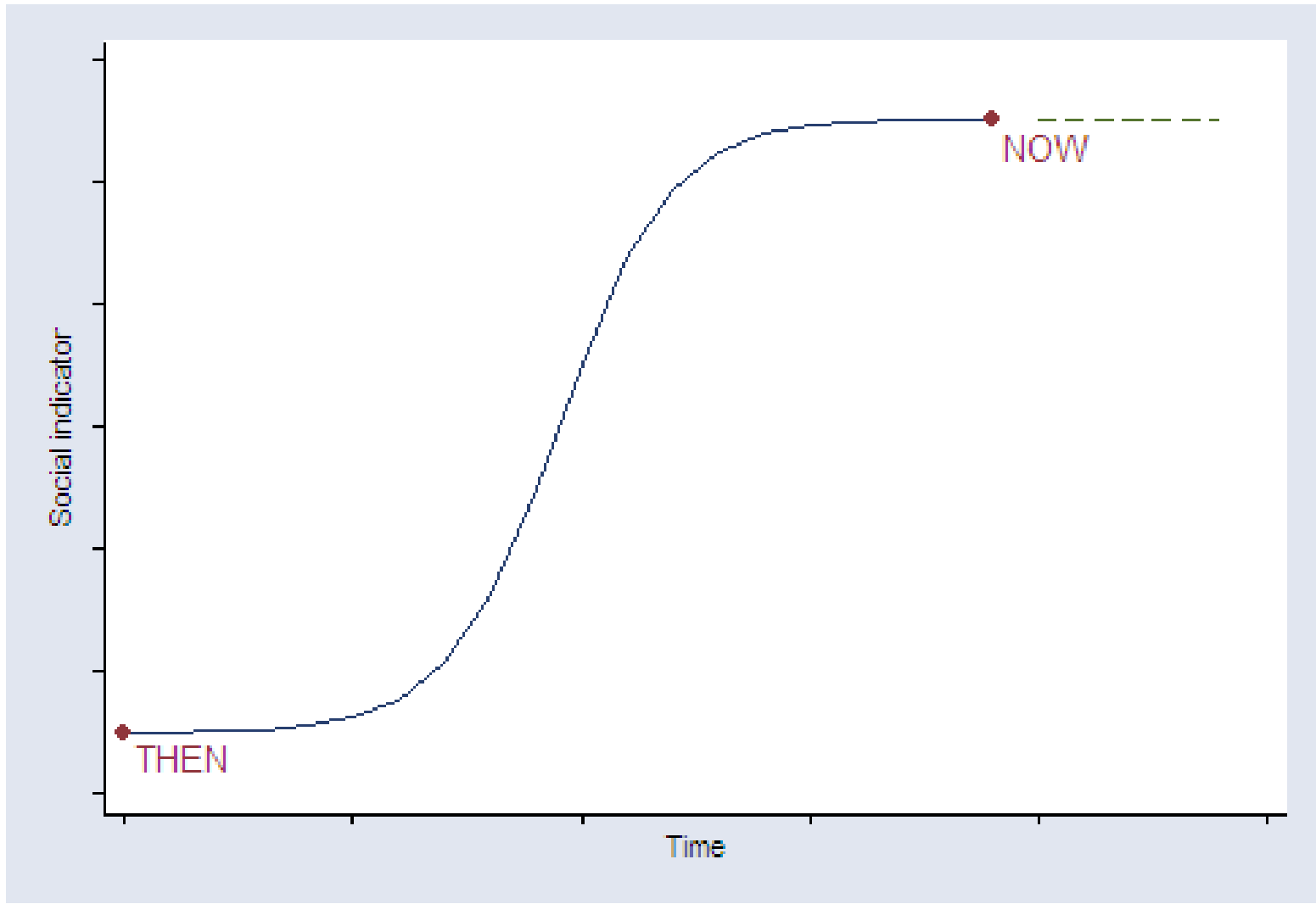
Two points in time appear to show change



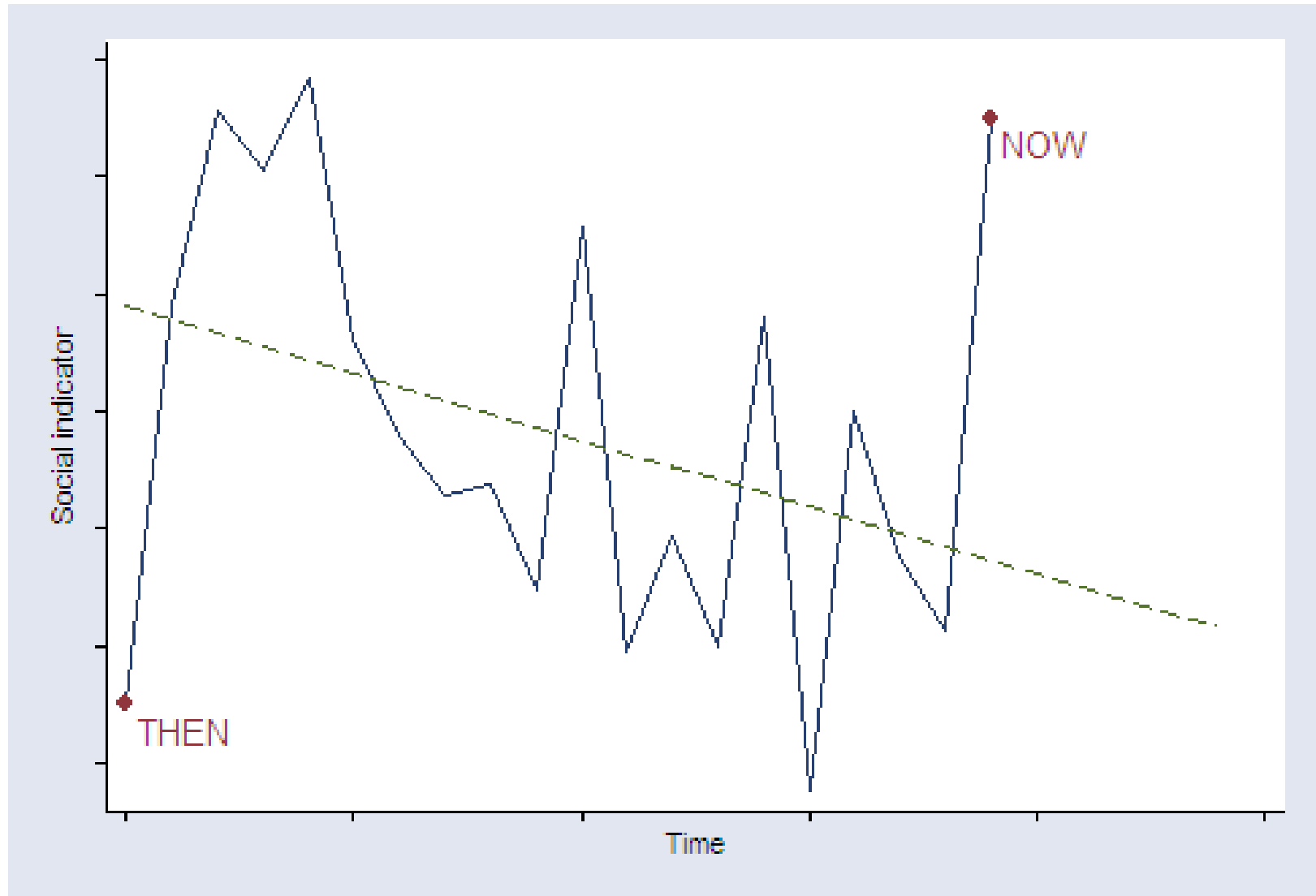
Two points suggest a trend



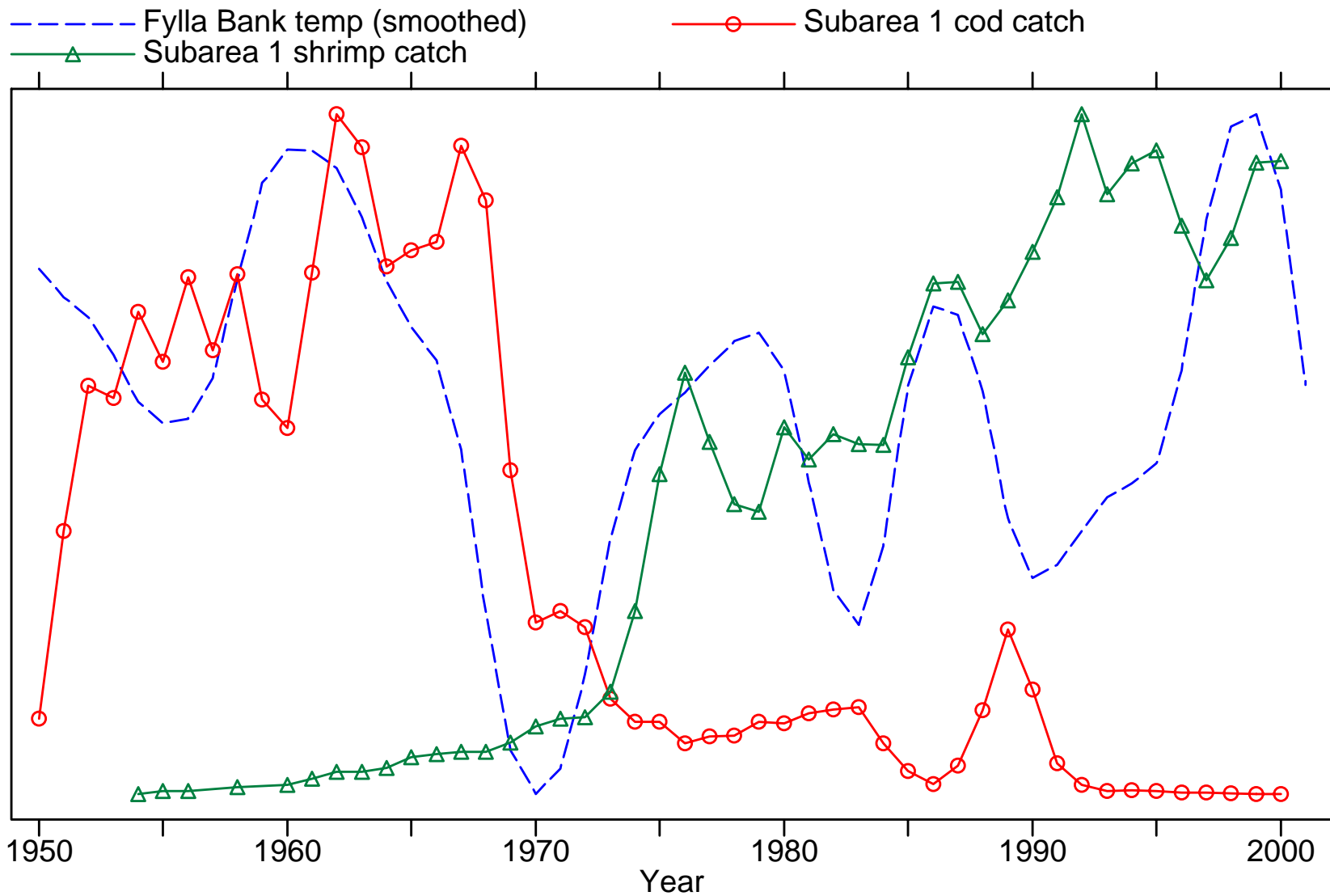
If trends are not linear, two points tell us little



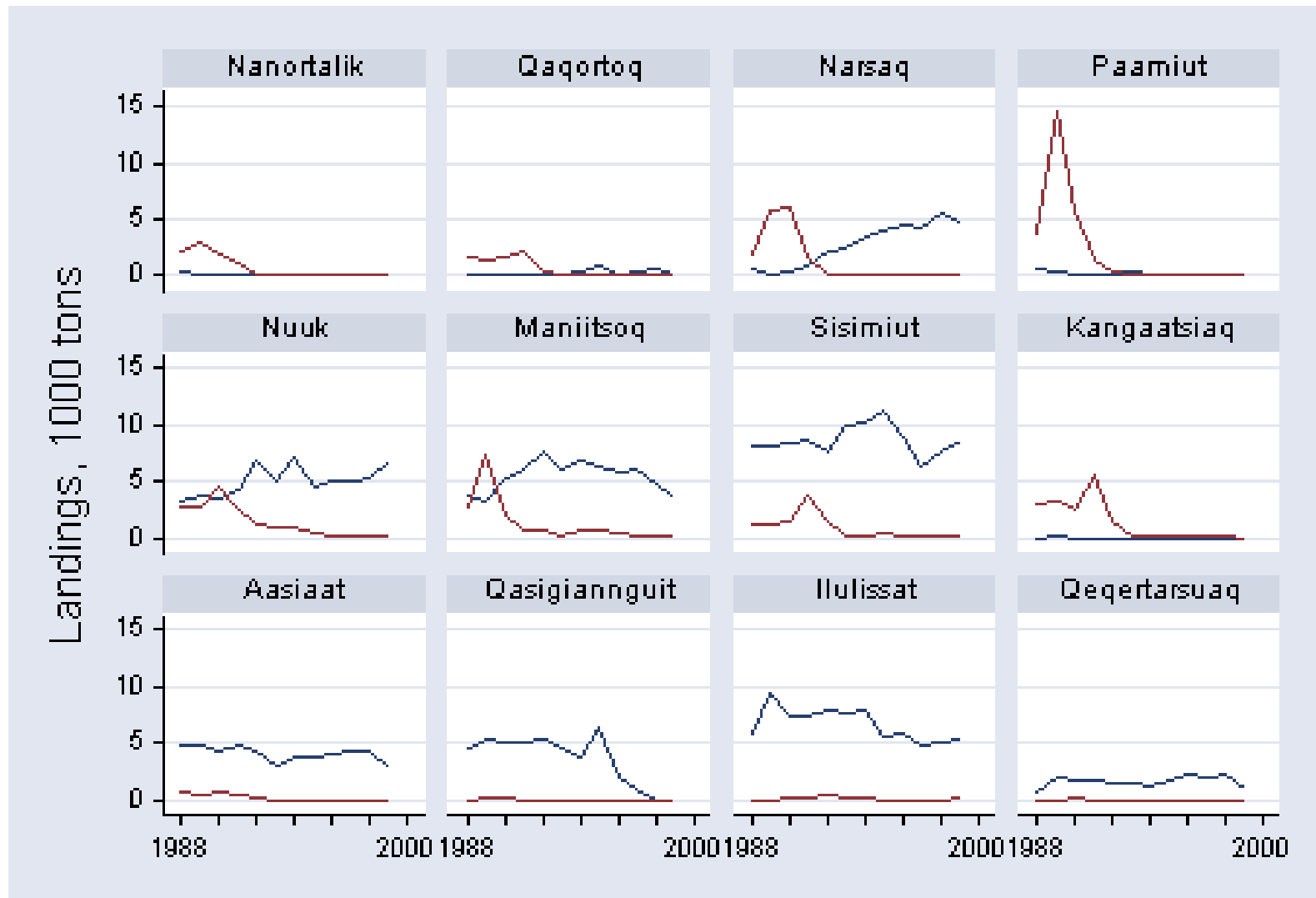
Two points can be quite misleading



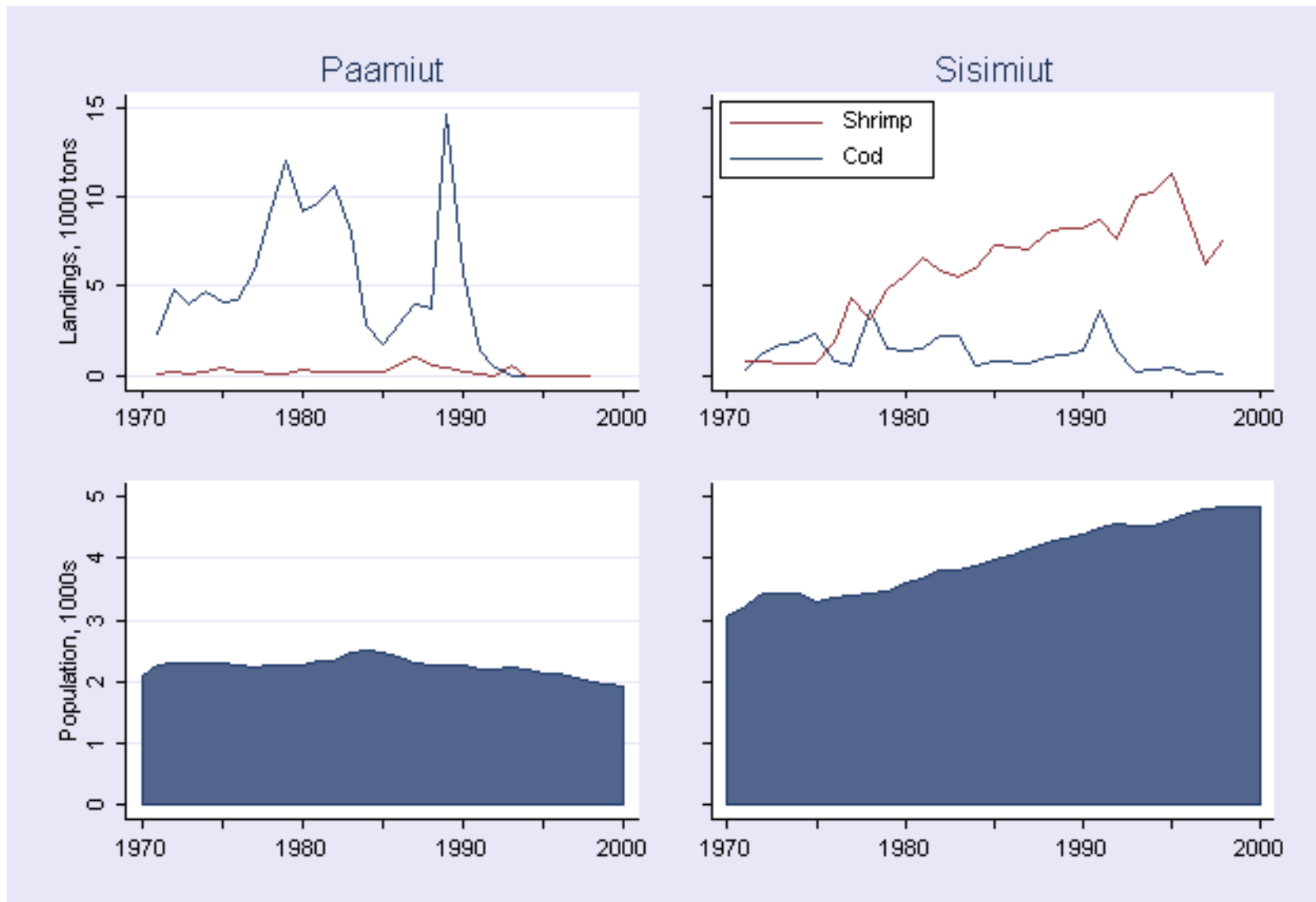
Sea temperature, cod & shrimp catch off W Greenland 1950–2000



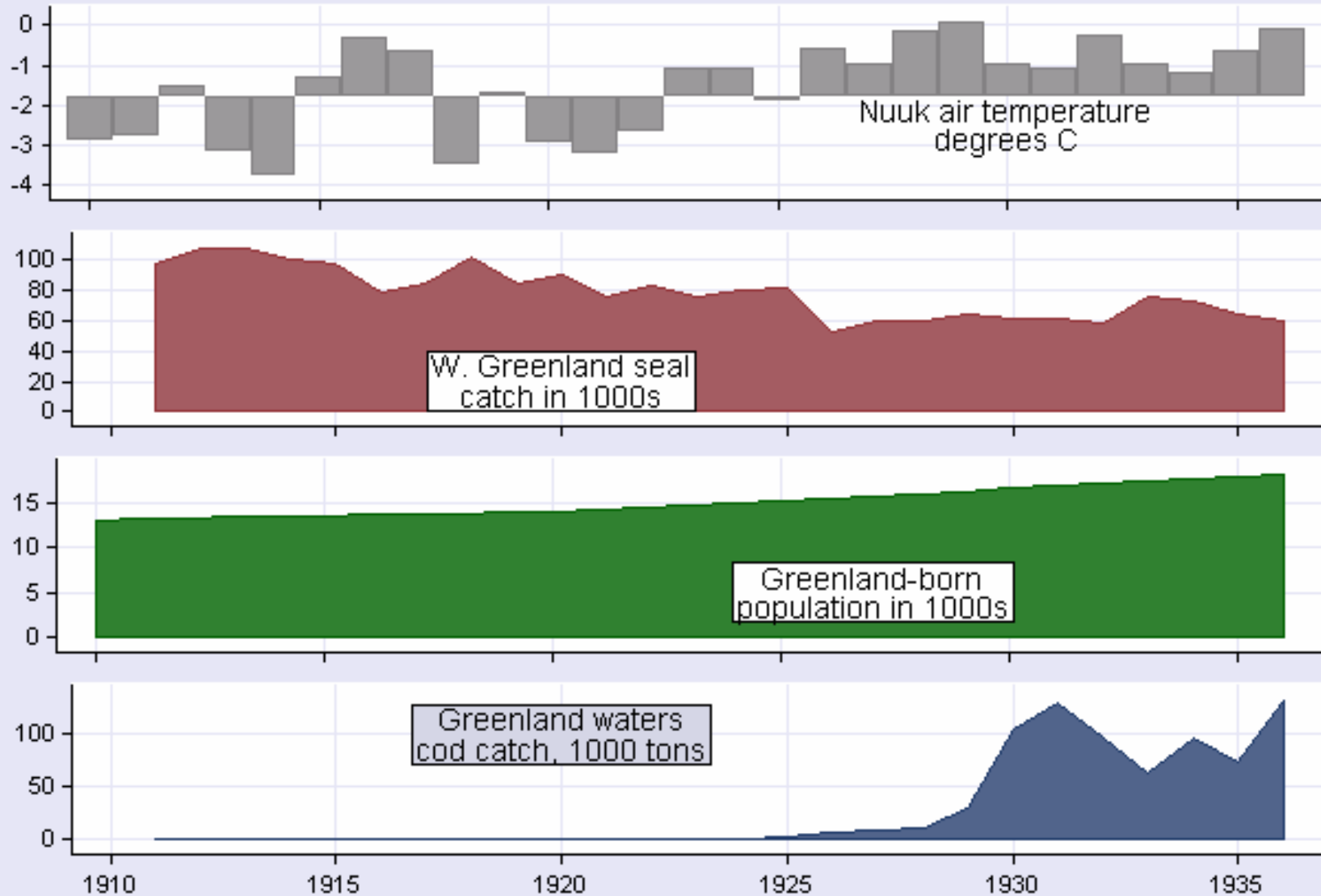
Cod and shrimp landings of W Greenland municipalities, 1988–96



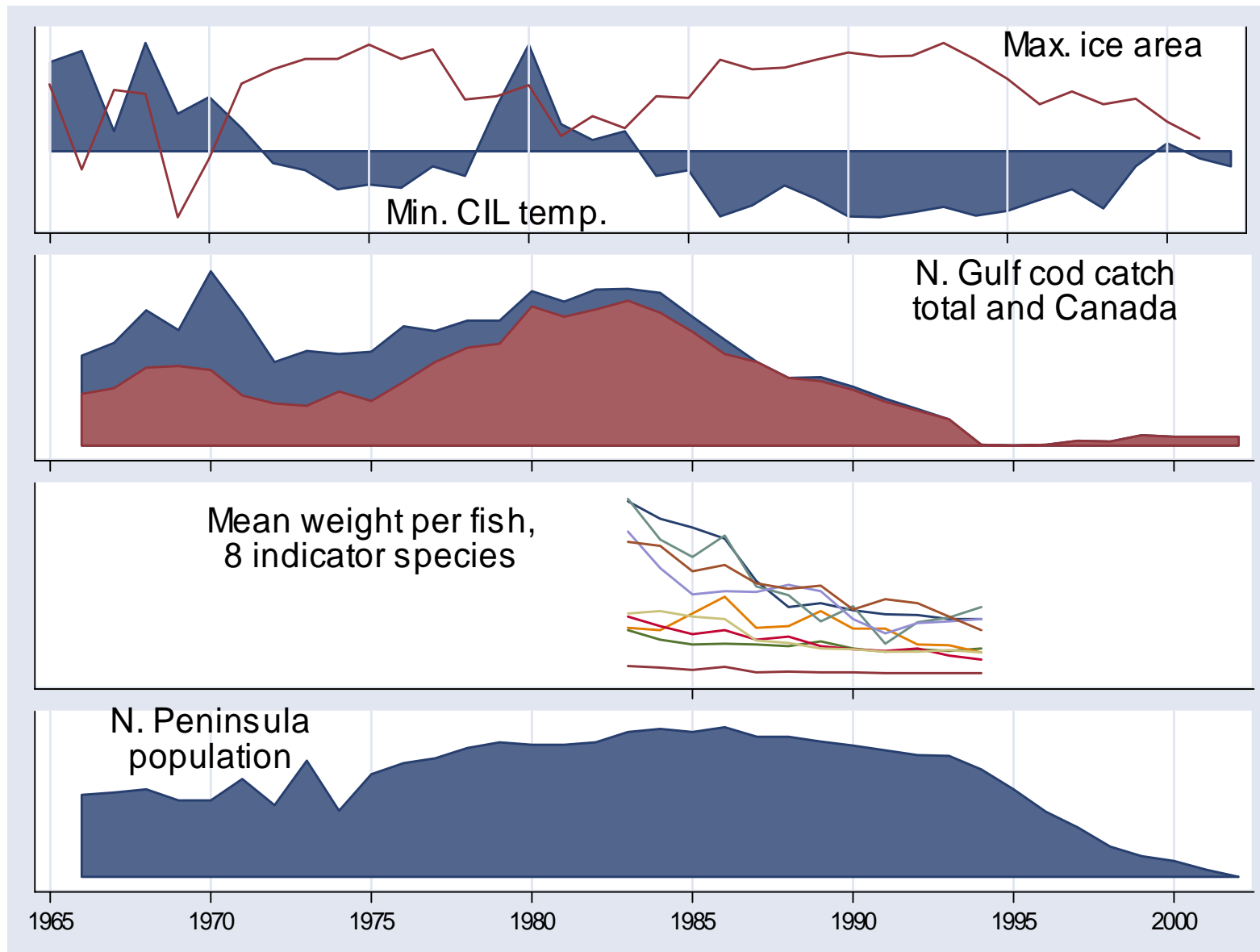
Cod, shrimp and population of Paamiut and Sisimiut 1970–2000



Seals-to-cod transition Greenland 1910–1937



Fisheries crisis off NW Newfoundland, 1965–2003



Upper line: Siglufjordur

1868 - 1884,
initial herring
boom

1868 - 1884

1903,
Norwegians
return

1903

1947: Whale-Fjord herring
1950: peak population

1947 1950

1960: stagnation
1965: decline
1968: end

1960

1965

1968

Lower line: Seydisfjordur

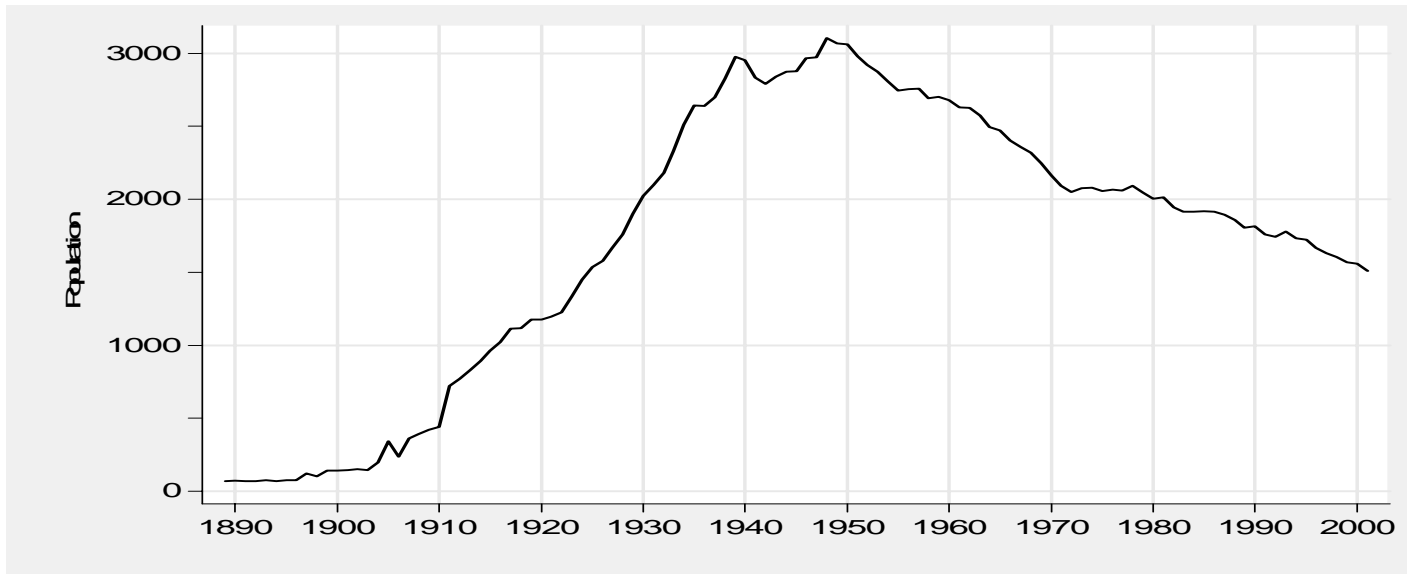
1950 - 1967

The boom years in Seydisfjordur
started later, peaked more sharply
ca. 1950 - 1968

"Morale" of Siglufjordur and Seydisfjordur.
Sketch by Orlygur Kristfinnsson, Siglufjordur, March 2003.

Siglufjörður
"morale"

(Örlygur
Kristfinnsson)

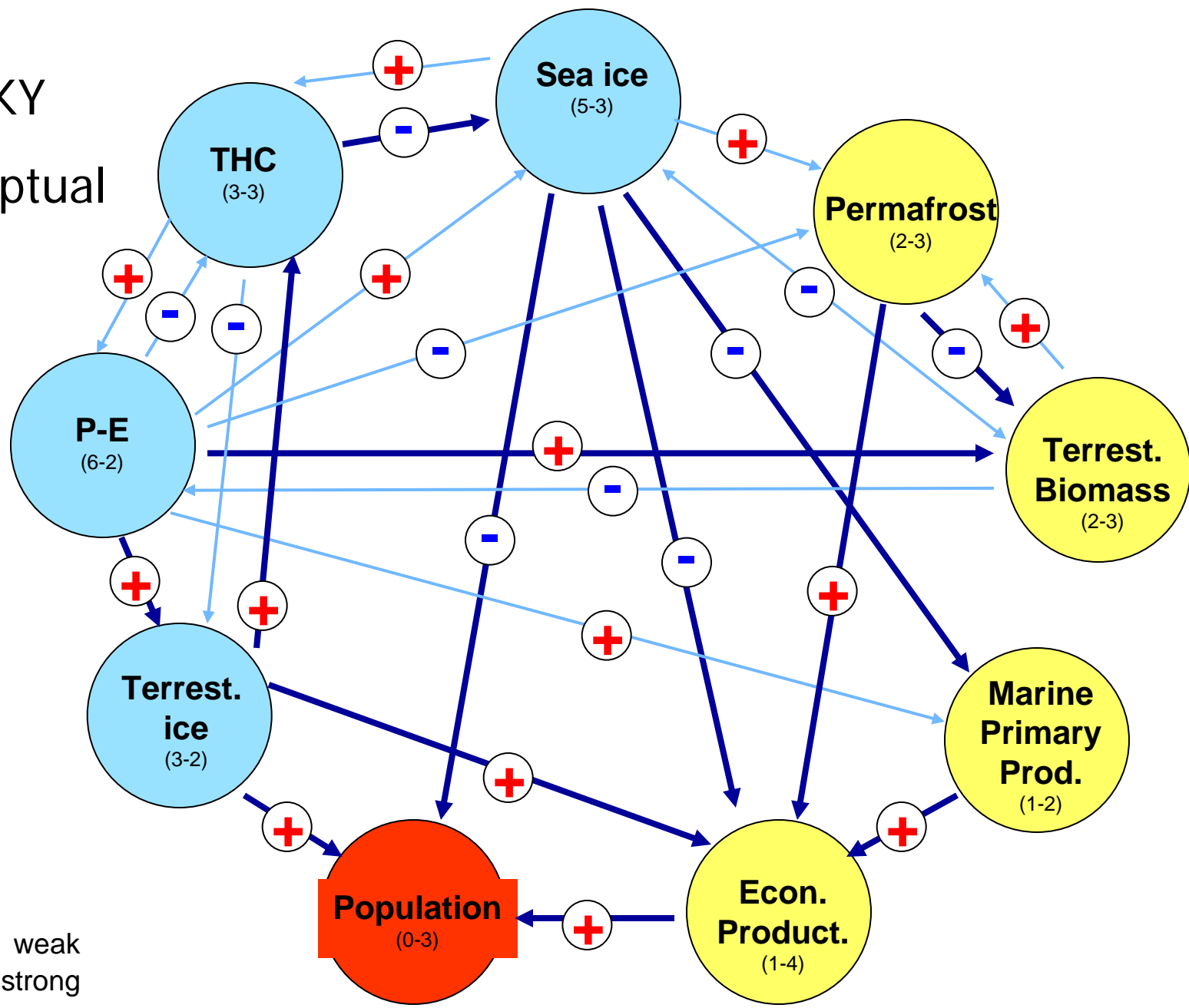


Siglufjörður
population

(Statistics
Iceland)

BIG SKY

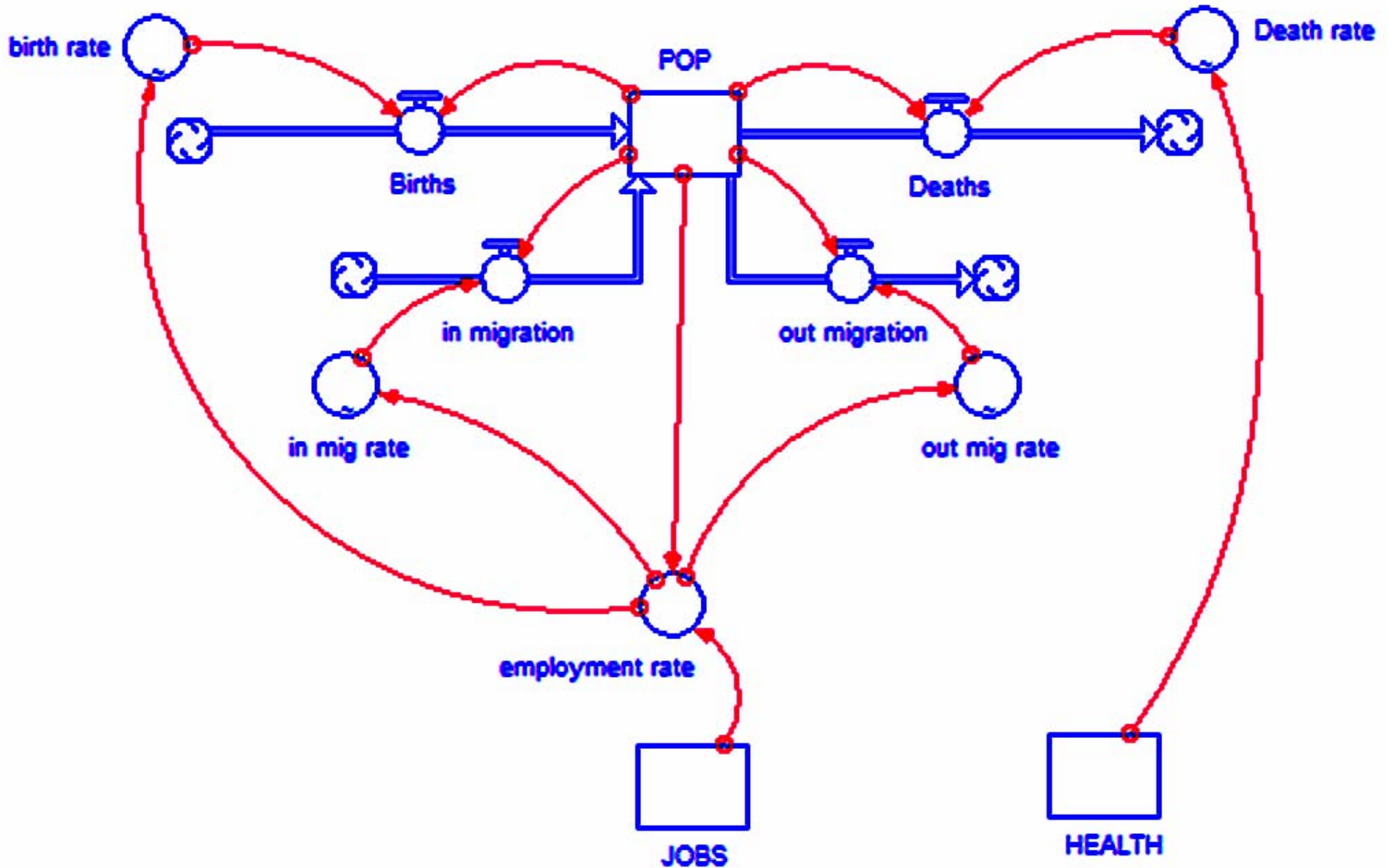
Conceptual model



— weak
— strong

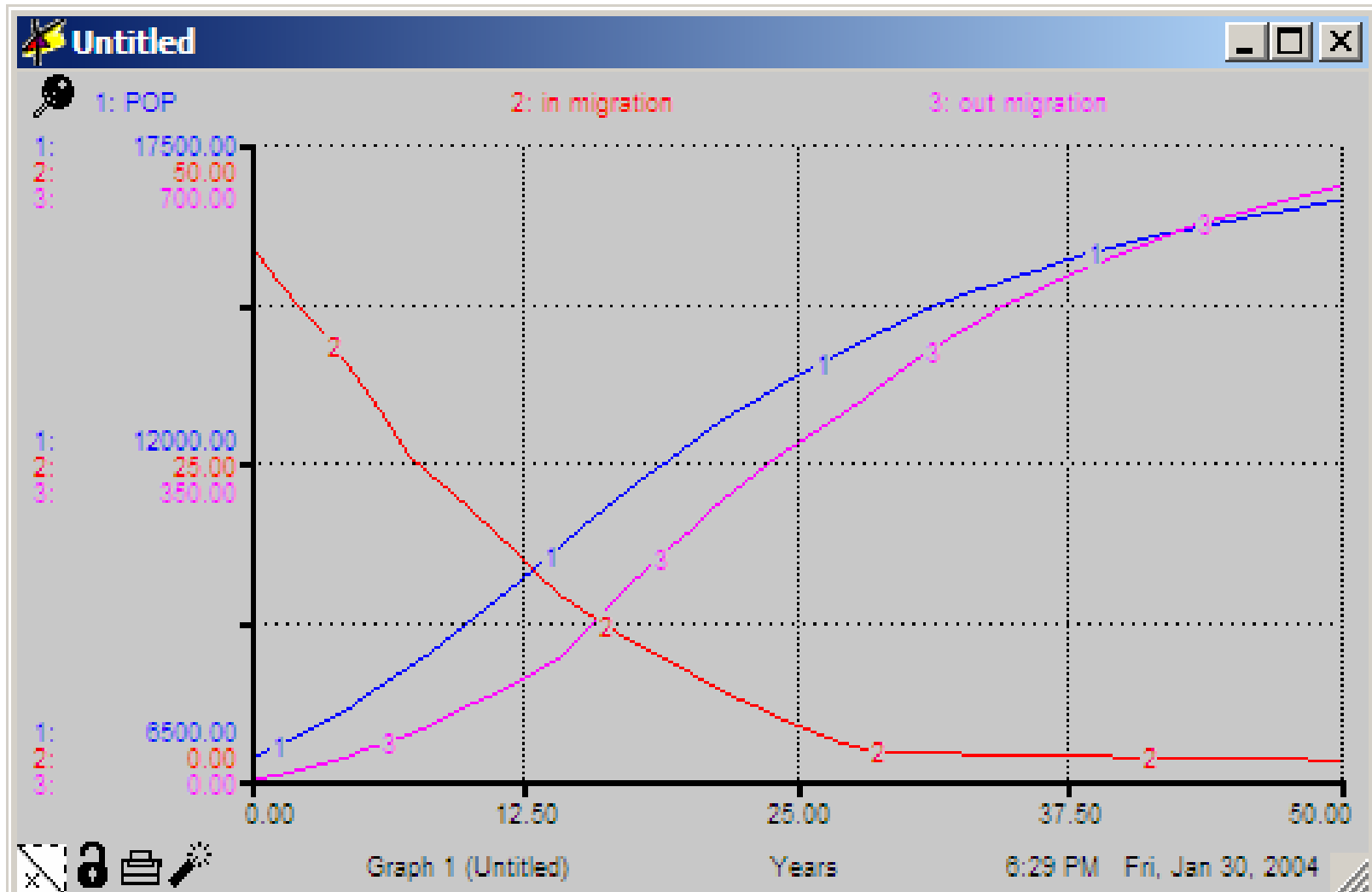
(in – out)

Model of an Arctic regional population



Model projection: Population growth from 6,000 to 17,000 in 50 years, despite high outmigration.

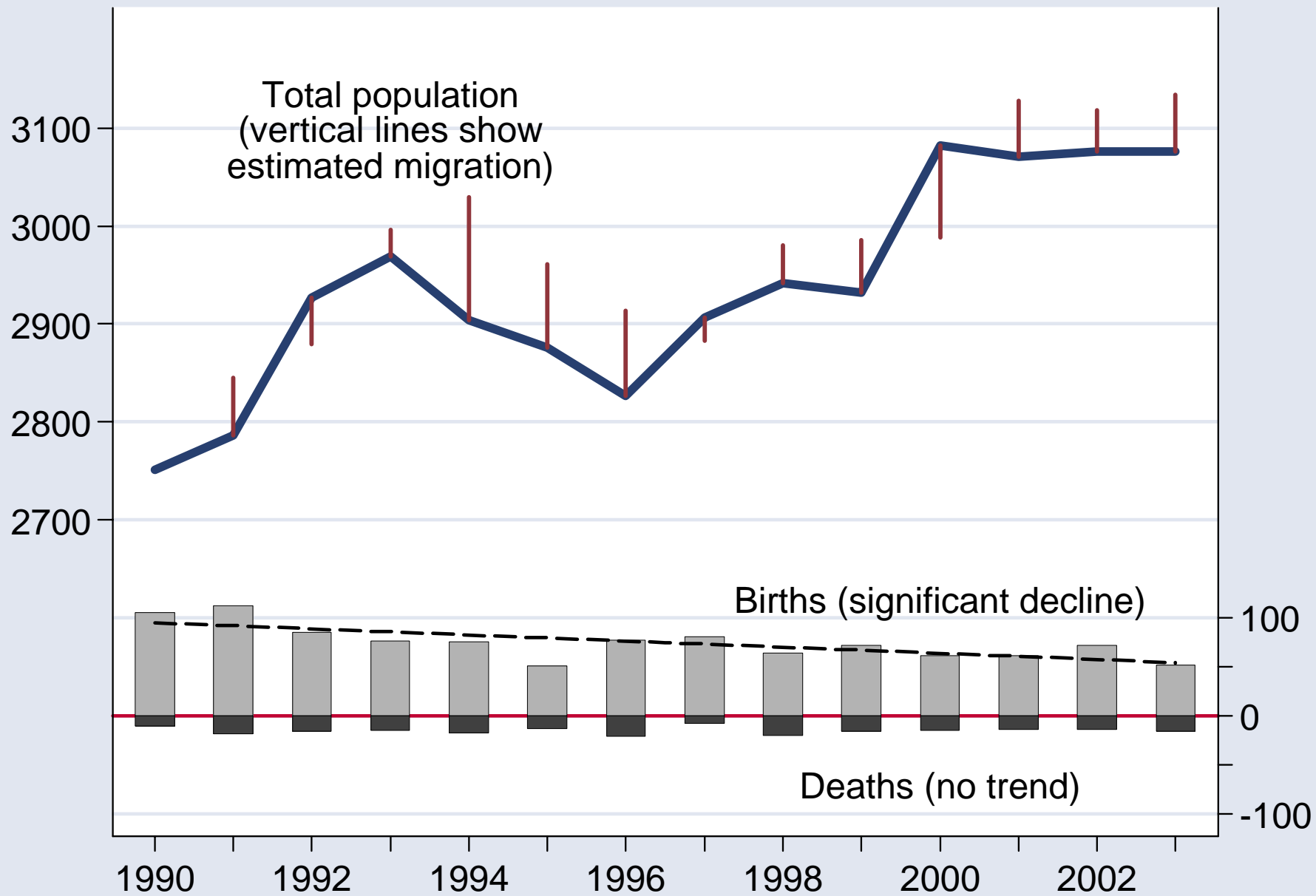
Could that happen? What would it mean?



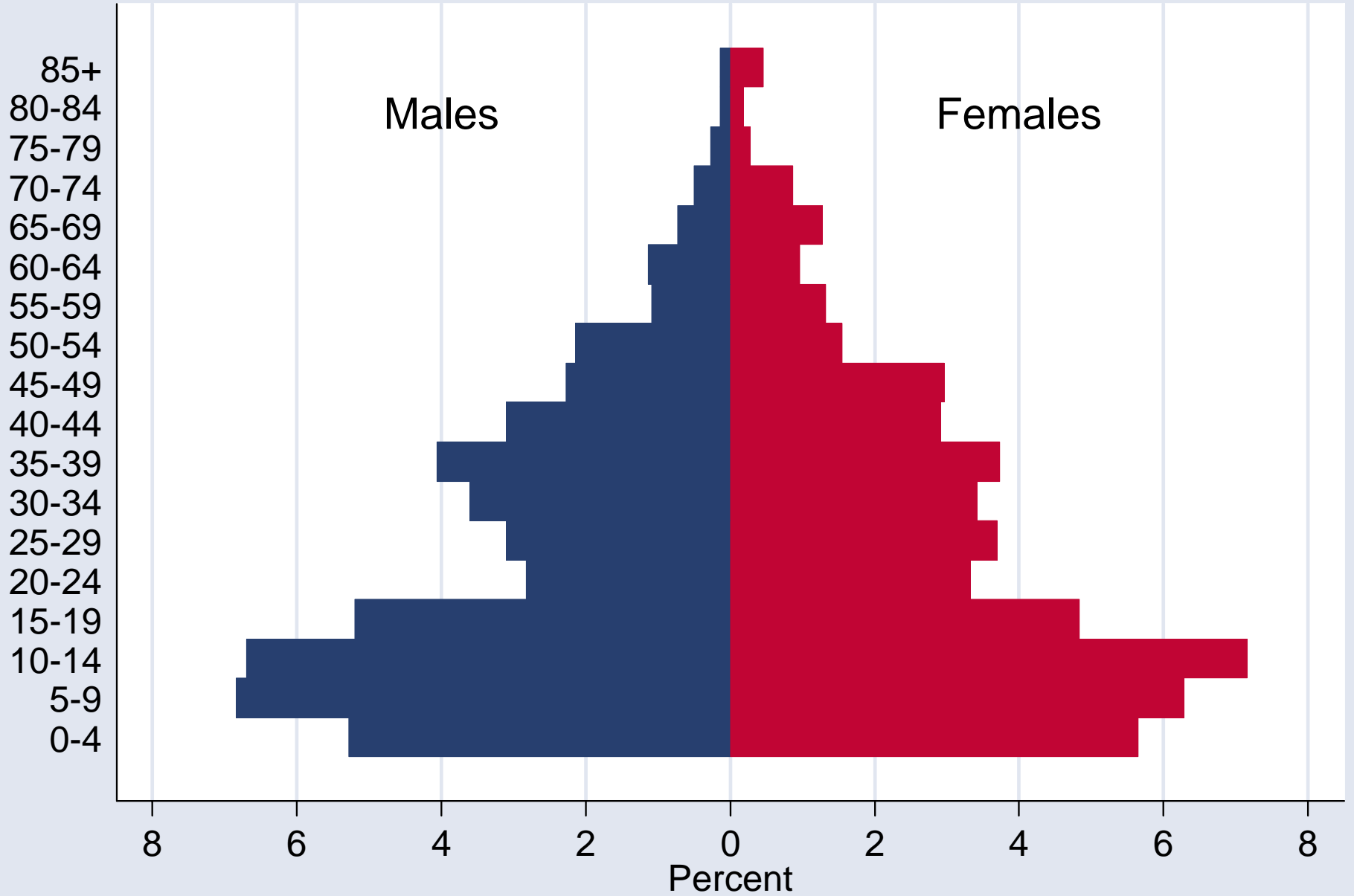
How are real Arctic populations changing?
For example, in Kotzebue, Alaska?



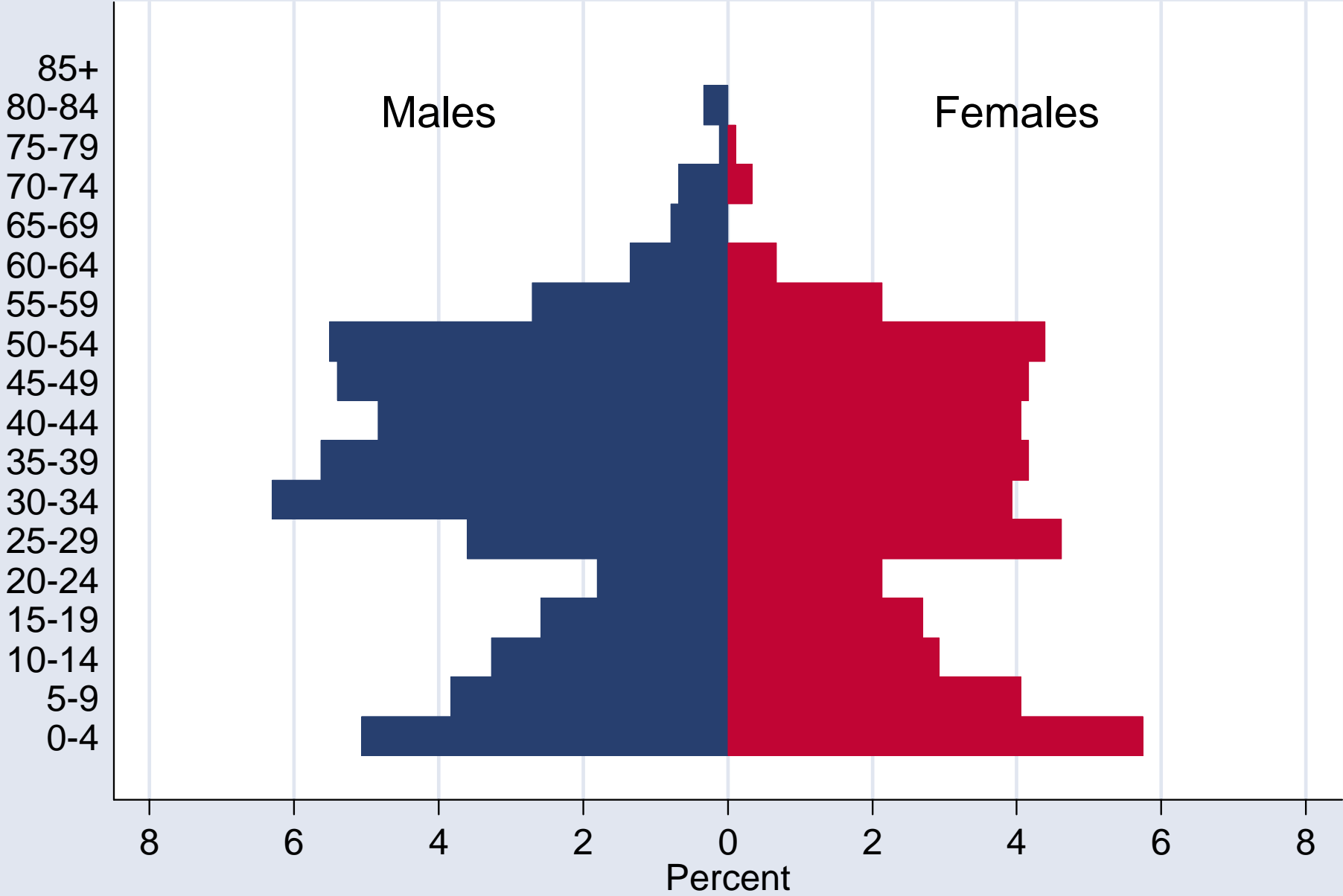
Kotzebue



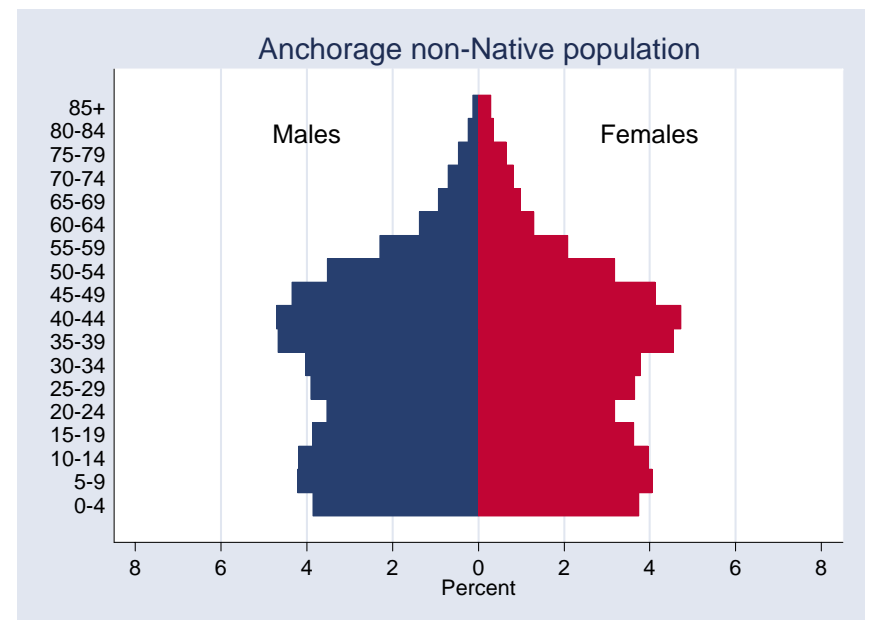
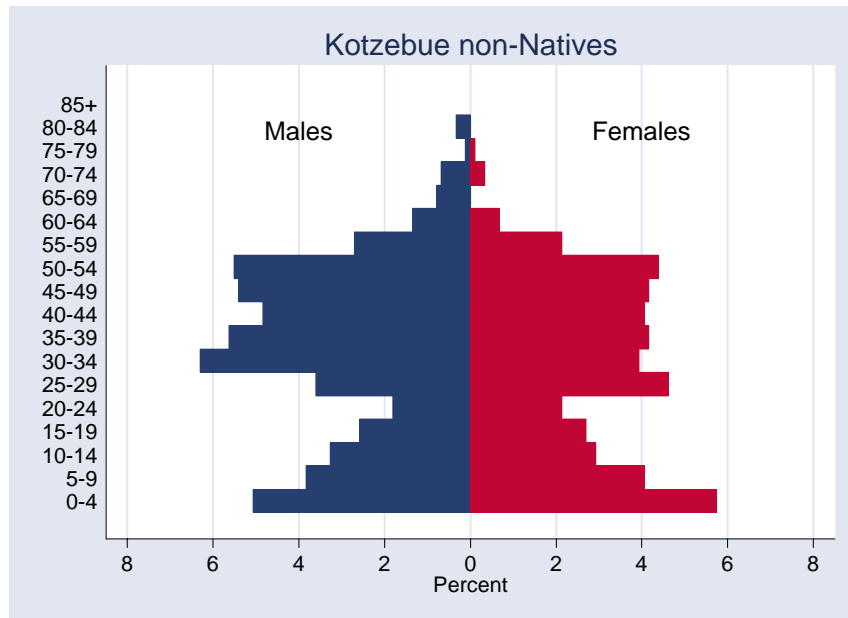
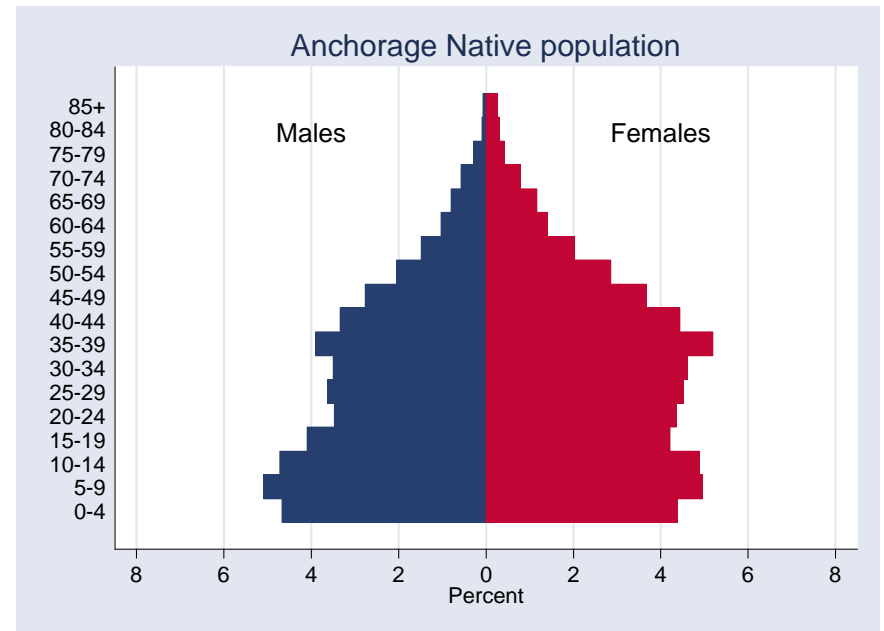
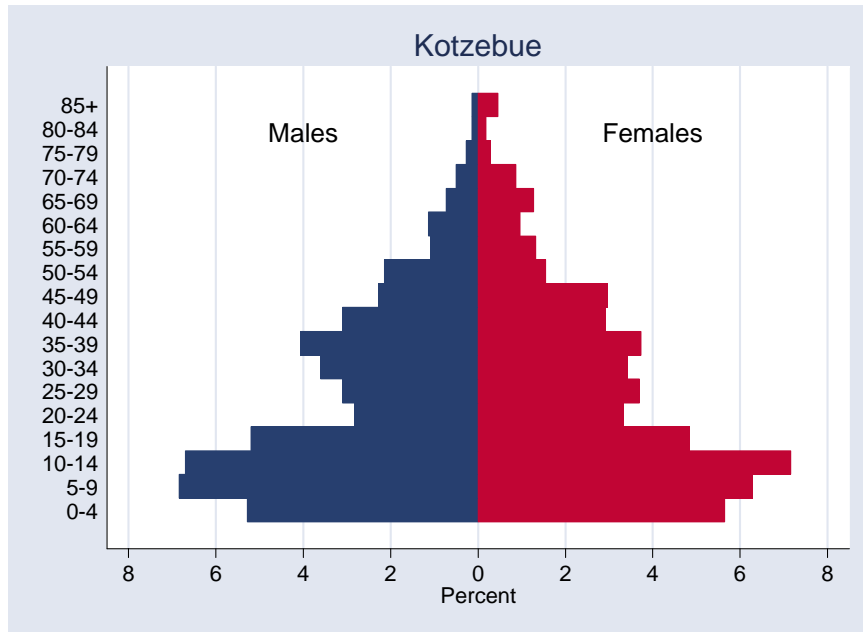
Kotzebue



Kotzebue non-Natives



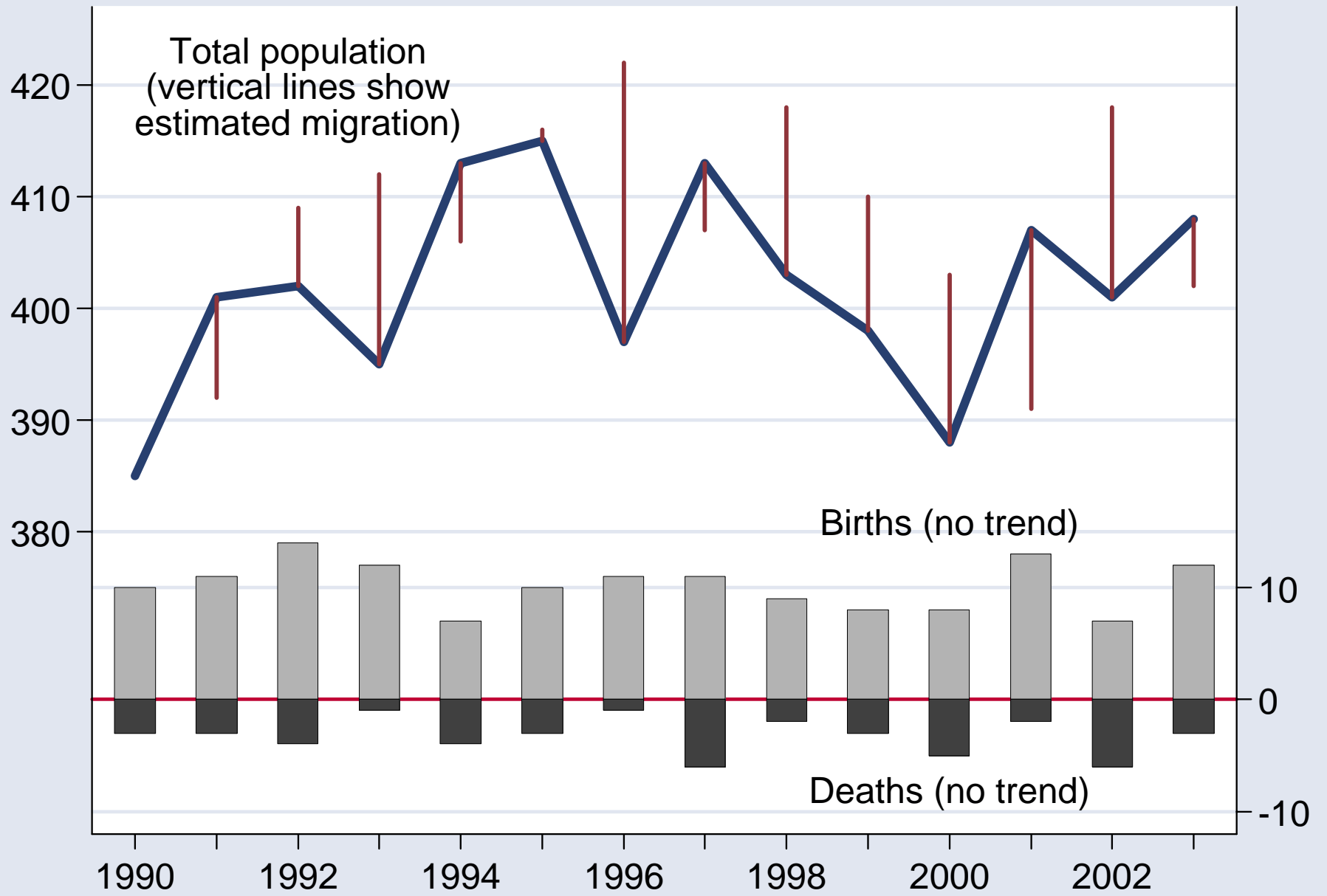
Comparison of Kotzebue with Anchorage



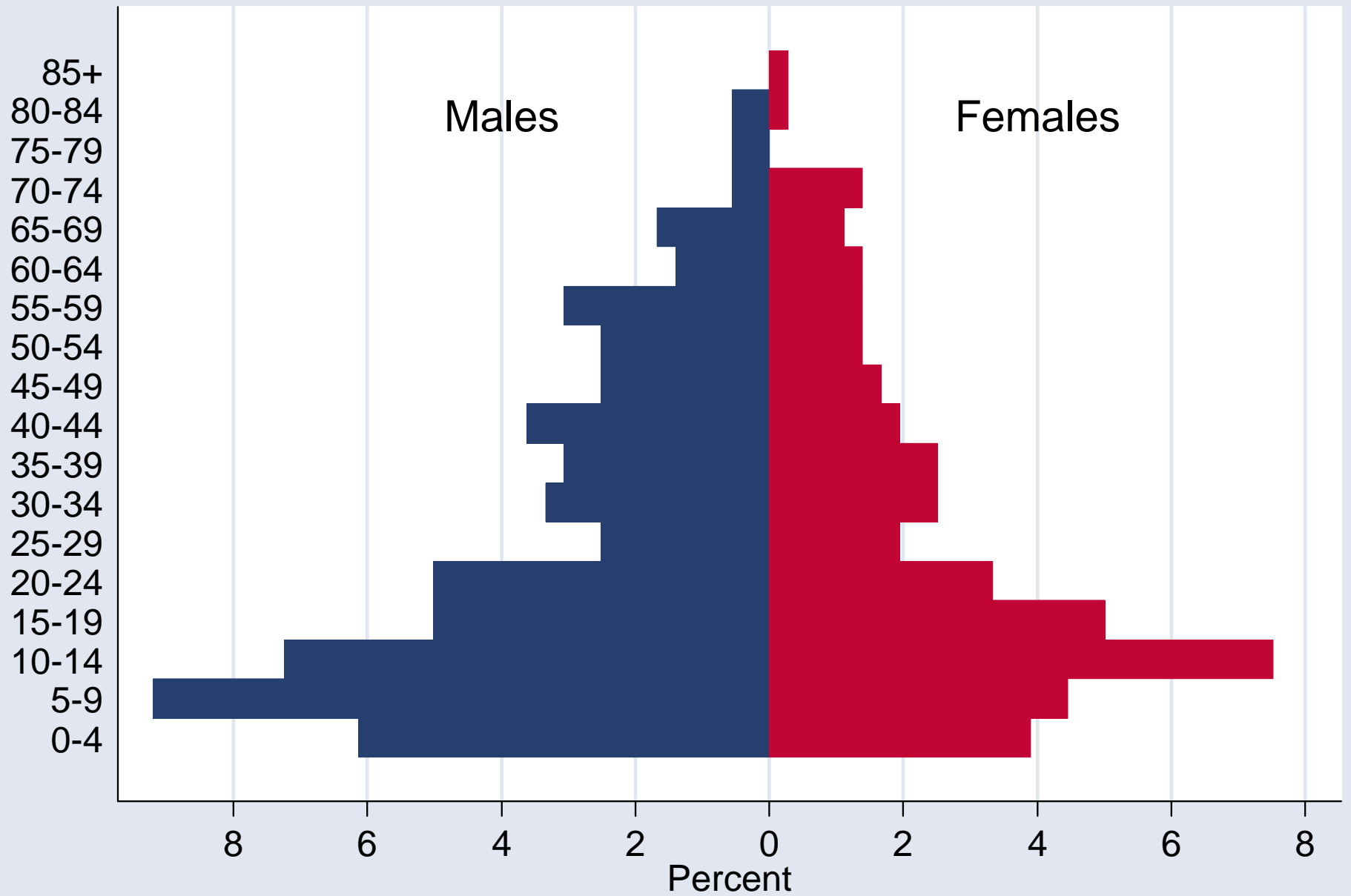
Kiana



Kiana



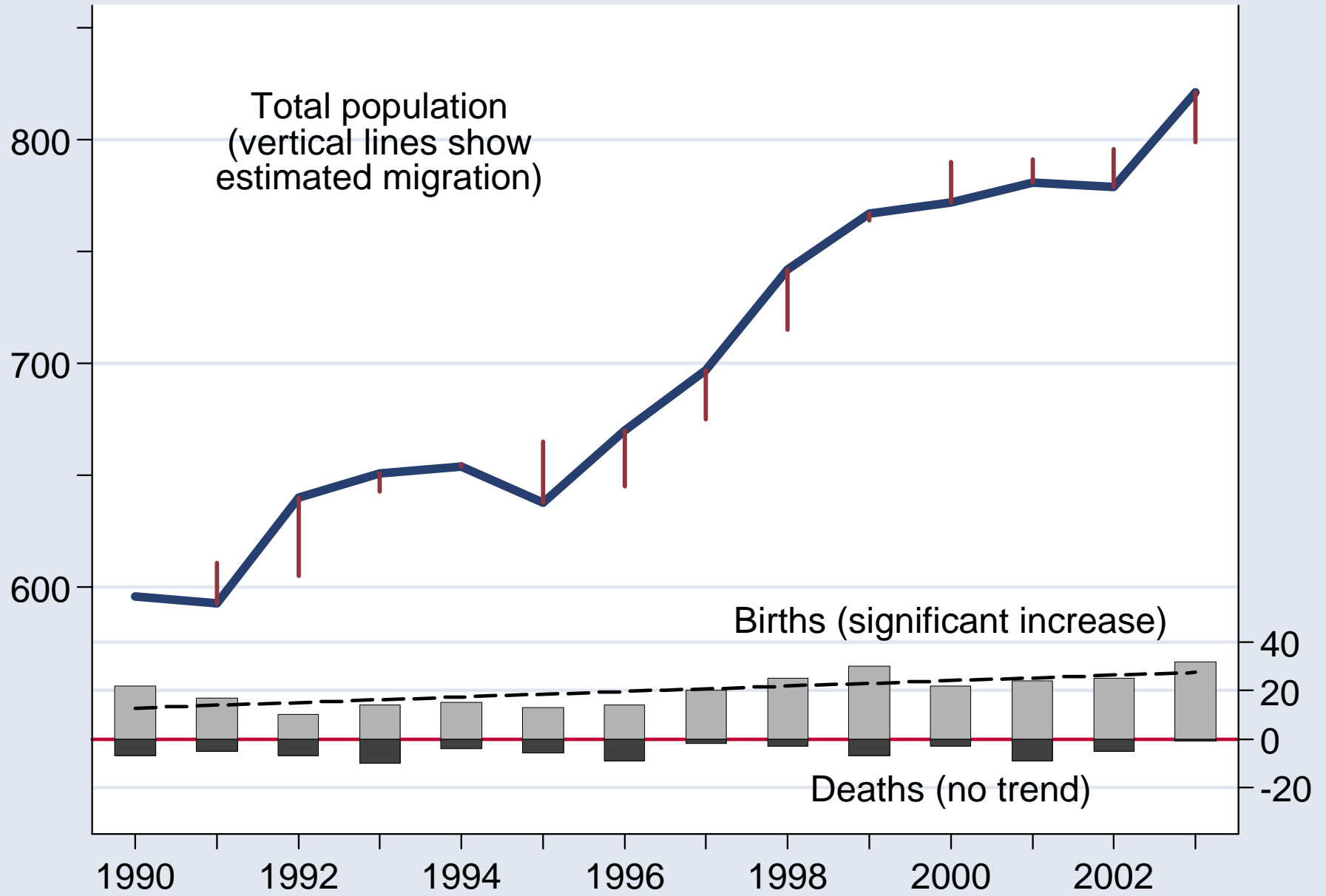
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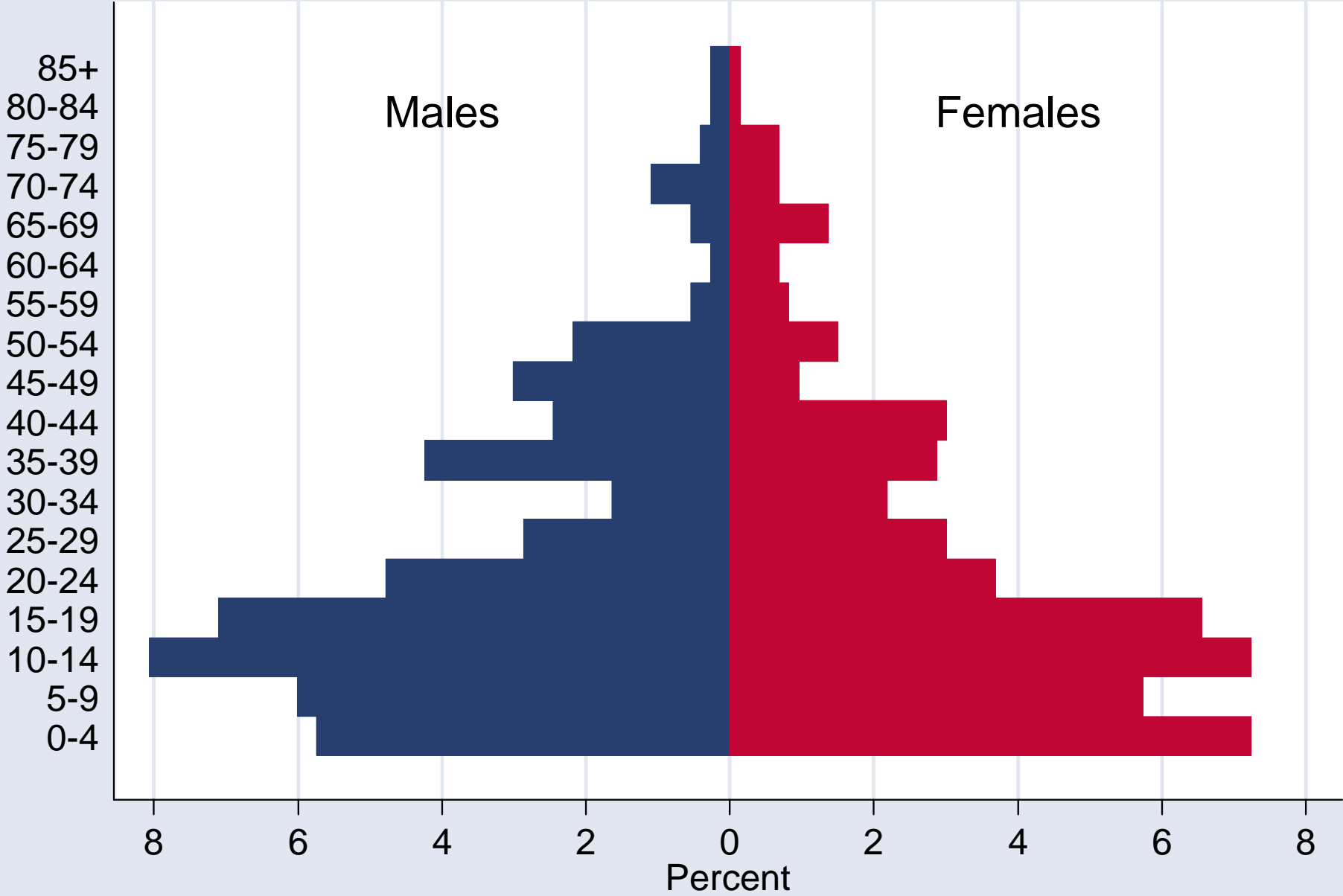
Selawik



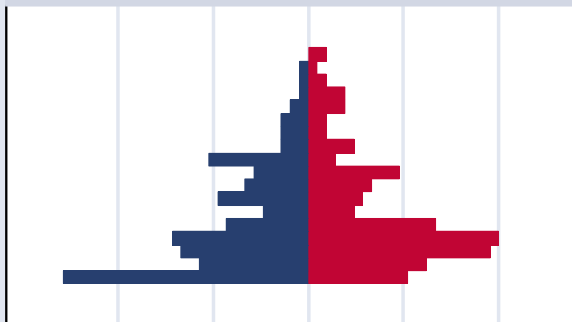
Selawik



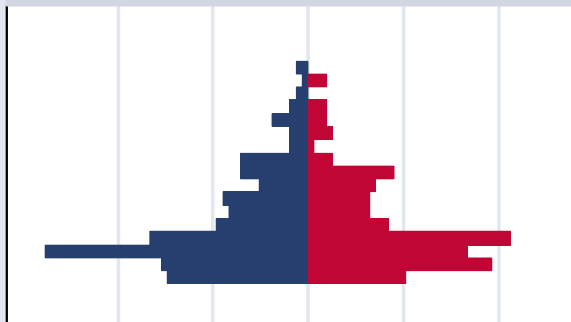
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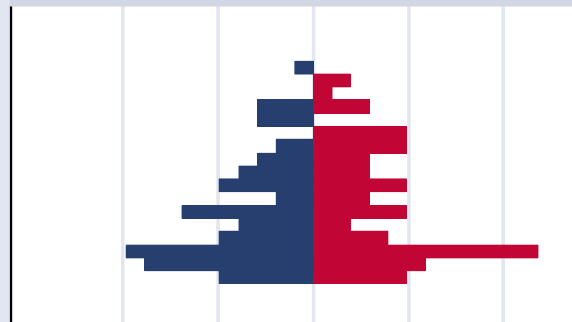
Ambler



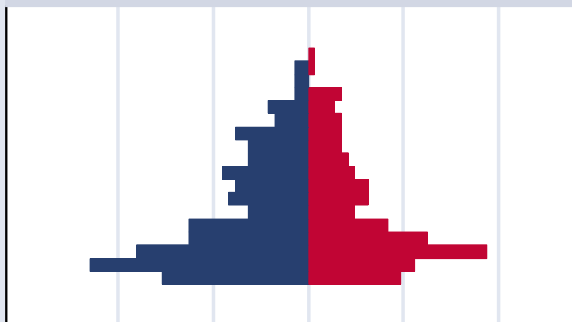
Buckland



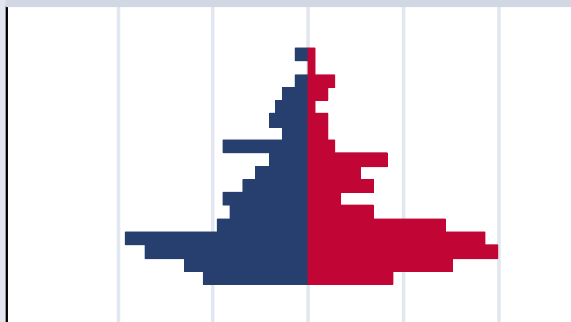
Deering



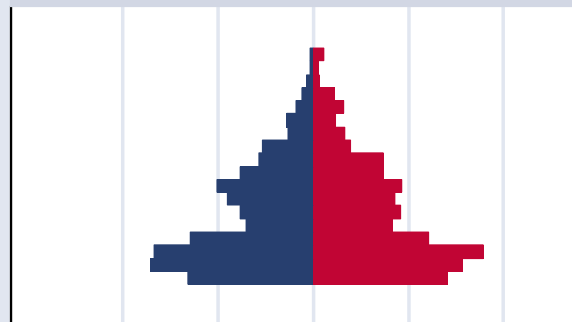
Kiana



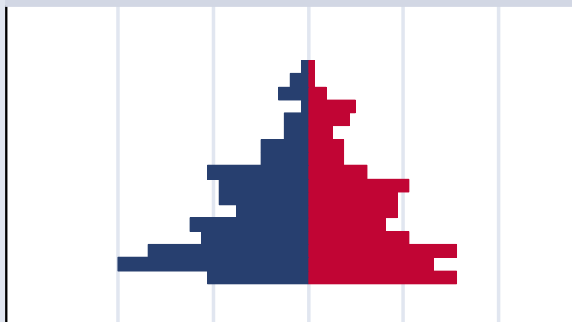
Kivalina



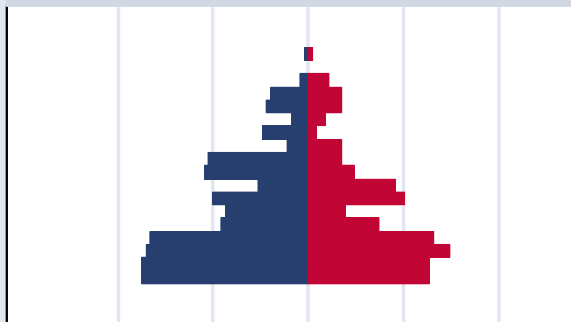
Kotzebue



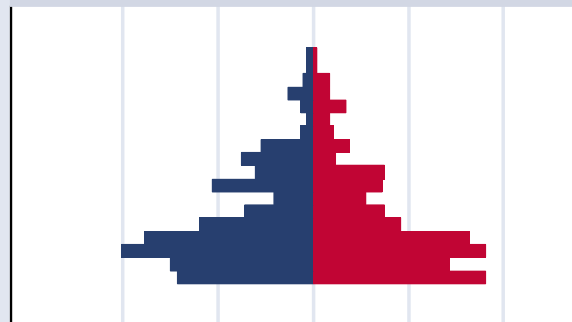
Noatak

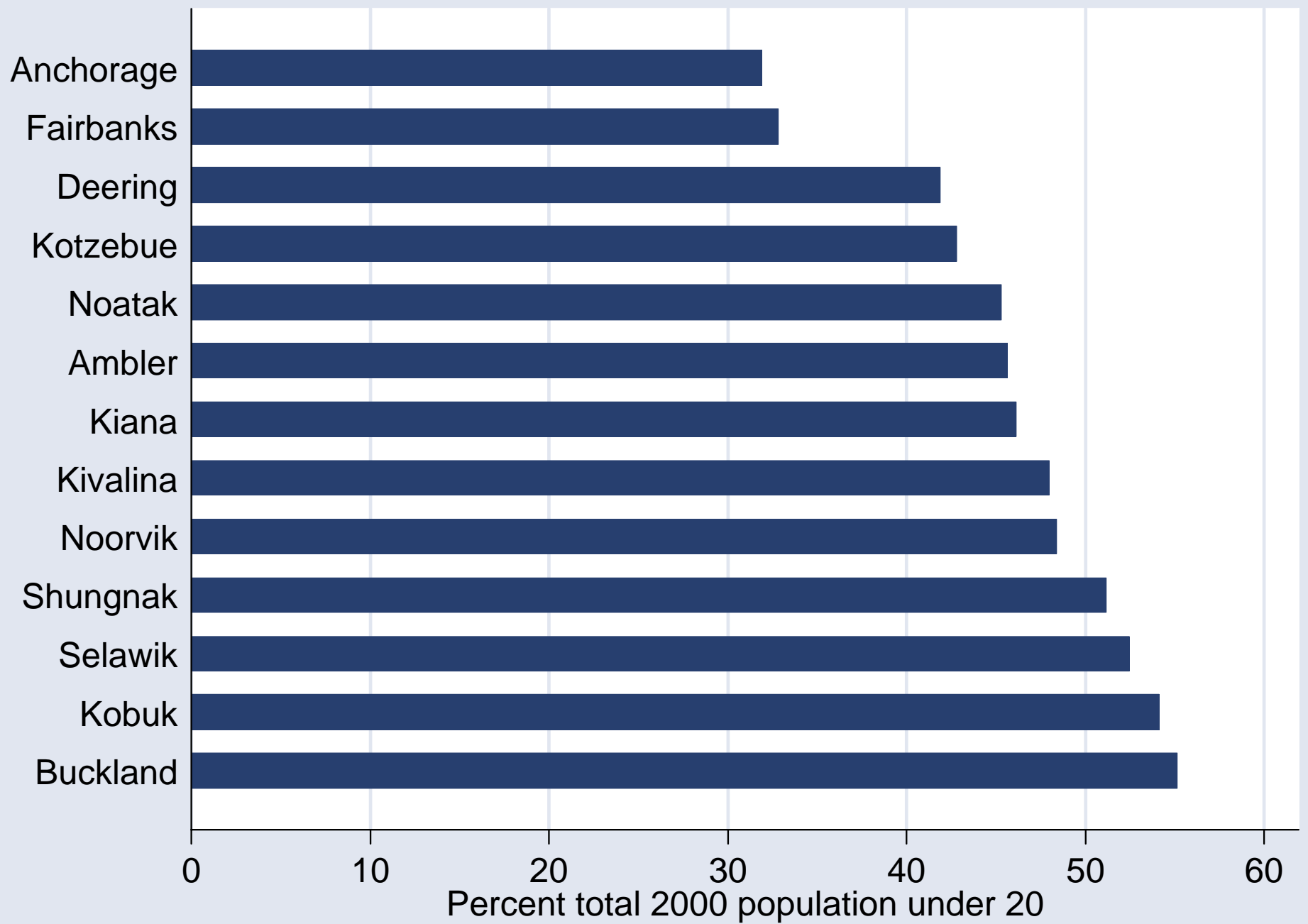


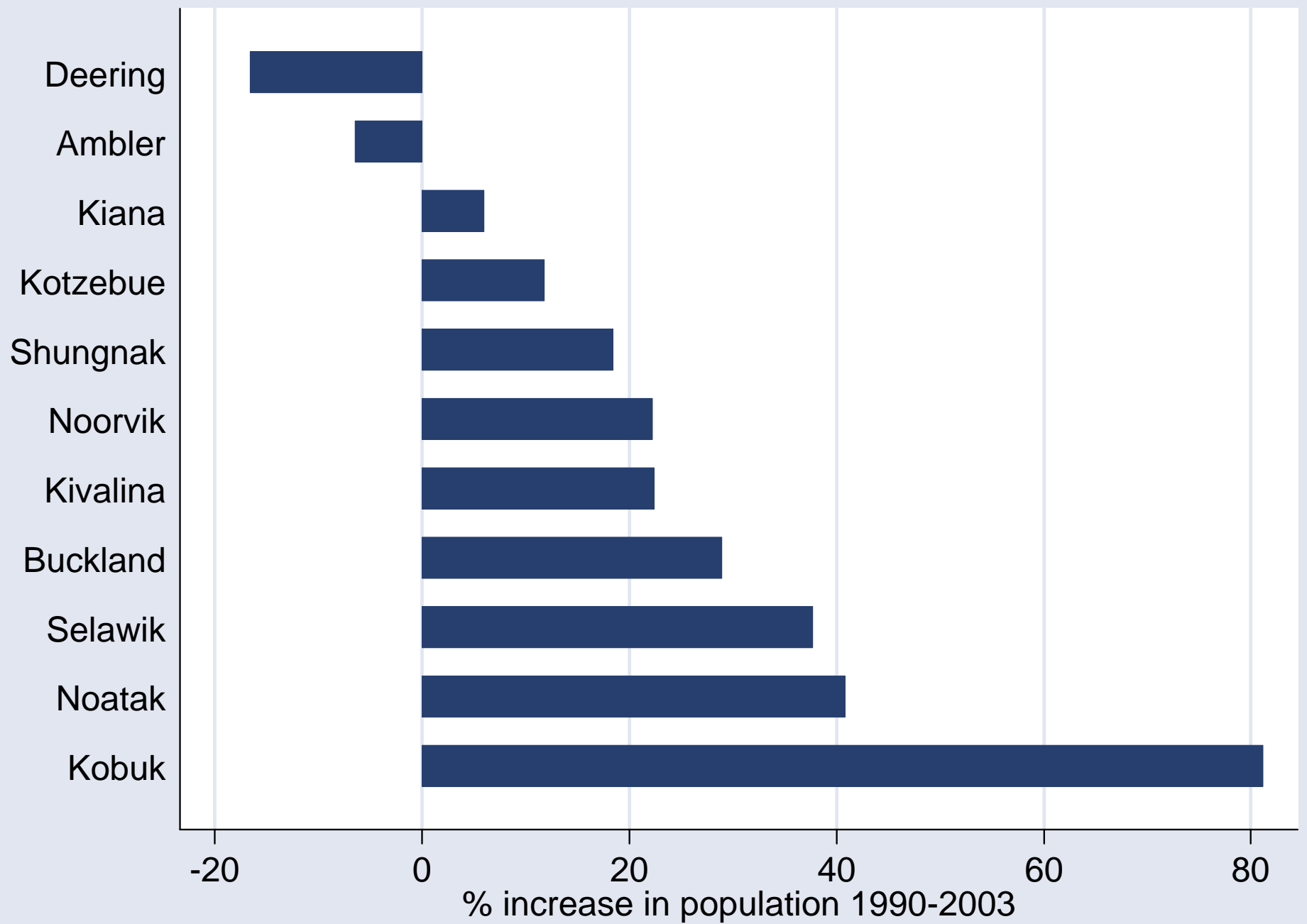
Noorvik



Selawik







Conclusion

- Changes among Arctic communities are heterogeneous and complex
- Demographic changes have multiple causes and multiple, far-reaching effects
- Their connection to “everything” makes demographics useful for integration
- They provide doorways to thinking about Arctic-society futures
- Systematically tracking and comparing HD changes in the Arctic should be a component of IPY

A FEW REFERENCES

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