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# Investigating Structural Gender Inequality in the Norwegian Pension System

An example of using MBSE in the  
evaluation of social systems

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# Extending SE's Reach

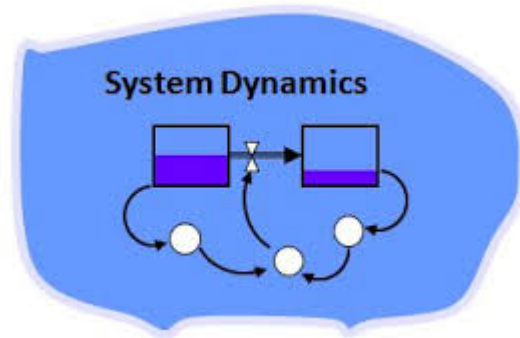
SE for social systems

Great potential



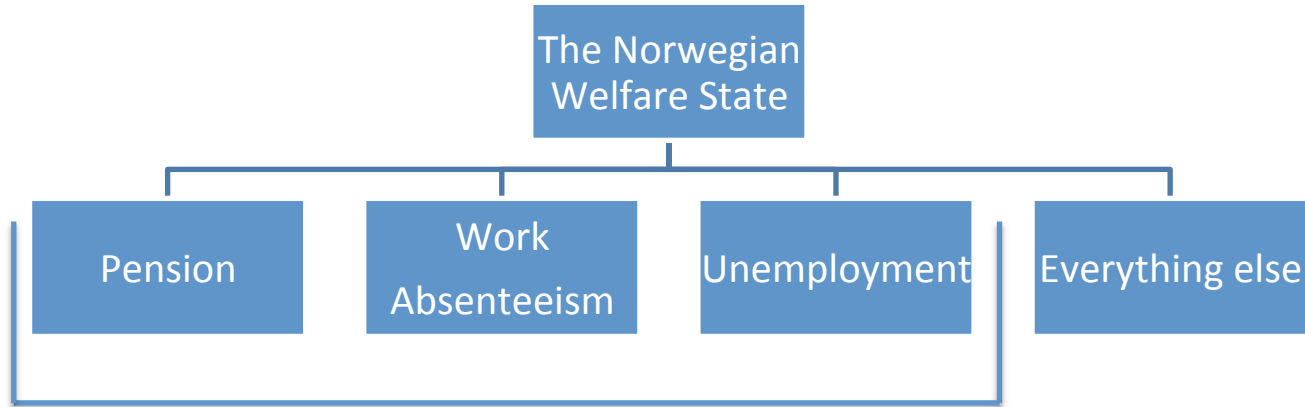
# Ubiquitous Systems Engineering

- A few mention social systems in the literature
- System Dynamics as a means to facilitate



# The Project

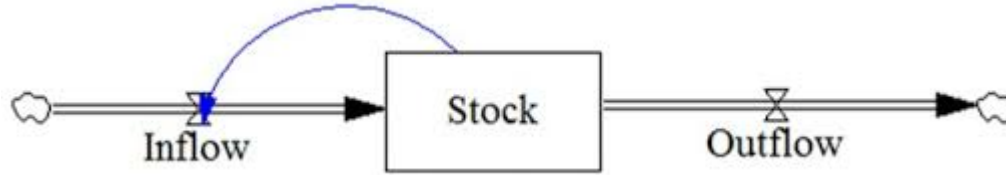
UNIVERSITY OF BERGEN



60% of social spending

# System dynamics modeling of social systems

- Stock and flow models and feedback



- A field of its own and as part of MBSE



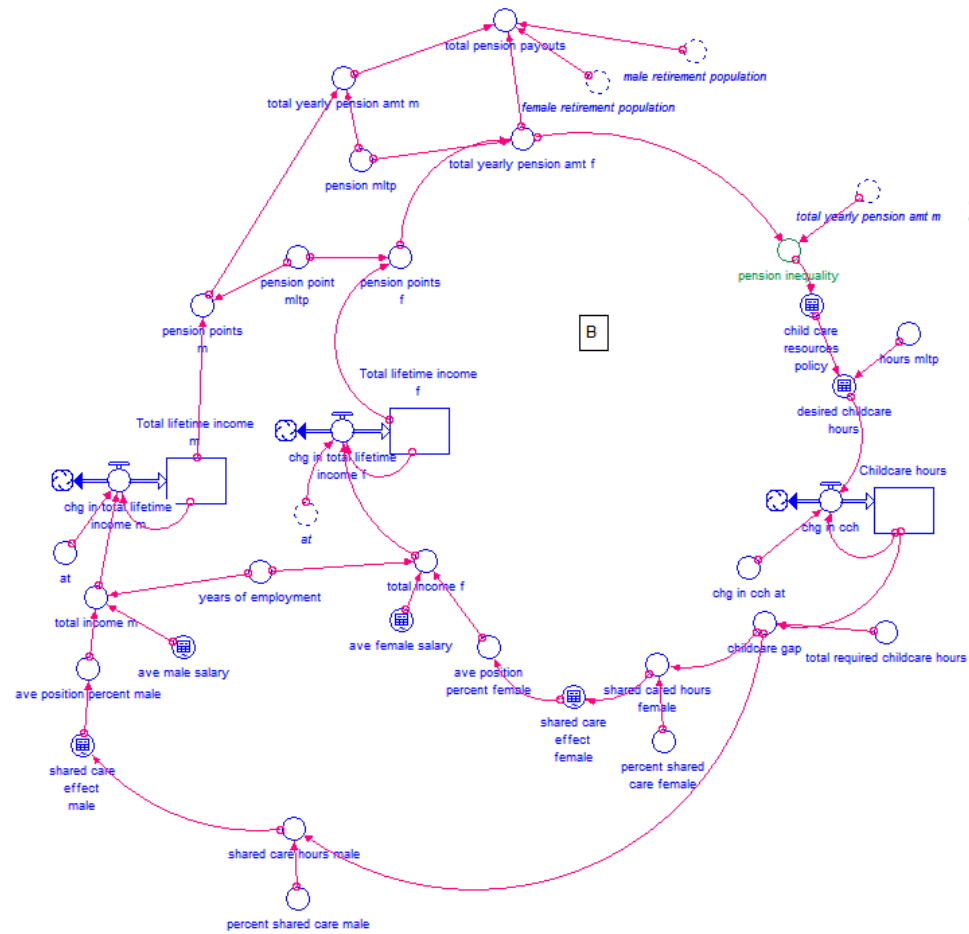
# Gender inequality in social systems

- Social system: pensions
- Demographic challenge:  
gender inequality
- Three forces at work
- Research question:  
are there structural  
disadvantages for women  
in the Norwegian pension  
system?



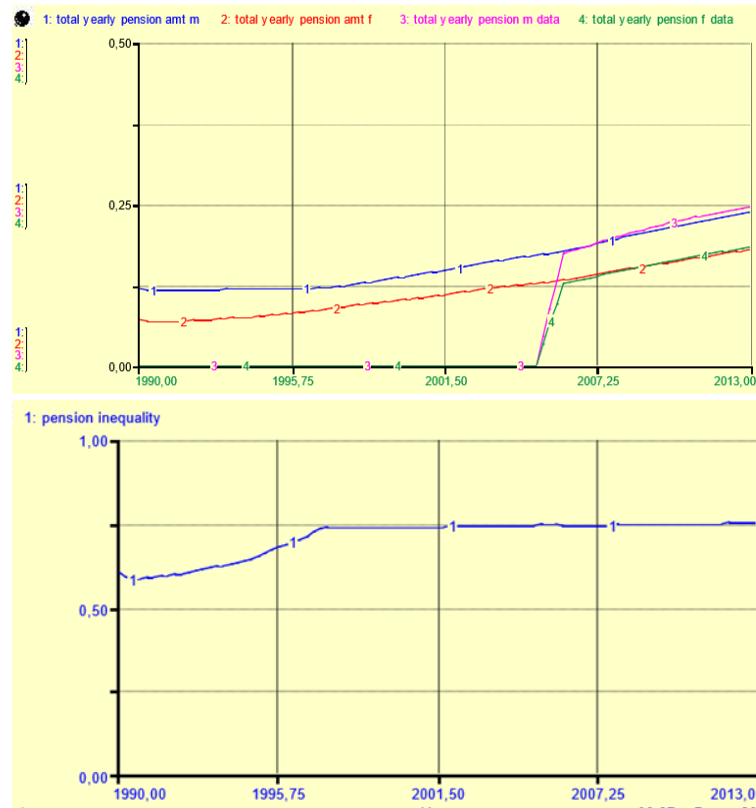
# The Model

- Build an SD model to explain:
  - How accumulated lifetime income leads to pension inequality

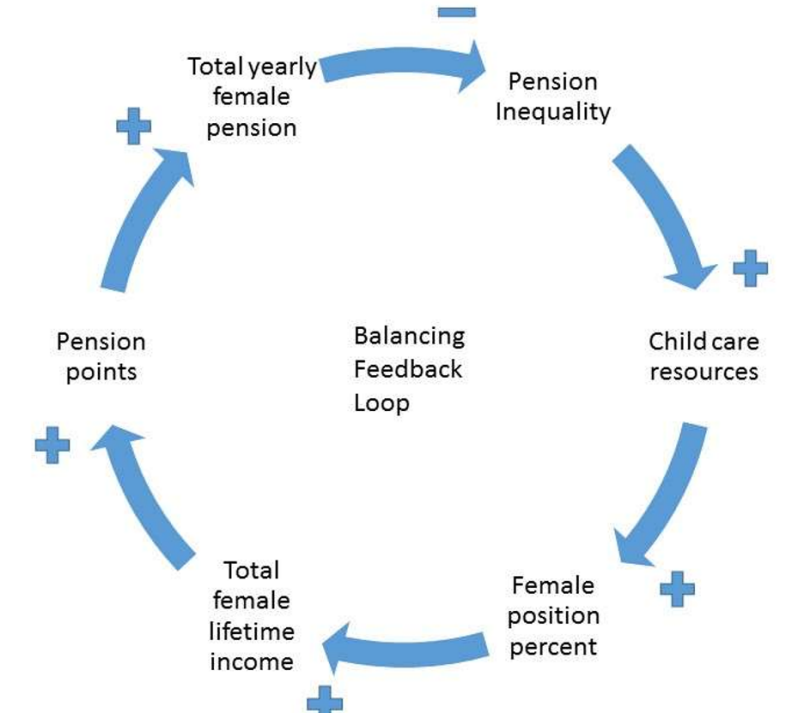


# The Results

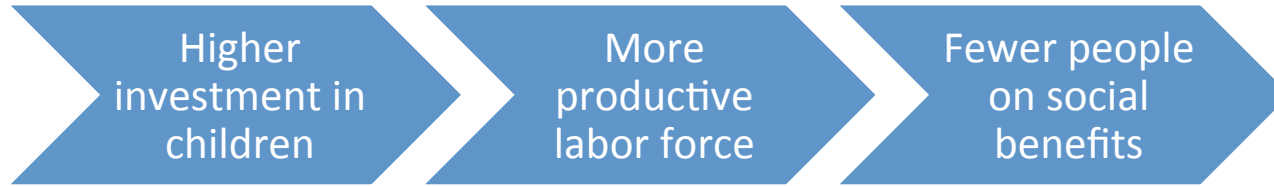
- Average annual pension per female & male pensioner in mill. NOK/yr
- And as a ratio, (pension inequality):  
 $F \text{ pension} / M \text{ pension}$



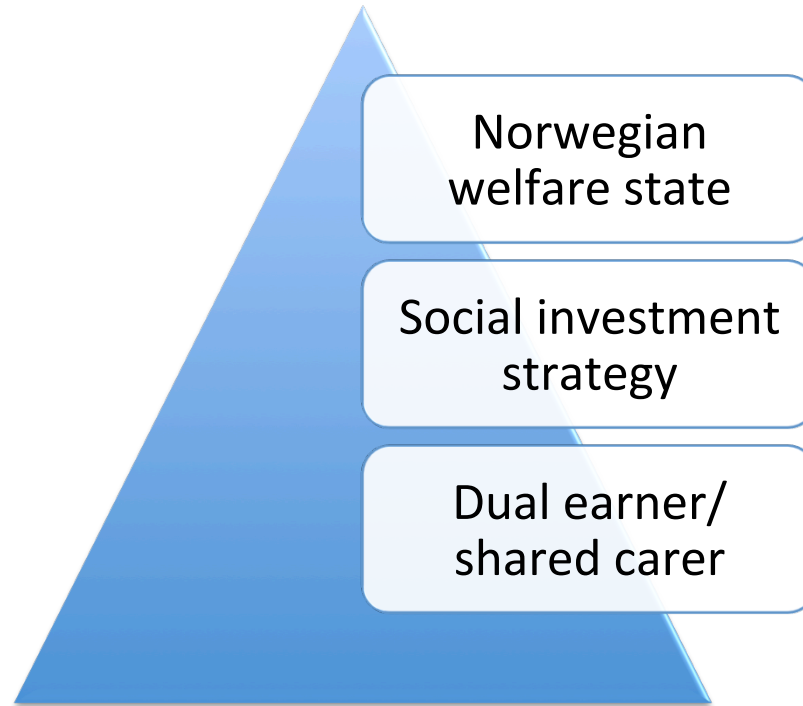
# Causal Loop Diagram

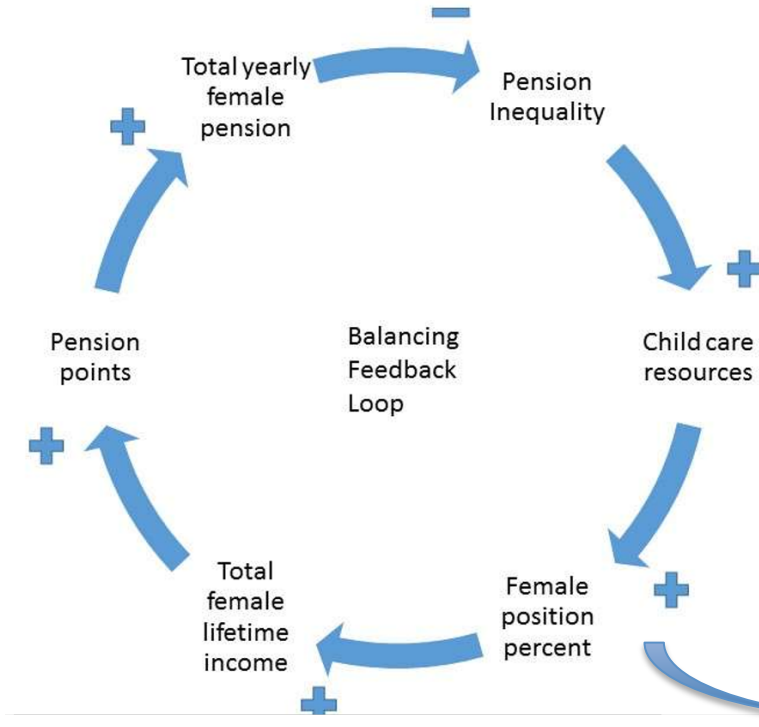


# Social Investment Strategy



# Dual earner/shared carer





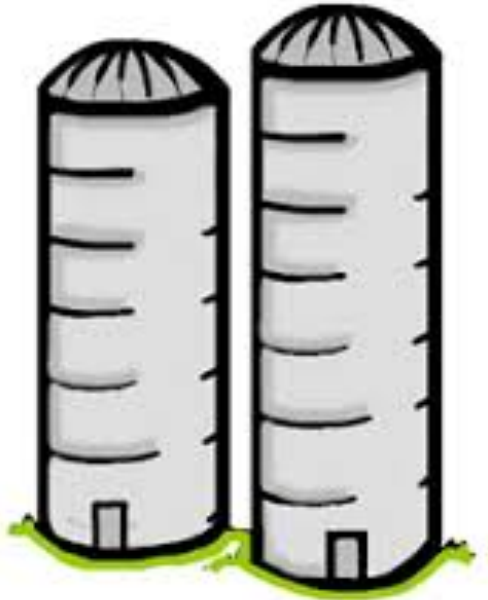
## The shared carer gap

Only up to 80%

# The issue of policy



# Engaging with Social Scientists



From Academic Silos  
to Cooperation



# Thank You!



I look forward to your comments and  
questions!