Can grandma help with the kids?  
A demographic analysis of the sandwich generation

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Are parents sandwiched or supported?

“Caring responsibilities are moving in two directions ... not only down to children, but up to the aging parents of working people”

Penny de Valk, Ceridian’s manag. dir.

“The Telegraph, June 22, 2009

“Families increasingly depend on grandparents for childcare”

The New York Times, Nov 9, 2010
What’s happening?

- Is the concept of “sandwiched mothers” consistent with demographic trends?
- Are grandparents healthy and available to help, or are they sick and a burden?
- Are grandparents sandwiched between grand-children and their own parents?
Research Aim

We want to quantify the effect of demographic change on the “sandwichness” of generations, and the availability of grandmothers to help with grandchildren.
Our approach

1. AGGREGATE ANALYSIS of care needs at the population level

2. STABLE POPULATION ANALYSIS of sandwichness and availability for comparing steady states

3. MICROSIMULATION (SOCSIM) for dynamic demography
AGGREGATE ANALYSIS
Indexes of care needs: “Total care ratio” (TCR)

\[
TCR = \frac{(\text{Children} < 5) + (\text{people dying within 5 years})}{\text{people over 20 who will survive more than 5 years}}
\]

numerator $\sim$ potential care receivers
denominator $\sim$ potential care givers
Aggregate level - stationary population

The pure effect of increasing longevity

- Higher longevity
  - Lower total care ratio

\[ \text{longer life expectancy} = \text{lower fraction of life in need of care} \]

\(\text{Age Beginning of life} \quad \text{End of life}\)
Higher longevity $\Rightarrow$ Lower total care ratio ...
Individual life course

The importance of timing
Low life expectancy

Individual life course

The importance of timing

Ego’s Life

Maternal Sandwich

Ego’s Mother’s Death

Ego’s Children Born

Ego’s Life

Grandmaternal Sandwich

Ego’s Mother’s Death

Ego’s Grandmother’s Death

Ego’s Children Born

Ego’s Life

Ego’s Mother “Available”

Ego’s Children Born
Higher life expectancy
INSIGHTS FROM STABLE POPULATION
Stable population analysis

General approach

From formal demography of kinship (Goodman, Keyfitz and Pullum, 1974), probability of living mother at age $a$: 

$$M_1(a) \approx l(\mu + a)$$

From the point of view of a newborn girl: 

$$P(Mother\ sandwiched) = M_1(5) \times P(Mum\ alive\ next\ 5\ years) \times M_2(0) \times P(Grandma\ alive) \times (1 - l(2\mu + 5\mu)) \times P(Grandma\ dies\ within\ 5\ years)$$

(Goldstein - Mason - Zagheni) NTA Conference - Dec 8, 2012 13 / 27
From formal demography of kinship (Goodman, Keyfitz and Pullum, 1974), probability of living mother at age $a$:

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$$\times M_2(0) \times (1 - \frac{l(2\mu + 5)}{l(2\mu)})$$

$$P(\text{Grandma alive}) \times P(\text{Grandma dies within 5 years})$$
Grandmothers more ‘sandwiched’

Life expectancy

Probability of sandwichness

mothers

grandmothers

generation length = 28 yrs
Availability of a 'healthy' grandmother for a child who is 5 yrs old

Probability

Life expectancy

generation length = 28 yrs
Later childbearing ⇒ less sandwiched grandmothers

Mean age at childbearing
Probability of sandwichness
mothers
grandmothers
Life expectancy = 75 yrs

0.00 0.05 0.10 0.15
Later childbearing $\Rightarrow$ less sandwiched grandmothers

![Graph showing the relationship between the mean age at childbearing and the probability of sandwichness. The graph shows two lines: one for mothers and one for grandmothers. The line for mothers slopes upward as the mean age increases, while the line for grandmothers slopes downward. Life expectancy is 75 years.]
DYNAMICS OVER TIME: MICROSIMULATION
SOCSIM

A computer program developed at UC Berkeley for kinship microsimulation.

It allows us to:
- Relax the stable population assumptions (e.g., two-sex population).
- Reconstruct the dynamics of sandwichness for the 20th century U.S., and make predictions for the future.
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Microsimulation U.S.A. - Sandwichness over time

Proportion

Year

grandmothers sandwiched

mothers sandwiched
Mean person-years in maternal sandwich

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Grandmother alive and healthy

... and available (her parents dead or healthy)
Female labor force participation at age 60
Conclusion

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▶ Will grandma "multitask" in the future?
Thank you

Acknowledgements: Gretchen Donehower, for the SOCSIM input rates for the U.S.