Economic Analysis of Household Production

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Introduction

- Traditional time allocation models in economics assume that individuals allocate their time to either market labor or leisure.

- Trade-off between consumption and leisure, over which individual has preferences.

- Ignores that not all time not spent on market labor is leisure (e.g., care for children, elderly care or time spent on household chores).

- Important implications for welfare recommendations given the biased individual welfare levels.

Introduction

- 50 years ago, Gary Becker published "A theory of the allocation of time" in the *Economic Journal*.

- This paper laid the foundations of household production theory, together with Gorman (1956) and Lancaster (1966).

- Basic idea: households combine market goods and time to produce nonmarket goods (e.g., a clean home, child rearing or eating).

- Households have preferences over bundles of nonmarket goods.

Introduction

- Becker assumed that households behave as single decision-makers.

- This approach suffers from methodological and empirical deficiencies.

- Alternative and nowadays very popular approach in economics is Pierre-André Chiappori's collective model.

- Each household member has her or his own preferences, while there is an intra-household allocation process of resources.

Introduction

- The collective model allows researchers to give answers to questions like:
  - How many hours will be spent on market labor?
  - How will the time spent on household production be determined?
  - What is the intra-household allocation of time and income?
  - How much income is needed to be as well off as a single than when living in a couple?

Overview

- Some figures.
- A collective model with household production.

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- Recent Dutch data drawn from the LISS panel of CentERdata (Tilburg University).

- Longitudinal study on changes in life course and living conditions of panel members.

- Core survey contains detailed information about work, economic situation, health, personality, etc.

- Additional questionnaire on individual consumption and time use.

Working couples without children

	Wife	Husband	Family
Own expenses (euro per month)	434	411	
Expenses on children (euro per month)			0
Other public consumption (euro per month)			2122
Market labor (hours per week)	31,2	39,0	
Child care (hours per week)	0	0	
Household chores (hours per week)	15,9	7,8	

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47,1   46,8

Working couples with children

	Wife	Husband	Family
Own expenses (euro per month)	394	379	
Expenses on children (euro per month)			487
Other public consumption (euro per month)			2254
Market labor (hours per week)	26,7	41,5	
Child care (hours per week)	14,7	9,6	
Household chores (hours per week)	17,3	9,2	

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	58,7	60,3	

Overview

- Some figures.
- A collective model with household production.

A collective model with household production

- Based on Cherchye, De Rock and Vermeulen (2012, *American Economic Review*).
- Building blocks:
  - Individual preferences.
  - Home production technologies.
  - Time and budget constraints.
  - Intra-household bargaining process.

Individual preferences

- Individuals have preferences over bundles of goods and leisure.

- Some commodities are privately consumed (e.g., food or clothing).

- Some commodities are publicly consumed (e.g, rent or heating).

Home production technologies

- Children's well-being is a public good for parents.

- It is produced by expenses spent on children (e.g., food, schooling, clothing or toys) and time spent on children by parents.

Time and budget constraints

- Individuals are faced with a time constraint: only 164 hours per week available.

- Households are faced with a budget constraint (every euro can only be spent once).

Intra-household bargaining process

- Individual preferences may differ.

- Implies that household choices do not fully reflect individual preferences.

- It turns out that household choices are influenced by individual bargaining positions.

- Bargaining positions generally depend on individual wages, own non-labor incomes, position on the marriage market, etc.

A collective model with household production

- The model is able to explain earlier figures.

- It allows to evaluate policy changes (e.g., of tax system or social security) at the individual rather than the household level.

- It allows to give answers to questions about the amount of alimony or compensation in cases of wrongful death via indifference scales.

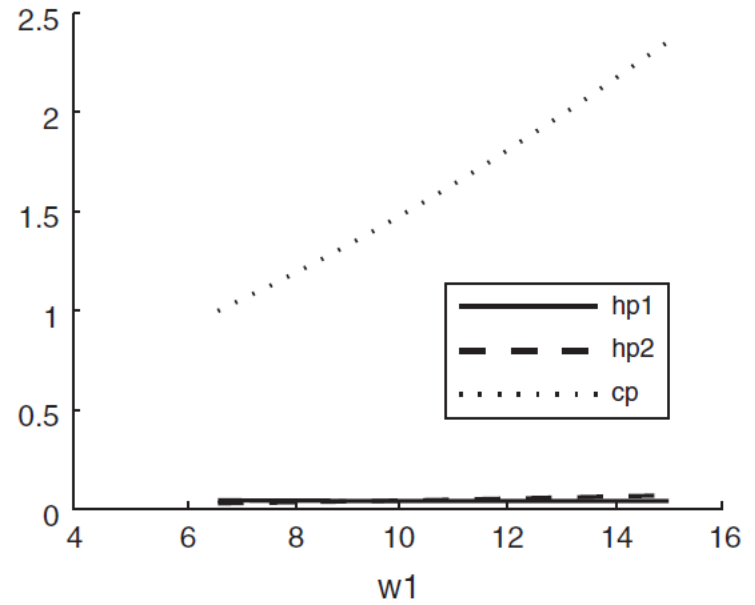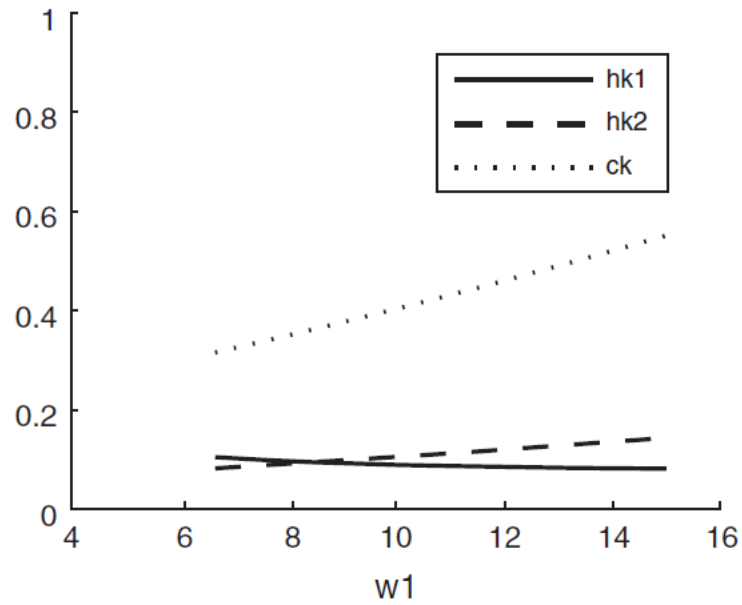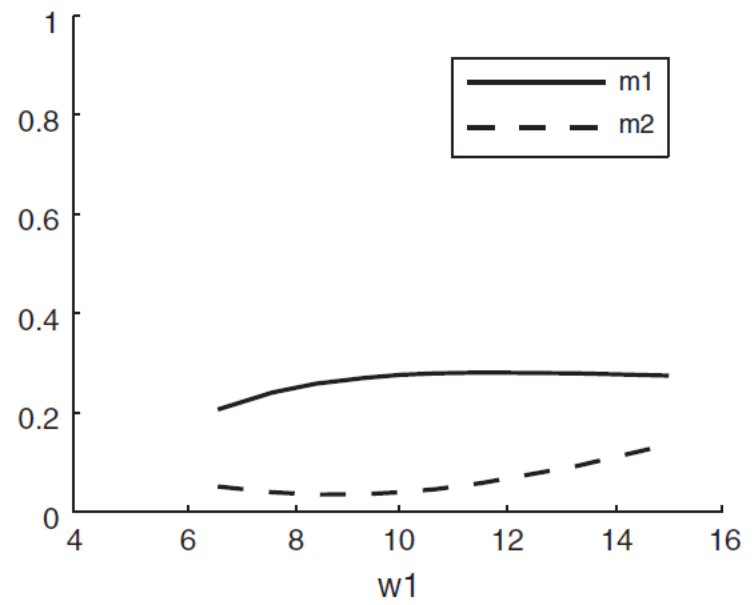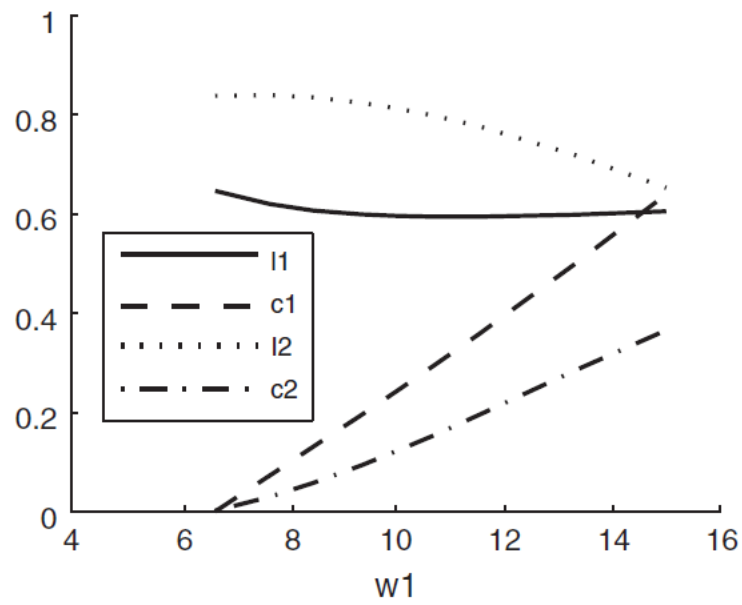- Crucial technical challenge: identification of the different building blocks of the model.
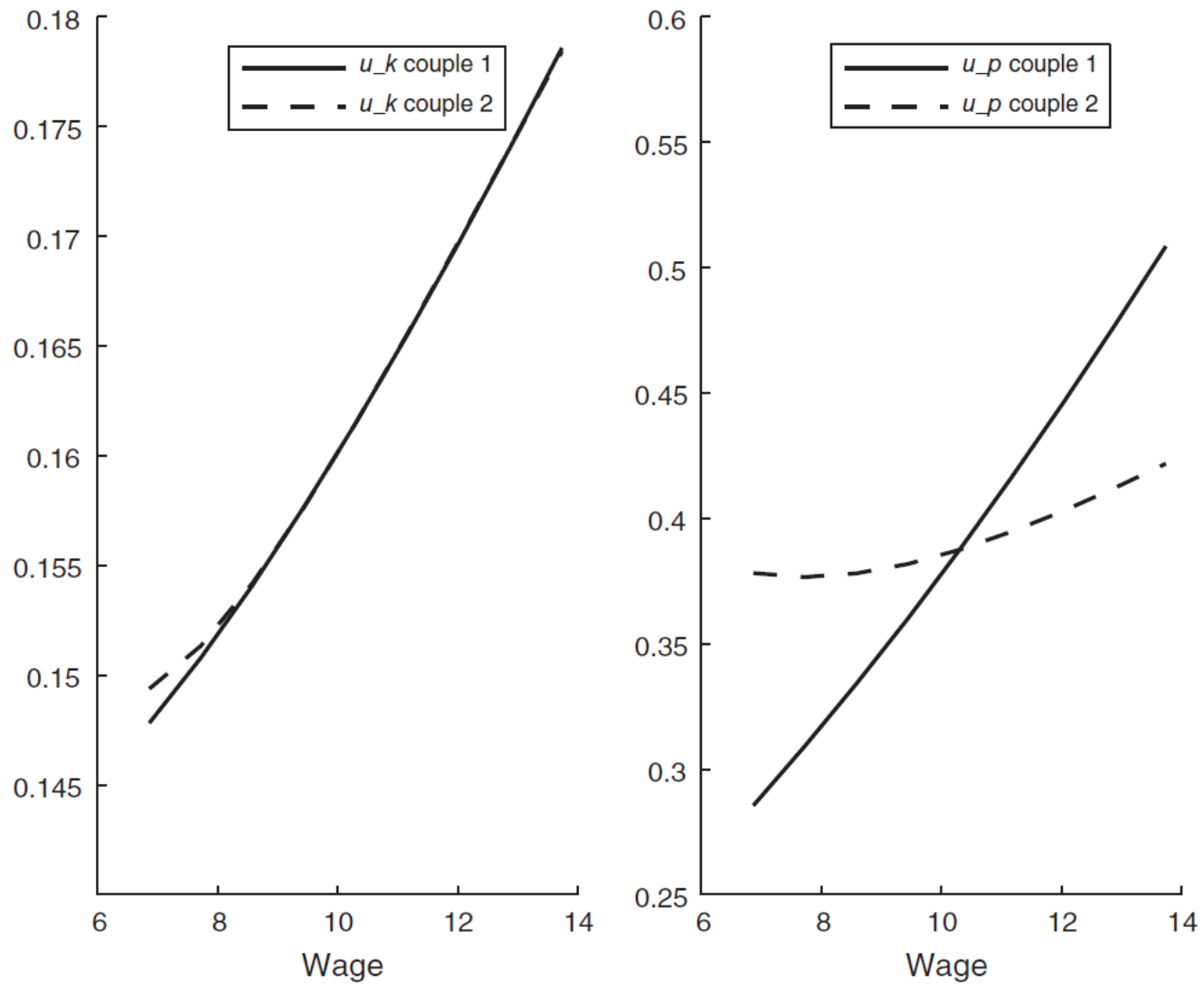
FIGURE 1. IMPACT OF CHANGE IN MALE WAGE ON DEPENDENT VARIABLES

FIGURE 3. IMPACT OF CHANGE IN MALE AND FEMALE WAGES ON DOMESTIC GOODS

TABLE 4—TYPE 1 INDIFFERENCE SCALES

	One child		Two children		Three children	
	Husband	Wife	Husband	Wife	Husband	Wife
First quartile's full income	0.66	NA	0.66	NA	0.66	NA
Median full income	0.65	NA	0.65	NA	0.65	NA
Third quartile's full income	0.66	NA	0.66	NA	0.66	NA

Notes: Indifference scales keep the spouses' utility constant across both living arrangements. The scales were numerically obtained. The abbreviation NA reveals that the scale cannot be calculated without violating an individual time constraint.