Economics of the Household, the WIHO model, and the Gender Gap in Economics

Keynote address delivered at the Second SEHO meetings, Paris, May 23, 2018

Shoshana Grossbard
San Diego State University, CES, and IZA

Plan for this lecture

Part I. In Gratitude

Part II. The WIHO model
        IIA. Origins
        IIB. The basics

Part III. Applications of the WIHO model
   IIIA. Quantity-related outcomes
        IIIB. Price-related outcomes

Part IV. Gender and Economics of the household
   IVA. A Historical Perspective
        IVB. Analyzing Citations of Household Economics Articles

Part I. In Gratitude

The founders of the New Home Economics (NHE). Their legacy lives on
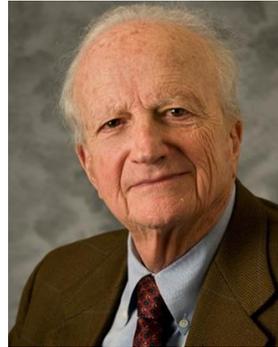

Gary Becker (Nobel prize 1992),   Jacob Mincer,
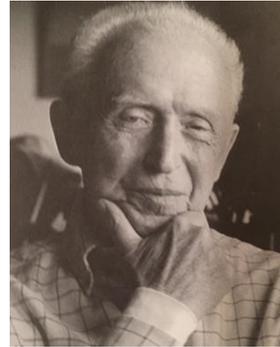
## "Households are like firms."

Their legacy lives on, especially here today at the Second Annual Meeting of SEHO
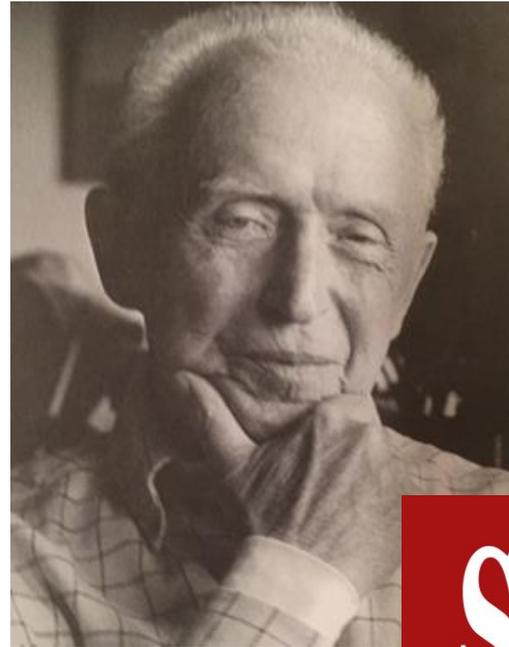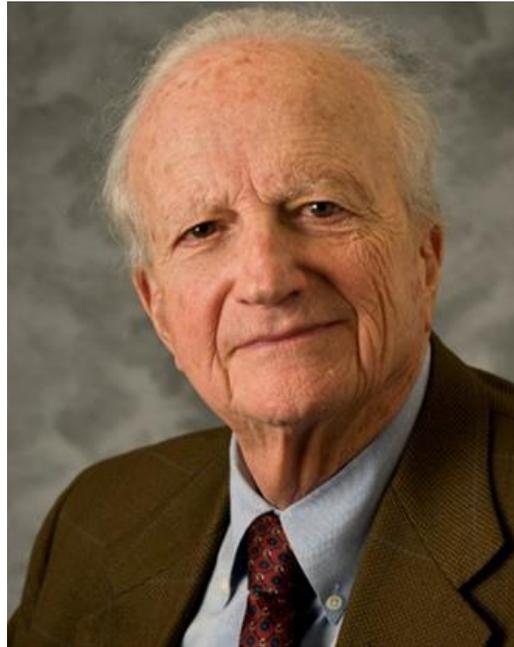
Part II. The WIHO model
II.A Origins

1972 – 1976: at the University of Chicago

H. Gregg Lewis
Economist
May 9, 1914 - January 25, 1992
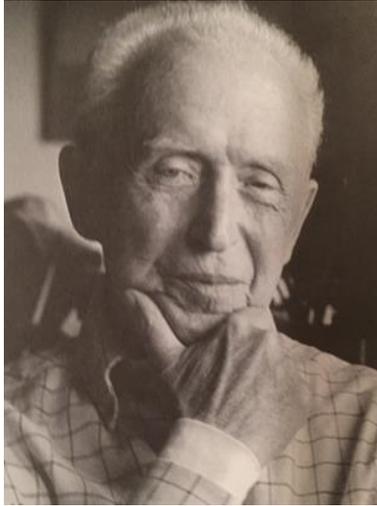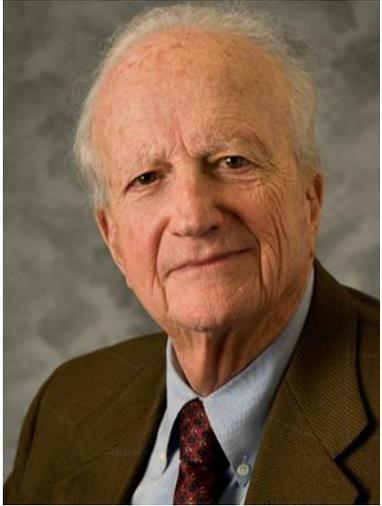
- While a student at the University of Chicago, I took courses with Becker and Mincer. I also studied labor economics with H Gregg-Lewis.

Milton Friedman
(Nobel prize 1976).
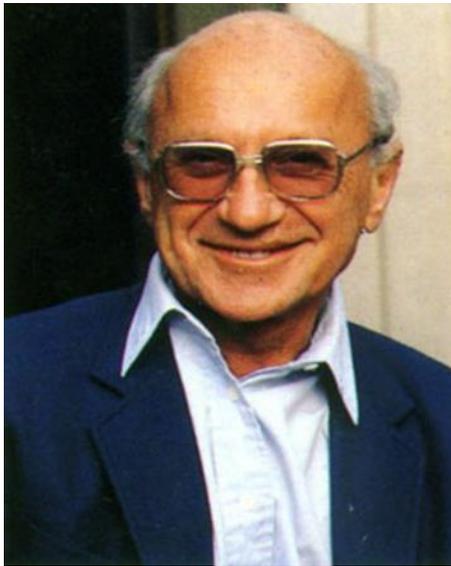
"" **Power to Prices!** ""

"" **Models should
be simple** ""

The price mechanism and D&S models have an elegant way to help
integrate the analysis of production, allocation and distribution.

S. Grossbard SEHO 2018

Economics of Polygamy

T.W. Schultz provided the topic and the Nigerian data. Gary Becker agreed to chair my dissertation committee and got me on a Sloan scholarship.
Also on my committee at some point were Jim Heckman, Ed Lazear, and William (Buz) Brock.

T.W. Schultz
Nobel prize 1979

Jim Heckman
Nobel prize, 2000

Ed Lazear

The Kanuris of Nigeria (most respondents in my data)

- Men: control the land, have monopoly on paid jobs and get child custody

- Women:
  - don't own land, don't have paid jobs, and don't keep their children in the case of divorce.
  - do most of the work in the household

Birth of WIHO model
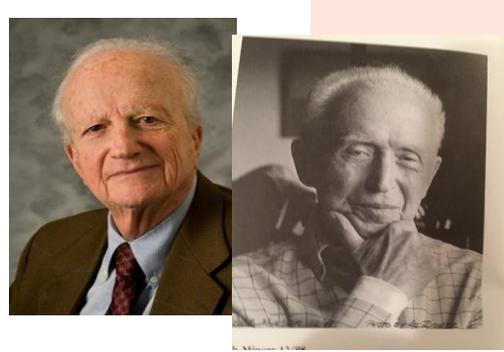
New Home Economics
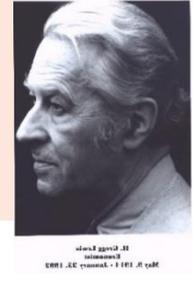
Labor economics

Life among the
Kanuris

Price theory
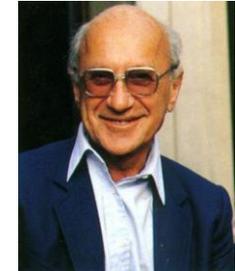
Simple models

Modeling markets for workers
engaged in household production
as labor markets

Part II. The WIHO model
II.B The basics

Define WIHO (**Work-in-Household**) as **time in household production that benefits the spouse or partner.**

Apply standard labor market analysis assuming that **prices** exist

First Step Individual optimization.

WIHO involves an **opportunity cost on the part of the worker.** Upward-sloping supply. *In my dissertation I assumed traditional gender roles*
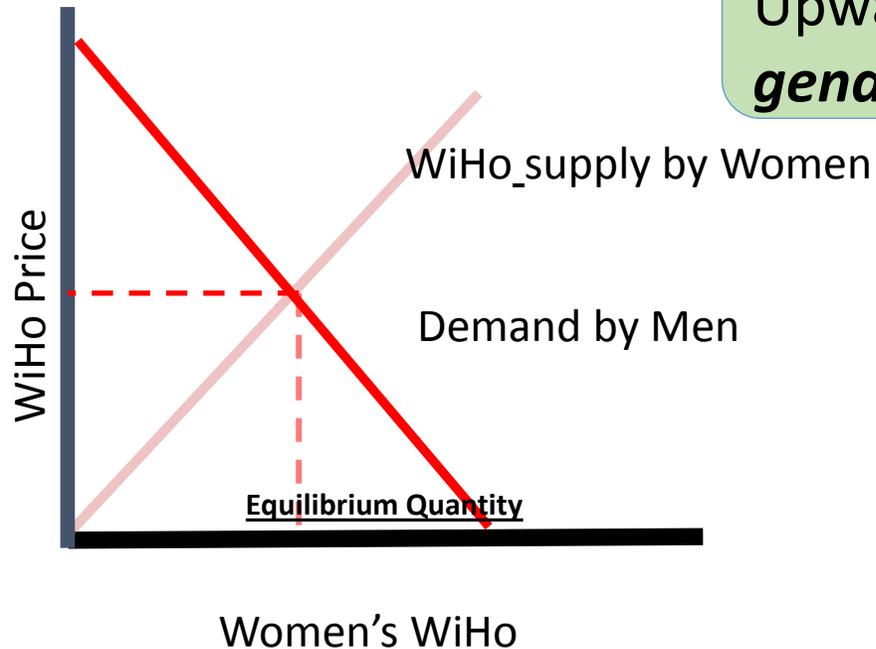
For those who employ WIHO: Downward-sloping demand for same reason demands for other types of work slope down.

Aggregating all demands and all supplies leads to **Markets for WIHO** that are both marriage markets and labor markets

WiHo Price

WiHo supply by Women

Demand by Men

Equilibrium Quantity

Women's WiHo

Second step: Markets establish equilibrium prices and quantities

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It is assumed that the price mechanism is working

Far-fetched assumption?
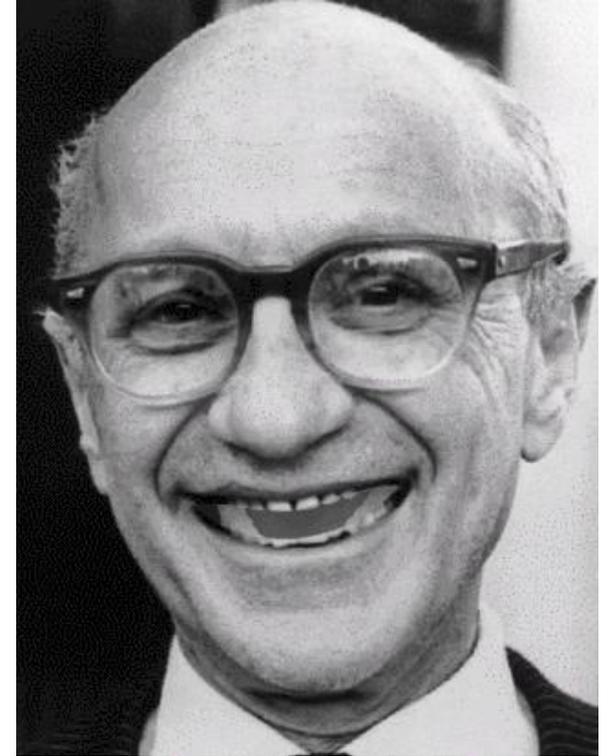
Do these MBA students at Columbia Business School have a sense of their price?

My students at San Diego State University watching this video: really surprised.
(San Diego State caters mostly to students from lower Middle class families)

Could it be that my students were surprised because they perceive that the price of WIHO for those attending Columbia University exceeds the WIHO price that WIHO workers can get if they graduate from San Diego State?

All the following applications of the model are about

HOW a market factor

Defined as a factor influencing D, S or both, and therefore influencing equilibrium P and/or Q.

may affect an outcome

Quantity-related outcomes

(1) polygamy rate.

(2) NUMBER EMPLOYED: Marriage, cohabitation and divorce rates (Same-sex and mixed-sex couples)

(3) HOURS: Time working in household production

Price-related outcomes

(4) Individual consumption and household finance,

(5) Participation in labor force

(6) Fertility in and outside marriage…

Note: The WIHO model also applies to **extended families**, not only couples.

Part III. Applications of the WIHO model

IIIA. **Quantity-related outcomes**

The WIHO model helps understand:

Quantity-related outcomes

(1) Outcome: Polygamy (application that inspired the WIHO model)

(2) NUMBER EMPLOYED: Marriage, cohabitation and divorce rates,

(3) HOURS: Time working in household production

Price-related outcomes

(4) Individual consumption and household finance,

(5) Participation in labor force

(6) Participation in welfare programs

(7) Fertility in and outside marriage…

Assuming trad'l gender roles and only one type of woman. Two types of men. Wealth associated with increased demand

y, Price of WiHo

Supply of WiHo by women

Higher price

Equil price

Demand by wealthy men

Demand by poor men

Equil quantity

Hours of women's WiHo,

Number of wives
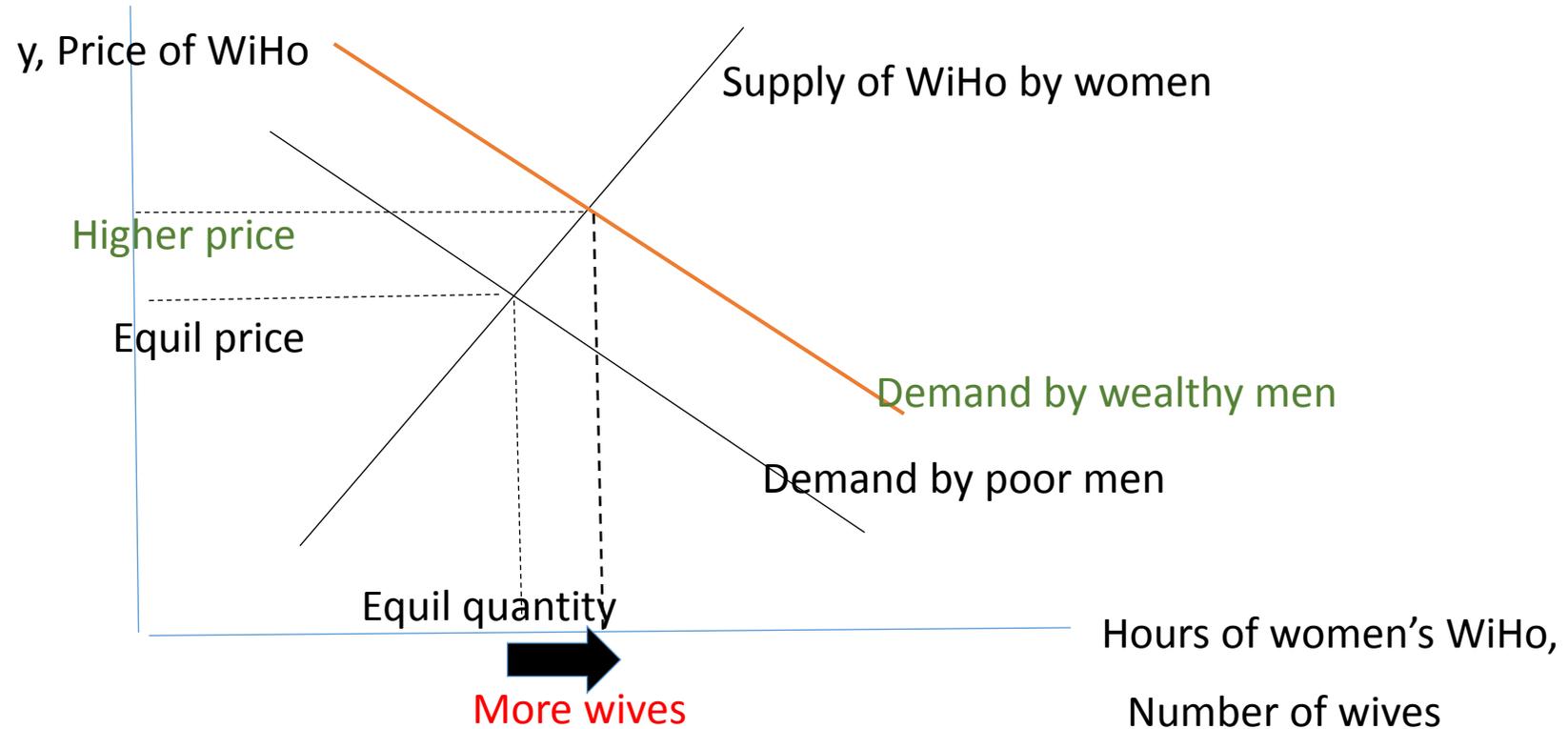
More wives

A Market for Women's WiHo benefiting Men

Prediction : wealthier men have more wives.

Note: Becker 1973 had same prediction

Skilled (educated) WIHO workers get higher price and can translate their higher price into **bargaining out of polygamy** ➜ women have fewer co-wives.

Prices thus set limits to bargaining and facilitate deal-making.

Reminder**: all market models (labor market models, WIHO market models..) are also bargaining models**.

Empirical Finding: Every year of **schooling** (secular or Muslim) reduces likelihood that a woman has co-wives.

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An Economic Analysis of Polygyny: The Case of Maiduguri

Amyra Grossbard

Abstract   Cited by   PDF

Abstract
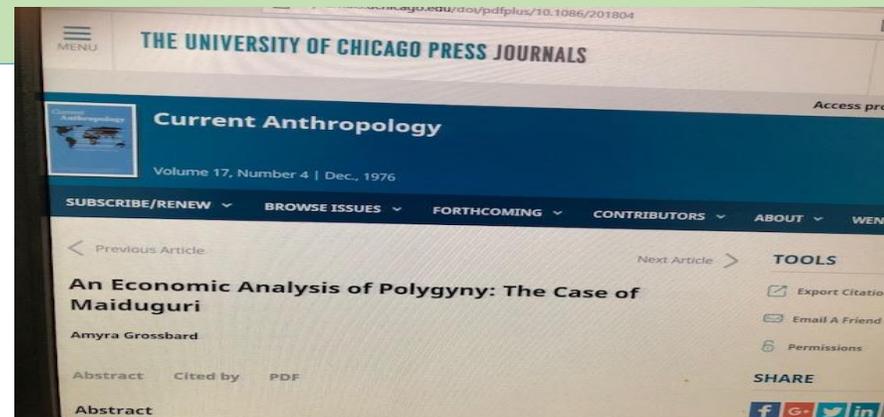
The WIHO model also helps understand:

Quantity-related outcomes

(1) polygamy rate

(2) NUMBER EMPLOYED: Marriage, cohabitation and divorce rates [skipping for now]

(3) HOURS: <mark>Time working in Household Production or WIHO-time</mark>

Price-related outcomes

(4) Individual consumption and household finance,

(5) Participation in labor force

(6) Participation in welfare programs

(7) Fertility in and outside marriage...

Assuming that some White women discriminate against Black men

We juxtapose two markets: those for WIHO in WW (White-White) couples and those for WIHO in WB (White-Black) couples

Assuming that productivity of women's WIHO does not depend on husband's race ➔ **Demand D does not depend on whether marriages are WW or WB**

y, price of
Women's WIHO

S'_{WB}

S_{WW}

y_{WB}

y_{WW}

D

White Women's WIHO

Q_{WB} Q_{WW}
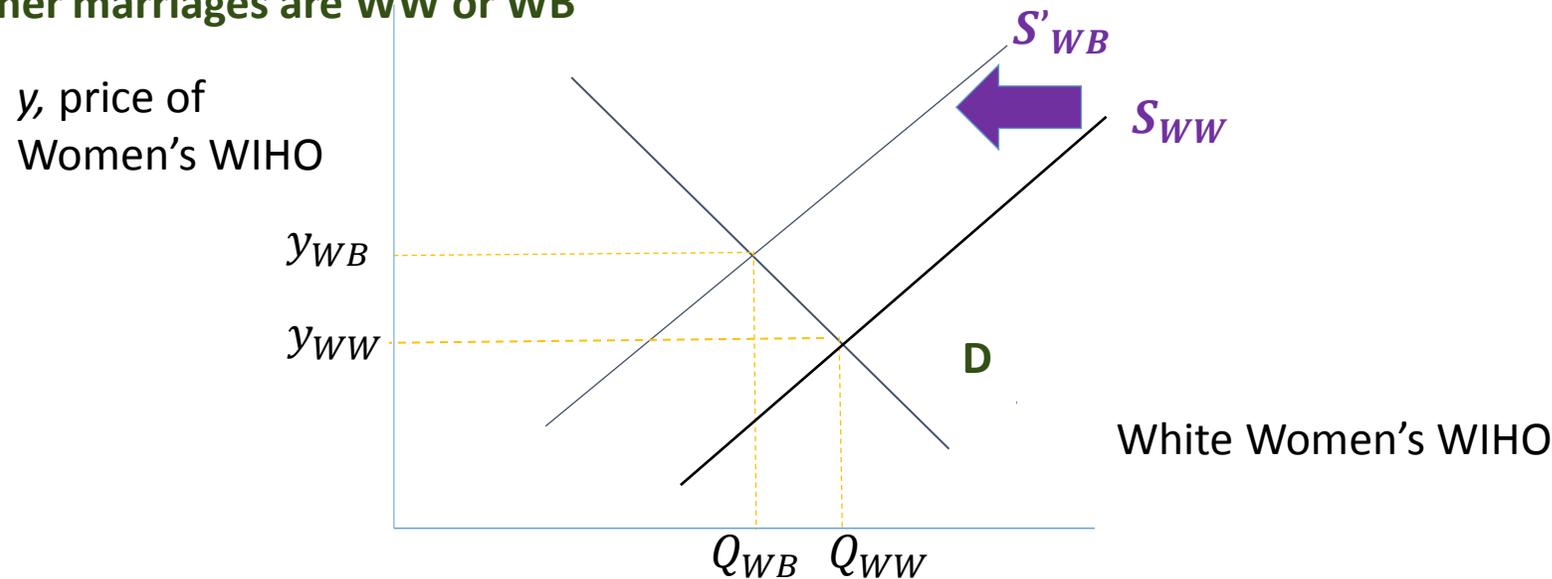
Because of discrimination, **Supply** of White women in market for marriages between White women and Black men **S' lies** to the **Left** of S, supply of White women in market for WW marriages

Prediction: White women married to Black men work fewer hours in WIHO than White women in WW couples

$$y_{WB} > y_{WW}$$

Finding: Relative to White women in couple with White men, White women in couple with Black men devoted about **0.33 fewer hours per day** to *Chores*.

Implication: Black men appear to pay a **price for getting same amount of WIHO from a White partner** relative to what a White man needs to pay.
We also have less robust evidence that Black women also pay such price when intermarried to White men

Related research suggesting there is discrimination against blacks in marriage markets: Hamilton, Goldsmith and Darity (2009) found that the darker a woman's skin, the less she is likely to be married.

Reference: Shoshana Grossbard, Jose Ignacio Gimenez and Jose Alberto Molina. "Racial Intermarriage and Household Production", *Review of Behavioral Economics*, 2014.

Part III. Applications of the WIHO model
IIIB. **Price-related outcomes**

S. Grossbard SEHO 2018

Price-related outcomes
(4) Individual consumption and access to household finances
(5)Participation in labor force
(6)Fertility in and outside marriage…

- Many theories lead to the insight that the higher the own income of an individual member of the household, the more she or he is likely to consume the private goods they prefer, starting with Becker's (1973) theory of marriage.

- Prediction also flows out of the WIHO model: if WIHO worker gets paid more, her or his **individual disposable income** is higher and that individual's assignable consumption is higher.

- <u>Evidence</u>: see work by Lundberg, Pollak, Chiappori, Porter, etc

Definition of sex ratio: the ratio of the Number of men in a marriage market divided by the Number of women

Becker (1973) first to introduce sex ratios into economic analysis
He predicted that Higher sex ratio (more men to women) ➜ women get more assignable consumption

Recent evidence: Porter, Maria. "How do sex ratios in China influence marriage decisions and intra-household resource allocation?" *Review of Economics of the Household* 2016 vol 14(2): 337-371

Also follows from the WIHO model
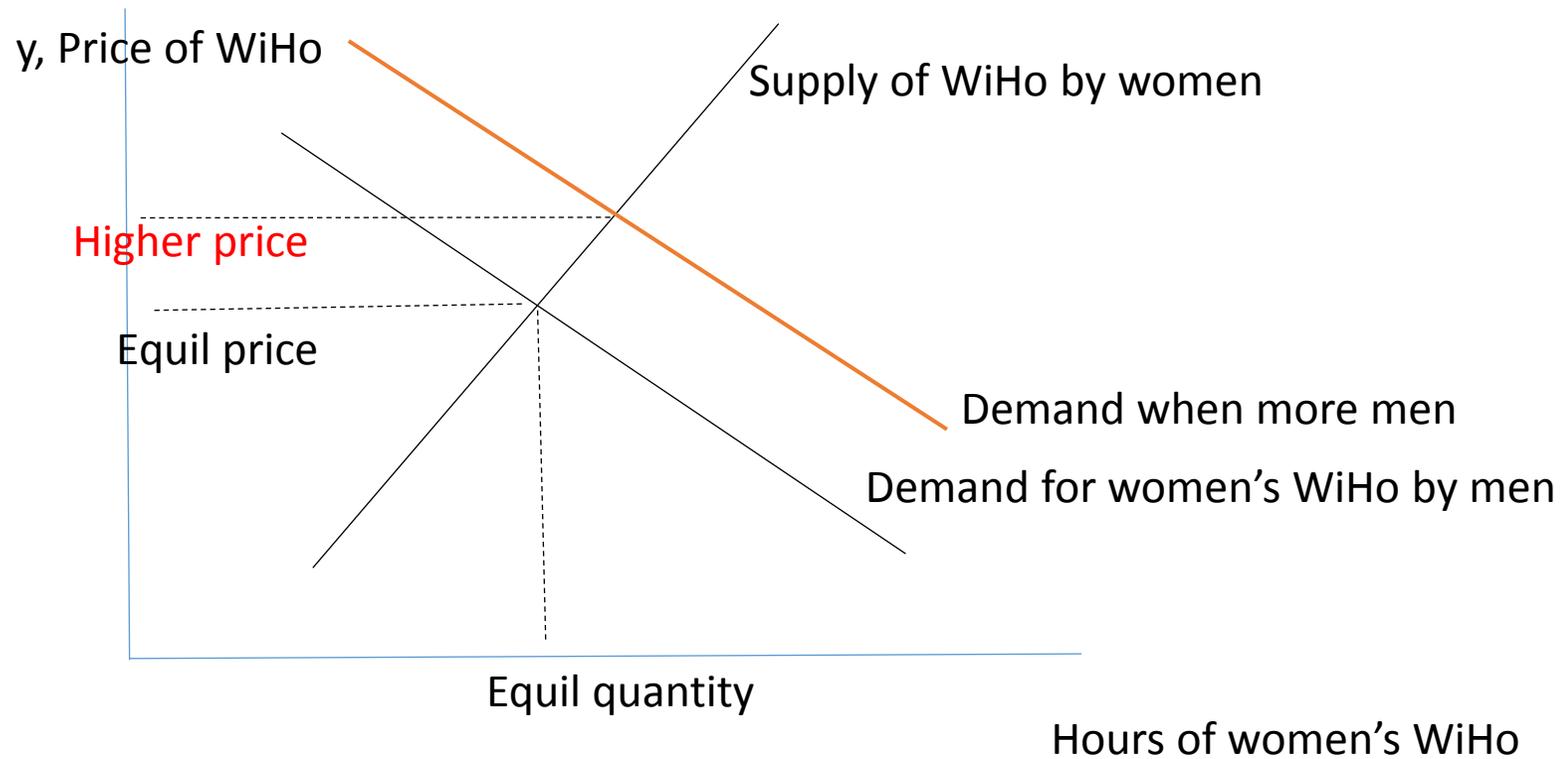
A Market for Women's WiHo

Higher sex ratios ➔ higher price of WIHO (y is higher) ➔ higher disposable personal income and more buying power. Assuming traditional gender roles

Price-related outcomes

(4) Individual consumption and household finance,

(5) labor supply

(6) Fertility in and outside marriage…

Applications of the WIHO model to LABOR ECONOMICS

According to the NHE models of labor supply: **individuals (housewives, for example) don't need to be paid to** give up their leisure time. They assume
- An individual's time is OWNED by the household.
- Unitary firms/households have no conflicts over Who does What? Sufficient pay?

In contrast, according to the WIHO model: Possible conflicts between worker and firm RE pay and workload.
I started to work on this while at Stanford University's Center for Advanced Study in the Behavioral Sciences   1980-1981

WIHO model: price of WIHO (y) and wage (w) for labor both provide incentives to work. Rational individual compares those prices.

Define for individual i

MU: marginal utility
x: Commercial goods and services
s: Time for self
l: Labor in labor market
h: Household (household) labor benefiting the spouse. WIHO

$$y + \frac{MU_{hi}}{MU_x} = w + \frac{MU_{li}}{MU_x}$$

Total compensation and benefits per hour of WIHO

total compensation per hour of work in the labor market

y is higher ➜ individual less likely to work in labor force
In other words, individual more likely to OPT OUT

Higher sex ratios could be one reason why the price of WIHO y is higher

Higher sex ratios ➔ higher price of WIHO (y is higher)

y, Price of WiHo

Supply of WiHo by women

Higher price

Equil price

Demand when more men

Demand for women's WiHo by men

Equil quantity

Hours of women's WiHo
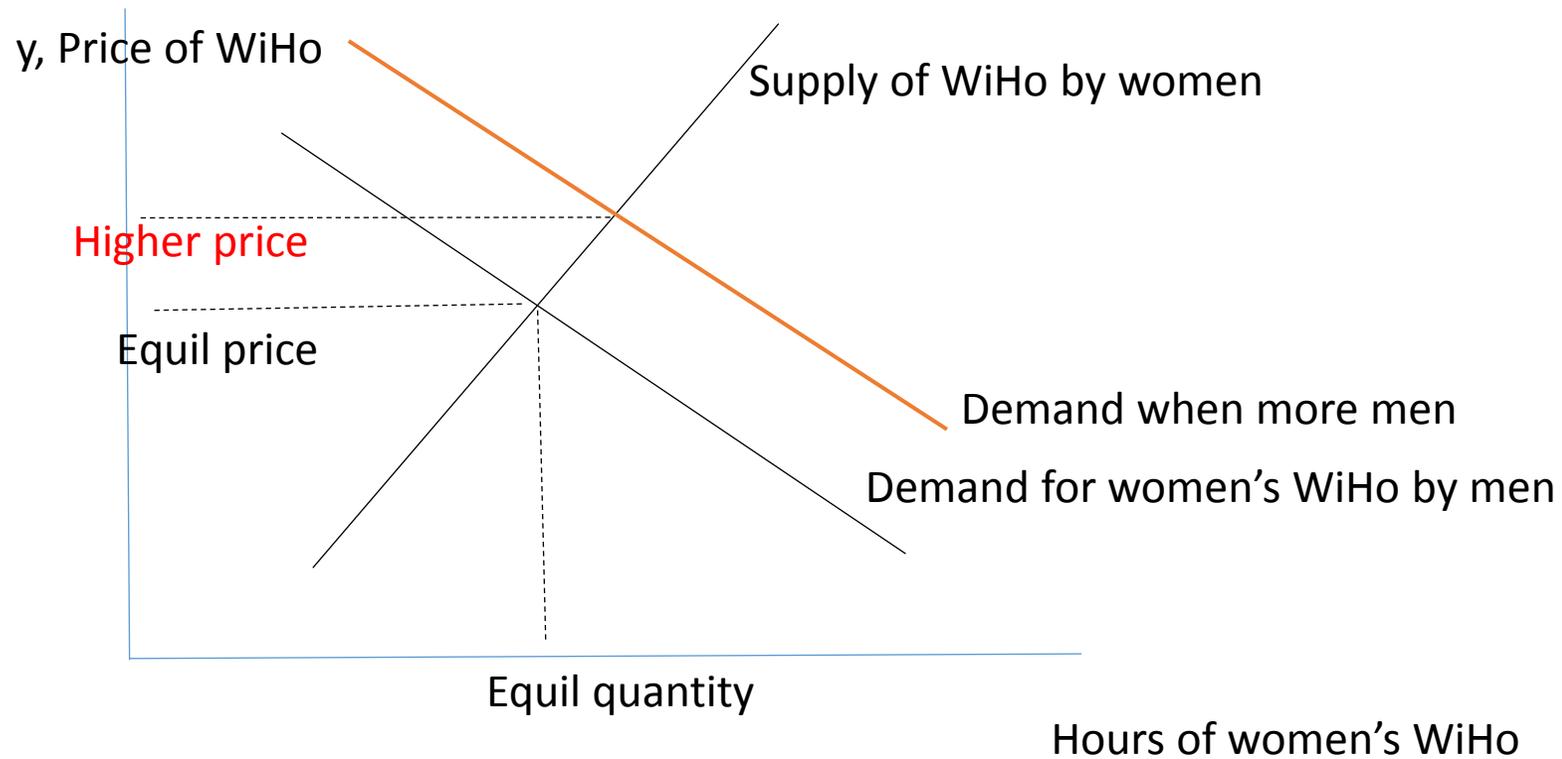
A Market for Women's WiHo benefiting Men

Reference: More complete model in Grossbard-Shechtman (1984), "A Theory of Allocation of Time in Markets for Labor and Marriage." *Economic Journal* 94:863-82. The Marriage Motive 2015

Evidence

A/ from cross-section analysis for US data:

Chiappori Pierre-A, Bernard Fortin and Guy Lacroix . "Marriage market, divorce legislation and household labor supply." *Journal of Political Economy* 110:37-72 (2002)

Shoshana Grossbard-Shechtman and Matthew Neideffer, "Women's Hours of Work and Marriage Market Imbalances," in Economics of the Family and Family Policies, edited by Inga Persson and Christina Jonung, London: Routledge, (1997).

B/ from cohort analysis:

Best empirical tests of the prediction that sex ratios influence women's LFP based on fluctuations in cohort size over time (not endogeneous; natural experiment)

The catch: on average men are older than women.

Assuming a constant age difference at marriage, in the U.S.A. over the period 1965-2005, the cohort-level SR fluctuated between .87 (cohort of women born 1946-50) and 1.07 (cohort of women born 1971-75)

Babyboom	1946-1960	1971-1985	Low SR	High FLFP
Babybust	1971-1975	1996-2000	High SR	Low FLFP

In addition to well-known reasons for education positive effect on productivity and therefore wage offers, education could also boost price of WIHO

Finding: when they have children women who went to elite colleges are more likely to opt out of labor force than women who went to less prestigious colleges

Reference: Joni Hersch "Opting Out among Women with Elite Education" **REHO 2013**
http://link.springer.com/content/pdf/10.1007%2Fs11150-013-9199-4.pdf

- Joint custory laws can be interpreted as leading to a reduction in men's demand for women's WIHO if WIHO includes women watching men's kids before and after a divorce. This would reduce the price of WIHO and given the equilibrium condition

$$y + \frac{MUhi}{MUx} = w + \frac{MUli}{MUx}$$

- **Prediction: Women spend more time in the labor force as a result of these laws, even while married.**

- Finding: States in the USA have adopted joint-custody laws at different times. Married mothers spend 8% more time in the labor market after passage of joint custody laws

- Reference: "Child-custody Reform and the Division of Labor in the Household" by Duha T. Altindag, John Nunely, and Alan Seals (REHO, September 2017)

The WIHO model helps understand:

Price-related outcomes

(4) Individual consumption and household finance,

(5) Participation in labor force

(6) Out-of-couple motherhood

Legal changes and children born out-of-couple

- Out-of-couple: out-of-marriage or out-of-cohabitation
- Laws may affect compensation for WIHO-work relative to other options open to WIHO-workers or WIHO-employers
- Bearing and raising a partner's child often includes WIHO elements (but not necessarily)

Example 1: New Zealand replaced common-law based rules for division of property in case of separation (death or divorce) with rules based on community property.

Better protection for married mothers implies a higher price for their WIHO ➜ higher proportion of births in couple

Evidence: Shoshana Grossbard and Olivia Ekert-Jaffe"Does Community Property Discourage Unpartnered Births?" *European J of Political Economy* 24(1):25-40, 2008.

Conclusions about the WIHO model

Has at least three advantages:

1. It can explain many outcomes, including marriage rates, labor supply, and single parenthood.

2. It helps analyze potential effects of multiple explanatory factors including education, sex ratios, legal changes.

3. The model is simpler than Becker's and most other models I am familiar with. You would think that is an advantage (especially if you were influenced by Milton Friedman)

The WIHO model is not particularly popular. Why? Could it have anything to do with gender?

- This gets very tricky: would my model have been received differently if I were a man? I can't answer that. Instead, I will provide you with a bit of extra information about gender and household economics.

Part IV. Gender and Economics of the Household

IV. A Historical Perspective

The material in this section is joint research with Andrea H. Beller, University of Illinois – Urbana, "Gender and economics of the household: a historical perspective", and is based in part on our recollections about Economics at Columbia University and at the University of Chicago.

At Columbia's Labor Workshop

- <u>1960- 1970</u>: The New Home Economics (NHE) starts when both Becker and Mincer are at Columbia University and run the Labor Workshop together.

- Major themes covered in the workshop: Household Economics, Human Capital, and Discrimination

- <u>1970-1975</u>: After Becker leaves Columbia for Chicago (officially in 1970), Mincer continues to run the Labor Workshop, initially joined by William Landes and James Heckman.

At Columbia's Labor Workshop: Gender

- The workshop attracted an extraordinarily high proportion of women working towards a doctorate: In 1970, women comprised about 50% of those attending the Workshop.

- Of the female doctoral students attending the workshop around 1970 many wrote on **demographic economics**, but a majority wrote on **Human Capital and Discrimination**. Many of the women who came out of the workshop during that period had very successful (academic) careers, including Arleen Liebowitz, June O'Neill, Linda Nasif (Edwards), Marjorie Honig, Ann Bartel, Andrea Beller, and Cordelia Reimers.

- Most influential students are all men. For example, according to REPEC five male students got into the top 5 percent in terms of their Euclidian citation score: Michael Grossman, George Borjas, Mark Rosenzweig, Barry Chiswick and Sol Polachek. None of the women did. They all have influential articles **related to demographic economics** (health, migration, fertility, gender and work **BUT NOT economics of marriage**).

- (https://ideas.repec.org/top/top.person.euclid.html)

At Chicago in the period 1970-1980.

- In contrast to Columbia, most students in the department are men, and this is also the case in Becker's workshop (who arrives in 1969-1970).

- Few students write on demographic economics. A few write on economics of marriage: Alan Frieden, Michael Keeley, and Grossbard. In addition, Nigel Tomes writes on economics of the family and coauthors with Becker. Nobody in REPEC top 5% today

- Of the women who attended Becker's workshop a majority wrote on topics other than economics of the family.

Columbia vs Chicago when NHE developed

Columbia around 1970

- Higher % of women students
- Labor workshop
- More **demographic economics**
- **Becker** writes on allocation of time and human capital
- A number of students graduating during this period eventually reach **academic prominence**

Chicago 1970 to 1977

- Lower % of women students
- Workshop in applications of economics
- Fewer students write on demographic economics
- **Becker** writes Treatise on the family, with **Marriage** prominent topic
- None of Becker's students during this period have so far reached **academic prominence**

At both Columbia and Chicago

- Some of the male students offered opportunities to co-author with Becker or Mincer. Only female student writes with Becker: Lisa Landes who is married to Bill Landes. Becker was also instrumental in getting jobs at Chicago to Columbia students Bob Michael, Bill Landes and Gilbert Ghez.

- Few students make theoretical contributions. Among the ones who did
  - at Columbia: Chiswick, Grossman, Ghez, Polachek. Not related to the economics of marriage. Three of those eventually reach high citation impact.
  - at Chicago: Keeley, Grossbard in the area of economics of marriage.

In the 1970s, and lasting until?

- Commonly held negative opinions about economics of marriage in the Becker tradition
- Negative evaluations of Becker's economics of marriage expressed by right-wing male economists (personal testimonies in the late 1970s and 1980s)
- Feminist critique of Becker's economics of marriage among feminist economists led by prominent Barbara Bergmann and featured in the first issue of the journal **Feminist Economics** (1995).
- Economists on the right and the left may thus have had a preference against Beckerian models of marriage. Could be described as a taste for discrimination.

Part IV. Gender and Economics of the Household

IV. B Analyzing Citations of Household Economics Articles

Modified after the Paris keynote lecture on June 12, 2018

- This portion of my talk is based on work-in-progress with Tansel Yilmazer, Ohio State University, and Lingrui Zhang, San Diego State University

- If you want to know more about this research please contact me at sgrossba@sdsu.edu. We expect to soon have a working paper ready for circulation.

Gender gap in citations?

❖ Which articles get cited more? Those authored by men (MA) or those authored by women (FA)?

❖ Previous literature has not found a clear gender gap. For instance, Hamermesh's based on a recent analysis of citations of articles published in **top 5 econ** journals. Gender defined as AT LEAST ONE FEMALE COAUTHOR

❖ We study citations to articles published between 2003 and 2014 in **two journals specialized in household economics** and population economics: the *Journal of Population Economics* (JPOP) and the *Review of Economics of the Household* (REHO).

We find that women are cited more when they publish in female subfields. Why?

- Homophily? But the majority of economists are men…

- Could there be discrimination against women in these fields in other journals? This would imply that articles published by women in JPOP and REHO (especially in these female subfields) are relatively better than those published by men

A few concluding thoughts

- A conclusion from the last segment: women publishing in JPOP or REHO and specializing in **demographic economics** (includes study of marriage and fertility) seem to benefit more than men in terms of their citation counts. This could be due to the higher quality of their articles, in turn the result of discrimination against female-authored articles at higher-ranking journals. It could also be the result of women in these fields being less likely to be appointed at top econ departments and discrimination by top journals against faculty from lower-rank institutions

- One conclusion from the segment about the NHE at Columbia and Chicago: students of Becker (and Mincer) at Columbia and Chicago who have been most successful in terms of their cumulative impact today: five men, all have influential research related to **demographic economics.**

- The WIHO model, I presented in the first segment, belongs to the **demographic economics** subfield and is mostly about **Marriage**. Could economics of marriage in the Becker tradition have been the object of discrimination more than other applications of economics? More than other applications in the NHE tradition? Further work should explore relative citations of articles in the field of economics of marriage relative to other topics included in demographic economics or inspired by the NHE.