Does Female Empowerment Promote Economic Development?

Matthias Doepke (Northwestern)
Michèle Tertilt (Mannheim)

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Evidence

Development Policy

- Based on this evidence, various development policies and programs target women.
- Prominent examples:
    - Microcredit.
    - Conditional cash transfer programs (PROGRESA).

Paul Wolfowitz 2006: *"women's economic empowerment is smart economics [. . .] and a sure path to development."*

UN Millenium Goals: *"putting resources into poor women's hands while promoting gender equality in the household and society results in large development payoffs. Expanding women's opportunities [. . .] accelerates economic growth."*

The Conventional Interpretation

- Conventional interpretation of facts:
  1. Women care more about children than men do.
  2. Women's bargaining power is increasing in their wealth.
- Interpretation suggests that, indeed, empowering women should benefit children, and thus development.
- But is this interpretation correct?

Alternative Interpretation

- We show that facts can also be explained *without* preference differences between men and women.
- Non-cooperative bargaining model with household production.
- Instead, mechanism builds on specialization in time- and goods-intensive household tasks driven by gender wage gap.

Implications for Development No Longer Clear Cut

- ▶ Wealth transfer from man to woman lead to increase in female-provided and decrease in male-provided public goods.
- ▶ Overall effect on development depends on relative importance of those goods.
- ▶ Mandated transfers likely to be harmful when physical capital accumulation is key engine of growth.

The Model

- Start with 1-period model of a family.
- Incorporate into growth model later.
- Husband and wife.
- Each derive utility from own consumption and household public goods.
- Home production: public goods require time and goods inputs.
- Key assumption: $w_m > w_f$.
- Non-cooperative decision-making (Nash equilibrium).

Model: Preferences

- Husband and wife, denoted by gender $g \in \{m, f\}$.
- Derive utility from private goods and continuum of public goods (such as children).
- Spouses have identical preferences:

$$U_g = \ln(c_g) + \int_0^1 \ln(C_i) \, di,$$

where $g \in \{m, f\}$.
- Contribute to public goods in form of goods and time.

Model: Household Production

- Public goods produced with time T and goods inputs E.
- Public goods differ in relative importance of time versus goods:

$$C_{g,i} = T_{g,i}^{\alpha(i)} E_{g,i}^{1-\alpha(i)},$$
$$C_i = C_{f,i} + C_{m,i},$$

where $g \in \{m, f\}$, $i \in [0, 1]$, $\alpha(i)$ increasing, $\alpha(0) = 0$, $\alpha(1) = 1$.

- Motivation for individual production: Monitoring Friction. Zelizer (1989) argues that it was common for American women around 1900 to gain resources from husbands by padding bills.

Model: Budget and Time Constraints

- Wages are gender specific. Assume $w_m > w_f$.
- Allocate income between personal consumption and public-goods contributions:

$$c_g + \int_0^1 E_{g,i} \, \mathrm{d}i = w_g(1 - T_g) + G_g$$

  where G_g is transfer from the government.
- Allocate time between work and household production:

$$\int_0^1 T_{g,i} di = T_g$$

Model: Equilibrium

- Non-cooperative decision making.
- Spouses play Nash equilibrium:
    - Each spouse chooses own consumption, public-good contributions, and labor supply.
    - Choices of other spouse taken as given.

Model: Maximization Problem spouse g

Taking choices of spouse, $C_{-g,i}$, as given, maximize

$$\max_{c_g, E_{g,i}, T_{g,i}} \ln(c_g) + \int_0^1 \ln(C_i) \, di,$$

$$s.t. \quad C_{g,i} = (T_{g,i})^{\alpha(i)} E_{g,i}^{1-\alpha(i)}$$

$$C_i = C_{f,i} + C_{m,i}$$

$$c_g + \int_0^1 E_{g,i} \, di = w_g(1 - \int_0^1 T_{g,i} di) + G_g$$

Characterizing the Equilibrium

- Each public good is provided by spouse with higher preferred provision.
- First-order conditions for spouse g:

$$c_g = \frac{1}{\lambda_g},$$

$$E_{g,i} \leq \frac{1 - \alpha(i)}{\lambda_g},$$

$$T_{g,i} \leq \frac{\alpha(i)}{w_g \lambda_g}.$$
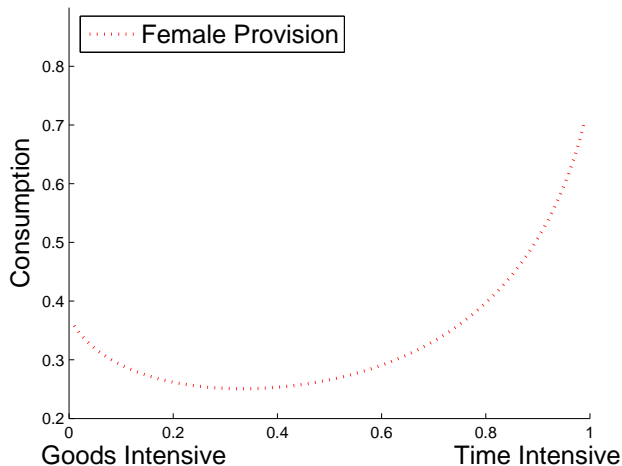
Characterizing the Equilibrium ($w_f < w_m$ case)

- Ratio of female-to male preferred provision for public good i:

$$\frac{\tilde{C}_{f,i}}{\tilde{C}_{m,i}} = \frac{E_{f,i}^{1-\alpha(i)} T_{f,i}^{\alpha}(i)}{E_{m,i}^{1-\alpha(i)} T_{m,i}^{\alpha(i)}} = \left(\frac{w_m}{w_f}\right)^{\alpha(i)} \frac{\lambda_m}{\lambda_f}.$$

- Expression strictly increasing in i.
- Equilibrium characterized by cutoff $\bar{i}$:
  - Goods with $i < \bar{i}$ provided by husband (goods intensive).
  - Goods with $i > \bar{i}$ provided by wife (time intensive).
  - Cutoff satisfies $\tilde{C}_{f,i} = \tilde{C}_{m,i}$.

Characterizing the Equilibrium

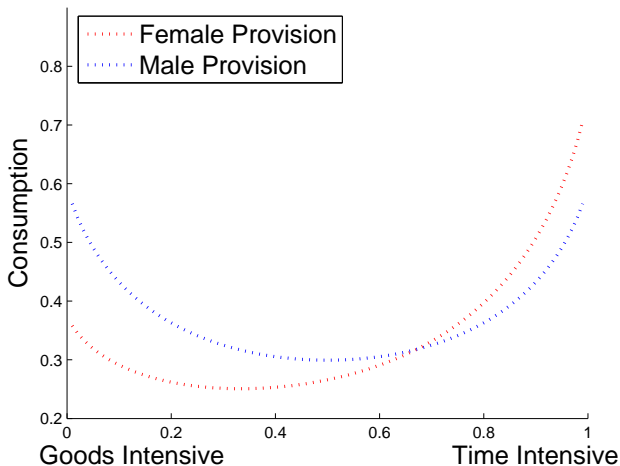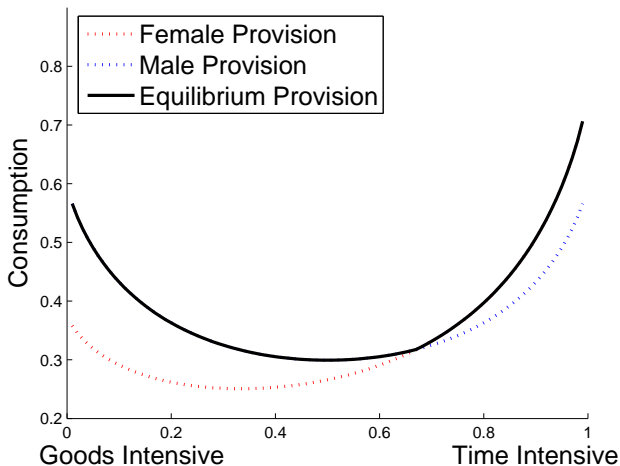- ▶ Determination of public-good provision:

Characterizing the Equilibrium

- Determination of public-good provision:

Characterizing the Equilibrium

▶ Determination of public-good provision:

Mandated Transfers

- Consider mandated wealth transfer from husband to wife: $G_f \uparrow$, $G_m \downarrow$.
- Holding $\bar{i}$ fixed, husband will spend less on public goods, wife will spend more.
- Effect offset by shift in cutoff $\bar{i}$.
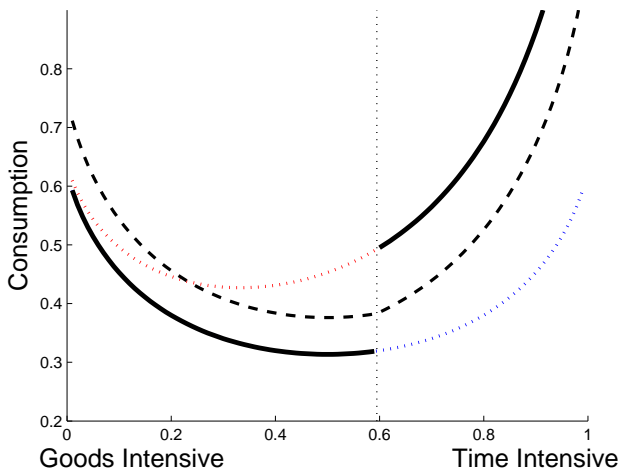- However, this effect is only partially offsetting: Higher equilibrium spending by wife.

Mandated Transfers

- Baseline before transfer:
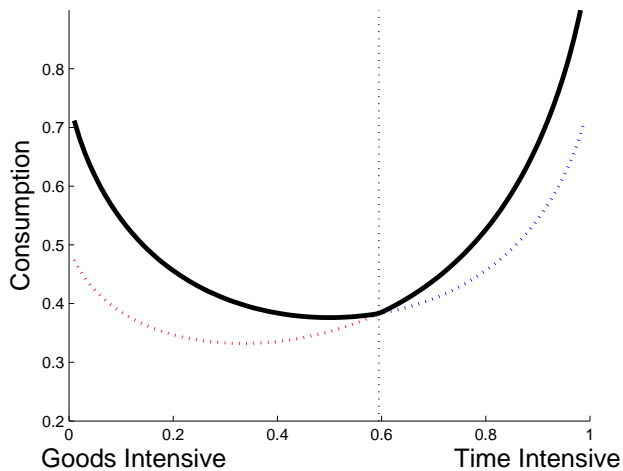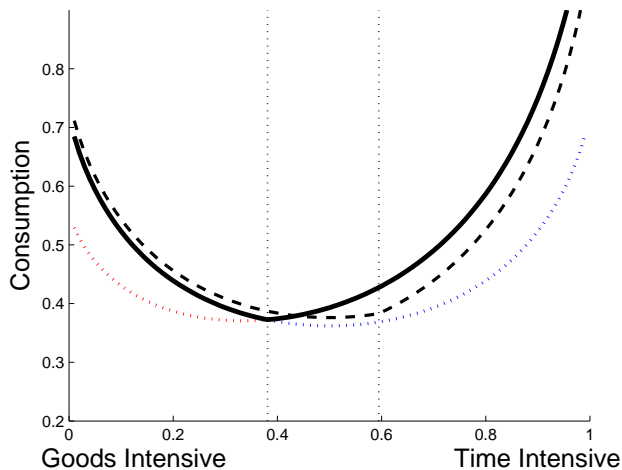
Mandated Transfers

- Counterfactual outcome for constant $\bar{i}$:

Mandated Transfers

- Outcome with new $\bar{i}$:

Mandated Transfers: Summary

- Transfer increases supply of public goods provided by recipient.
- True as long as relative willingness to pay for public goods is different at new compared to old cutoff.
- Thus, model implies no income pooling! Key ingredients:
  - non-cooperative model
  - continuum of goods
  - corners are essential (cf. classic voluntary contribution games)
- Model consistent with the empirical finding that transfers to women lead to increased spending on children.
- Note: effect shrinks in the wage gap!

Voluntary Transfers between Spouses?

Two extensions to show results are robust to relaxing the separate production assumption (i.e. combining his money and her time):

- ▶ Suppose husbands could make voluntary transfers to wife. We show that for wide range of parameters this won't happen. (If it does, then government transfers are irrelevant.)

- ▶ We allow specific transfers for a subset of the goods (those where the monitoring friction is less relevant). We show that results carry over to model extension, i.e. effects of government transfers are the same in this extended model, as long as there are some goods for which this is not possible.

Mandated Transfers: Effect on Total Provision

▶ Can trace out how targeted transfers affect total provision of public goods:

$$\int_0^1 \ln(C_i) \, di.$$

▶ Three effects:
  1. Expenditure Share Channel: Provision increases with wealth of spouse who spends larger fraction of resources on public goods.
  2. Efficiency Channel: Transfer from husband to wife shifts use of time towards efficient arrangement.
  3. Reallocation channel: due to shift in $\bar{i}$.

▶ When $\alpha(i) = i$ (symmetric case), efficiency channel dominates for interior solution.

▶ However, expenditure share channel can dominate when large range of public goods is goods-intensive.

Mandated Transfers: Effect on Total Provision

- ▶ Total utility derived from public goods as a function of transfer from husband to wife:
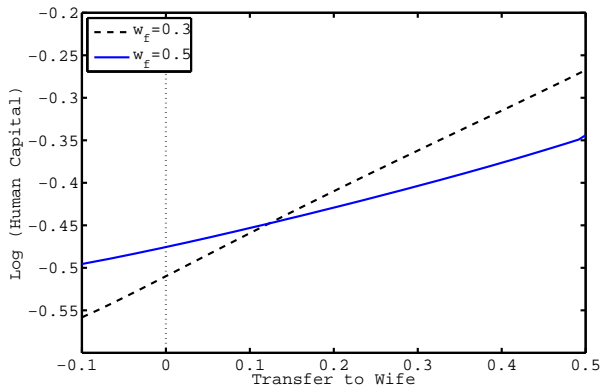
Effect on Total Provision: Summary

- In symmetric case, total utility derived from public goods goes up with mandated transfer to wife.
- Effect larger the larger the wage gap.
- Depending on $\alpha(i)$, total provision can also go down.

Growth Implications of Mandated Transfers

- ► Embed household problem into growth model with successive generations. Each couple has a son and a daughter. Parents care about own consumption and children's income.
- ► Parents chose children's human capital (HK) and bequests (= physical capital).
- ► HK is time intensive, hence provided by mothers in equilibrium. Fathers in charge of investments.
- ► Mandated transfer from men to women:
  - ► HK goes up, investments go down.
  - ► Output goes up only when HK is very important for aggregate production. Otherwise output decreases.
- ► In sum, transfers to women increase growth when HK is important in production and gender gap is large.

Growth Implications of Mandated Transfers
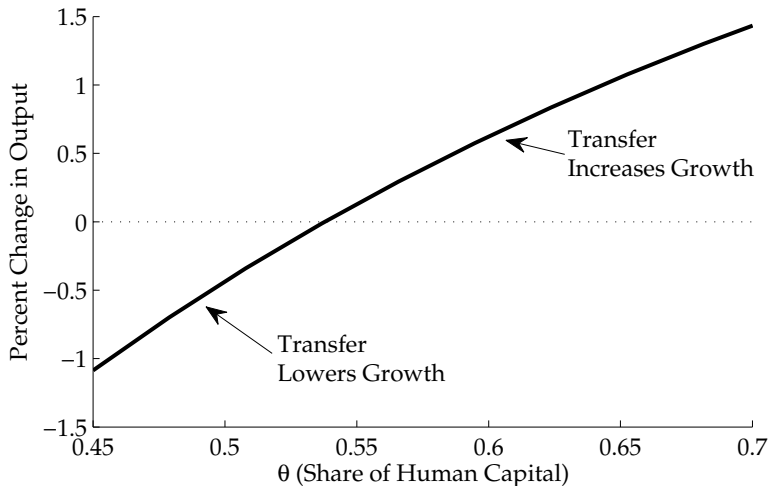
Empirical Relevance of Mechanisms?

- ▶ Model implies that savings/investment goes down when money is allocated to women.
- ▶ True in the data?
- ▶ Use Progresa Program in Mexico to test this hypothesis.
- ▶ Identification strategy
  - ▶ as in Attanasio and Lechene (2002)
  - ▶ regress expenditures on female income shares, which are instrumented by the Progresa transfer (which is given to women).
  - ▶ The random roll-out of the program gives control households that are eligible in principle but have not received the transfer yet.

Background on Progresa Data

- Large Conditional Cash Transfer Program in Mexico
- Pool data from 3 waves: Oct 1998, Mar 1999, Nov 1999
- Money was given to women
- Treatment HHs: 4,952, control HHs: 2,951.
- Mean transfer: 82 (about 5% of income)

First Step: Confirm AL Results

$$s_i = \beta_1 \textit{fincsh} + \beta_2 \textit{logincome} + \beta_3 \textit{logincome}^2 + \beta_4 X$$

- s_i expenditure share good i
- controls X: HH size, kids (total and in school), female/male education, female/male age, eligibility indicator.
- interested in β_1.
- use Progresa transfer as an instrument for fincsh.
- cluster standard errors at HH level.

Replication of AL Results

Good	OLS	OLS w/ X	IV	IV w/ X
alcohol/tobacco	-0.43***	-0.28**	-0.74***	-0.53**
men clothing	-0.25	0.09	-0.91***	-0.24
women clothing	-0.14	0.23	-0.70***	0.11
children clothing	5.07***	2.77***	9.9***	5.8***

Higher female income share leads to:
$\rightarrow$ higher spending on children's clothing
$\rightarrow$ lower spending on alcohol and tobacco

Effect on Spending vs. Saving

Outcome	OLS	OLS w/ X	IV	IV w/ X
log(expenditures)	0.31***	0.24***	0.42***	0.30***
saving share	-0.43***	-0.39***	-0.40***	-0.32***

Further Evidence from other Settings

- Haushofer and Shapiro (2013) randomized gender of recipient in a cash transfer program in Kenya: ownership of metal roofs ↑ 23 percentage pts, but only half that for females.

- Akresh, Walque, and Kazianga (2016) randomize gender in Burkina Faso and find higher propensity to invest for fathers.

- Similarly Robinson (2012) in Kenya.

- Wooley (2004) surveyed Canadian couples: when asked how to spend a windfall transfer, women expressed preference for spending on children, men were more likely to save it or pay down debt.

- del Mel, McKenzie and Woodruff (2009) randomized gender of cash/inkind transfers to micro entrepreneurs in Sri Lanka: profits increased by 9% for males, but not for females. Assets (both business & household) went up for men but not women.

- Fafchamps et al (2014) similar experiment in Ghana.

- Rubalcava, Teruel and Thomas (2009) find that ownership of livestock goes up Progresa income. But effect is very small and women are largely in charge of small animals in Mexico.

Conclusions

- Non-cooperative bargaining model can explain impact of targeted transfers on child expenditures *without assuming that mothers care more about children than fathers!*

- If men are providing other useful public goods (such as investment), then might not be a good policy nevertheless.

- Implications for growth depend on the importance of human vs. physical capital.

- Impact of targeted transfers declines as men and women become more similar (lower gender gap).

- Novel empirical evidence supporting key mechanism: transfers to women lower savings.