ENGENDERING POLICY MODELS: REFLECTIONS ON THEORY AND METHOD

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OUTLINE

- Questions of theory
  - Can general equilibrium be gendered to yield sensible answers to the questions raised by the marginalist framework?
- Questions of method
  - Engendering or intersectionality?

ENGENDERING GENERAL EQUILIBRIUM

SET-UP

- Households: a large number, N.
- Factors: Female labor (F) and Male labor (M)
- Commodities: X (only inside the SNA boundary) and H (inside or outside the boundary)
- Endowments: Potential labor of women ($\bar{F}$) and men ($\bar{M}$)
- Utility functions of unitary households:
  - $U_i(X_i, H_i, R_{f,i}, R_{m,i})$ $i = 1,2, \dots, N$.
  - R is "leisure": potential labor minus employed labor

SET-UP AND QUESTION

- Production functions
  - $X = f^X(M_X, F_X)$
  - $H = f^H(M_H, F_H)$
- Supply-demand explanation of equilibrium prices and quantities requires well-behaved demand functions
- For factor demand functions, this requires assumptions regarding technology
- What are the "reasonable" assumptions about technology in this model?

FACTOR DEMAND

- Under the usual assumption of perfect competition, the wage for each labor factor (w_f and w_m) will be equated across the two industries.
- Hence, cost-minimization would imply that, in equilibrium, the ratio of marginal products of the labor factors is the same in both industries.
- Consequently, we can pick either industry to characterize the female and male labor factor demand functions.

FACTOR DEMAND (CONTD.)

- The factor substitution matrix (LHS) is given by the inverse of the Hessian matrix, formed by the second-order partial derivatives of the production function (RHS):

$$\begin{bmatrix} \frac{\partial M}{\partial w_m} & \frac{\partial M}{\partial w_f} \\ \frac{\partial F}{\partial w_m} & \frac{\partial F}{\partial w_f} \end{bmatrix} = \begin{bmatrix} f_{MM} & f_{MF} \\ f_{FM} & f_{FF} \end{bmatrix}^{-1}$$

- If the matrix on the RHS exists, we know that demand functions are well-behaved:
  - $\frac{\partial M}{\partial w_m} < 0, \frac{\partial F}{\partial w_f} < 0, \text{and} \frac{\partial M}{\partial w_f} = \frac{\partial F}{\partial w_m}$

SENSIBLE TECHNOLOGY ASSUMPTION?

- Suppose that the PF is Cobb-Douglas, $X = F^a M^b$. It can be shown that the Hessian matrix will satisfy the requirement only if:
  - $H_1 = a(a-1)k^{a-2}M^b < 0$ and
  - $H_2 = ab(1-a-b)k^{2a-2}M^{2b-2} > 0$
- These conditions will be met only if $a + b < 1$, i.e., there are decreasing returns to scale
- If there is constant returns to scale, i.e., $a + b = 1$, then $H_2 = 0$ and conditions will not be met

TECHNOLOGY AND PREFERENCES

- DRS seems implausible, and CRS seems reasonable in this model
- With CRS, male and female wages are determined completely by technology
- Preferences do not matter
- Household demand and endowments cannot affect the allocation of male and female labor between SNA production, non-SNA production, and leisure ("non-substitution theorem")

EQUILIBRIUM PRICES: UNIQUE SOLUTION? (EXCESS DEMAND FUNCTION FOR THE SNA COMMODITY)

Excess demand function for X: derived from a numerical example of a 2x2x2 economy. The example shows three equilibrium prices (three points at which excess demand equals zero).

Sonnenschein-Mantel-Debreu theorem

REPRESENTATIVE AGENTS

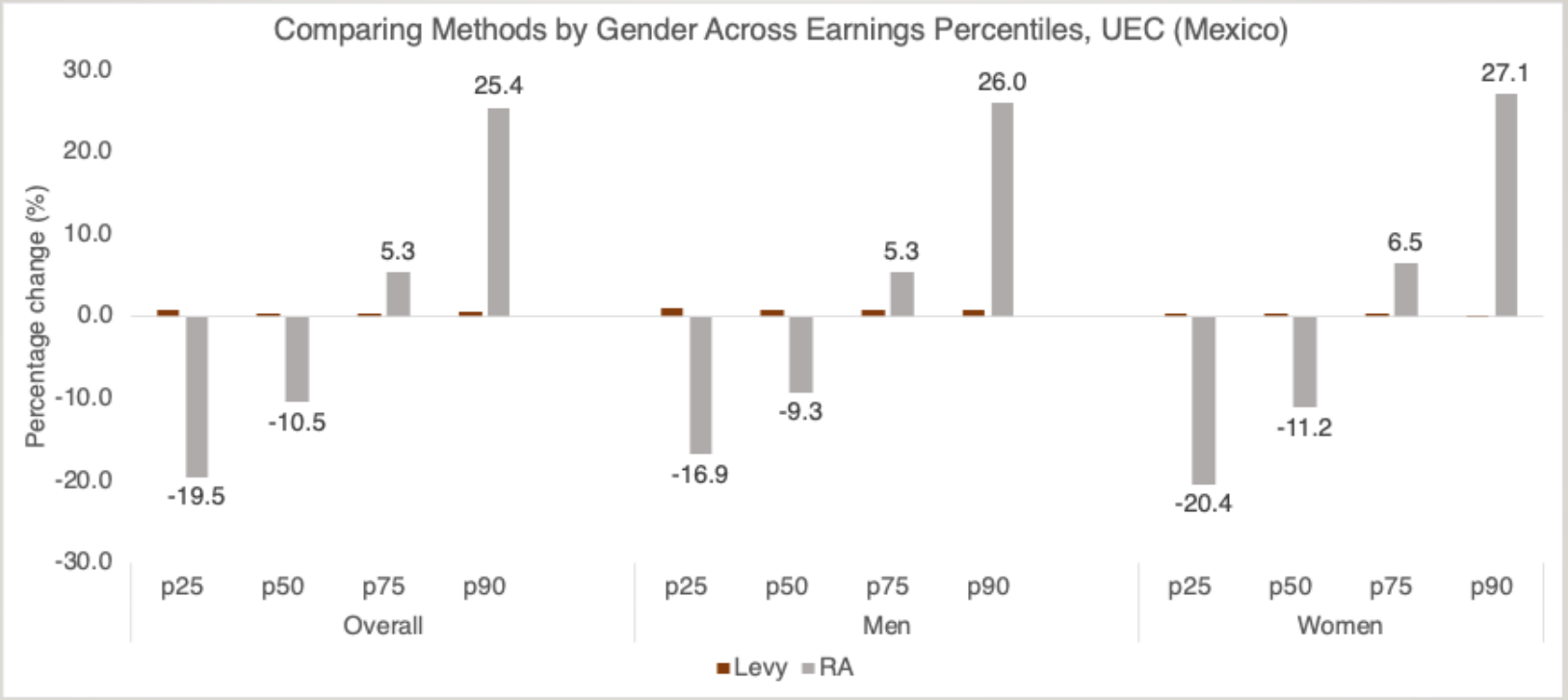
STANDARD APPROACH TO DISTRIBUTIONAL OUTCOMES

- Two axes of differentiation in the standard models:
  - between different types of labor "factors" (e.g., female vs male labor)
  - between different types of households (e.g., employed households with children, elderly households, female-headed households, etc.)
- Theoretical basis: The representative agents supply labor to various sectors of the economy, produce non-SNA services such as childcare, purchase commodities, and engage in leisure activities.

PROBLEMS WITH THE STANDARD APPROACH TO DISTRIBUTIONAL OUTCOMES

- Limitations of the representative household methodology if the analytical focus is on inequality and poverty (Bourguignon et al. 2005)
  - Can't account for within-group inequality (often larger than between-group inequality generated by policy changes)
  - Can't assess the impact on poverty in terms of incidence and depth
- Intersectionality involves looking at outcomes through the lens of inequality across subgroups and inequality within subgroups

EXAMPLE: IMPACT ON EARNINGS OF UNIVERSAL ELDER CARE (UCE) PROGRAM IN MEXICO



Source: Authors' calculations based on the 2013 input–output (IO) data from the *Instituto Nacional de Estadística y Geografía* (INEGI) and the 2020 *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH).