Integrating Gender into Benefit Incidence and Demand Analysis

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Reference: Glick, Saha, and Younger
http://www.cfnpp.cornell.edu(wp#167)
or www.worldbank.org/gender/Economic Policies and Gender/Public Expenditure

Benefit Incidence: Analysis of how the benefits of public expenditures are distributed across groups in the population

Usually this means income groups, e.g., percentiles of the income distribution

Why consider the gender dimension as well?

- Equity
- Efficiency

Public expenditures/services which may differentially benefit (or be accessed differently by) males and females:

1. Education
2. Health care (curative/preventative, pre/post-natal,vaccinations)
3. Infrastructure:
   - Water supply
   - Electricity
   - Roads
4. Extension services, credit and financial programs, etc.

Use Gender-focused BIA (and Gender-focused demand analysis) to ask:

1. Are the benefits of public spending equitably distributed by gender? Does this spending mitigate or exacerbate gender inequities?

2. (Combining income and gender dimensions of BIA): Are gender benefit gaps different for poor and non-poor?

3. How can allocations of public expenditure be changed to improve gender equity?

Outline

1. BIA Methods to deal with gender
2. Benefit incidence and program coverage
3. Limitations of BIA for predicting gender (and other distributional) impacts of policy changes $\Rightarrow$
4. Analysis of gender and the demand for services

Data Needs for Benefit Incidence Analysis

- Variables that define the groups of interest (household consumption expenditures, gender, region etc.)
- Variables representing the benefits that each individual receives (school enrollment, health clinic visits, etc. but also use of extension services, participation in credit programs)
- Indicator of whether the service used is public or private
- For BI of infrastructure investments affecting time use: data on time allocation.
- Reliable budgetary data on unit costs to gov't by region and type of benefit.

  Alternative: use 0/1 indicator of utilization

Most or many of the above are found in typical household surveys

Standard Benefit Incidence is by income…

Quintile shares of public education subsidies in Ghana, 1989 (percent)

Quintile	Primary	Secondary
1	21.2	16.8
2	22.1	18.0
3	22.2	21.8
4	20.3	23.4
5	14.3	19.9
All	100.0	100.0

Source: Demery, et.al., 1995 (modified by authors)

Compares the subsidy or benefits (e.g., primary enrollments) received by quintile *j* to the total benefits (all primary enrollments):

$$\frac{\text{Benefits to quintile j}}{\text{Benefits to all quintiles}}$$

Defining the progressivity of public spending

- *Per capita* progressivity: poorer income quintiles get disproportionate share of total benefit (we could say that equal distribution across quintiles is an ‘equitable’ dist.)

  Ghana: compare primary and post-primary schooling subsidies

- *Expenditure* progressivity (~ ‘progressivity’ in public finance usage): subsidy is distributed more equally than incomes, or, poorer quints’ benefit share > their income share

  Expenditure progressivity is met by many services in developing countries, but per capita progressivity is rare.

- Methods: Graphical (Lorenz & benefit concentration curves) vs. tabular analysis

Or benefit incidence by gender, also common:

Gender shares of benefits from public education expenditure (percent)

	Primary	Secondary
Male	58.0	69.0
Female	42.0	31.0
All	100.0	100.0

We want to consider both the income and gender dimensions.

One reason to consider them both…

Achieving income equity and gender equity in public spending may sometimes be conflicting goals

Consider a country where:

- School enrollments are much higher for the rich than the poor, and
- the male-female gender gap in enrollments is greatest among the poor

Reallocating public expenditures for schooling from the wealthy to the poor will close the rich-poor schooling gap but could increase the overall gender gap

It will depend on the *form* of the additional expenditures; we return to this later

Bringing Gender into BIA - combine Gender and Income dimensions:

Calculate quantile shares of male benefits over all (male and female) benefits, and quantile shares of female benefits over all (male and female) benefits.

E.g., for schooling, for quintile *j* we calculate for girls:

$$\frac{\text{Benefits to females in quintile j}}{\text{Benefits to females and males in all quintiles}}$$

and calculate for boys:

$$\frac{\text{Benefits to males in quintile j}}{\text{Benefits to females and males in all quintiles}}$$

Gender/Quintile shares (cont.)

Gender/quintile shares in public school enrollments, Mauritania 1987 (percent)

	(1)	(2)	(3)	(4) t-statistic for	
Quintile	Males	Females	Total	m-f difference	
1	6.1	2.8	8.9	2.83	***
2	6.1	5.0	11.1	0.90	
3	11.8	7.9	19.7	2.06	**
4	14.1	10.7	24.8	1.70	*
5	18.3	17.3	35.6	0.30	
All	56.4	43.6	100.0		

* significant at 1%; **, 5%; *, 10%

- Col. (3) is standard BI: shows poorest quintiles receive disproportionately small benefits

- But further, girls in poor quintiles especially bad off

- A benchmark for an 'equitable' gender/quintile distribution of benefits: each gender/quintile subgroup should receive benefits equal to its share of the population, ~10% here.

Benefit Incidence vs. Program Coverage

- BI shows how a given benefit is distributed over the entire population, poorest to richest. Indicates whether public spending redistributes welfare (benefits as income transfer)

- But the target population for many services is not the same as the total population:

  - primary age children for primary school

  - infants for vaccinations, etc.

- We are also interested in how well the service reaches its target population (program coverage), and how this differs by income level.

  E.g., look at enrollment rates per school age child (not per capita), share of mothers getting maternal health, share of infants vaccinated, etc, by income quintile.

Coverage rates and benefit shares for public primary schooling, Viet Nam, 1993

Quintile	Coverage (enrol. rate)	Quintile Benefit share	Quintile share of target pop.
1	0.63	0.22	0.27
2	0.74	0.23	0.24
3	0.77	0.21	0.21
4	0.81	0.17	0.16
5	0.87	0.16	0.14

Target populations for many services involve children, who tend to be found disproportionately in poorer quintiles.

Hence distribution of benefits appears less equitable from a target population (coverage) perspective: benefits go disproportionately to bottom quintiles in *per capita* terms but enrollment rates—benefits *per school age child*—are lower.

Therefore one could say that ‘coverage’ analysis by income quintile is another form of benefit incidence – benefit incidence per child, in this case – rather than benefit incidence per capita.

It shows how the benefits received by a quintile compare to its share of the target population…or to its share of ‘needs’ – children needed schooling, infants needing vaccinations, etc.

This perspective extends to looking at quintile shares by gender

What about services that are not public?

Because people can usually also use private sector services, the distribution among income groups (or income/gender subgroups) of *public* benefits may differ from that for *total* provision of the service.

Therefore we often consider ‘coverage’ of both (for example) public health care services and all (public plus private) services.

The equity picture may be quite different—usually, less favorable—when we do this

Example of 'program coverage' by gender/quintile

Vietnam 1998: net primary school enrollments by gender and income quintile

	Public			*All (public + private)*		
Quintile	Boys	Girls	Difference	Boys	Girls	Diff.
1	0.75	0.68	0.07 ***	0.75	0.68	0.07 ***
2	0.81	0.76	0.05 *	0.82	0.77	0.05 **
3	0.77	0.75	0.03	0.78	0.75	0.03
4	0.78	0.71	0.06 **	0.78	0.72	0.06 **
5	0.71	0.70	0.01	0.71	0.71	0.01

* boy-girl difference significant at 1%; **, 5%; *, 10%

- In this case, private schooling is rare, so distribution of public benefits similar to distribution of all primary schooling
- Does the gender gap differ by income level?

Same, for secondary schooling:

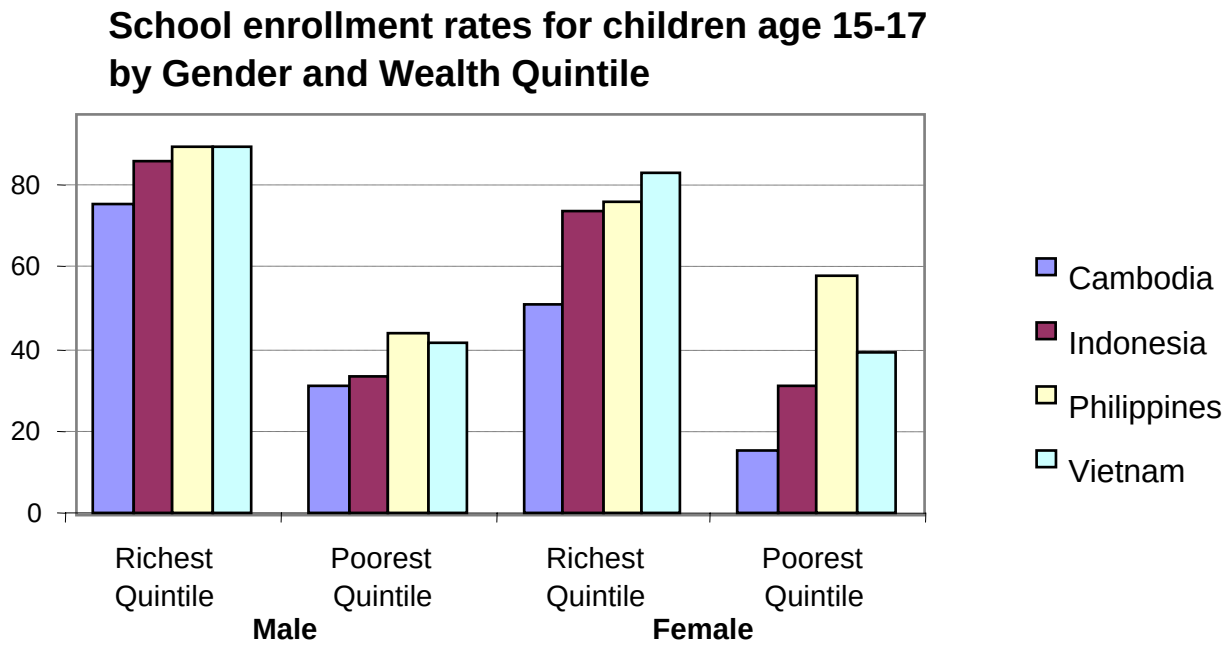
Vietnam 1998: net secondary school enrollments by gender and income quintile

	Public				*All (public + private)*			
Quintile	Boys	Girls	Difference		Boys	Girls	Diff.	
1	0.28	0.23	0.05		0.28	0.23	0.05	
2	0.45	0.34	0.12	***	0.45	0.34	0.12	***
3	0.51	0.44	0.08	***	0.51	0.44	0.08	***
4	0.54	0.50	0.05	*	0.54	0.50	0.05	**
5	0.65	0.65	0.01		0.65	0.65	0.01	

* boy-girl difference significant at 1%; **, 5%; *, 10%

- Disparities by income level *much* larger, for both genders
- Gender gap: differences by income level also larger
- Both are common patterns

Secondary schooling (cont.): graphical presentation for four East Asian countries



Source: World Bank, *East Asia Update*, p. 64

- Note: not just public benefit coverage
- Again, large differences by income..
- Gender gap: sometimes higher among poor, sometimes not

Gender and benefit incidence in East Asia: Some patterns

- Social sectors: much progress in gender equity in schooling and health (e.g., fall in maternal mortality)

  Gender gaps remain in some countries for secondary and tertiary education

  But income and rural/urban differences are a bigger source of inequality now

- Large gender gaps remain in other public services, especially those that might empower women economically. E.g., access to:
  - Credit for agriculture, small businesses
  - Other financial and marketing services
  - Agricultural extension, business training

Gender and income equity in the provision of these services can easily be analyzed using benefit incidence approaches

But:

Surveys must collect information (by gender and income level) on the utilization of these services.

Household surveys usually do not do this, but they can.

How can allocations of public expenditure be changed to improve gender equity?

- BIA shows only the current distribution of benefits among current beneficiaries

- BIA may tell us the distributional effects of reallocations of public spending, but only if new benefits are distributed in the same way as existing ones

  Ex: shifting budgetary allocations from secondary to primary educ. will usually be pro-poor

- But for larger changes or changes that are designed to attract new beneficiaries are harder, new benefits will be distributed differently from existing ones (‘*marginal’ incidence is not the same as current incidence*)

  For example, improvements in health care quality; provision of female teachers in primary schools

How can we predict the gender (and income) equity impacts of new public expenditures?

- A key point: it depends not just on provision (supply), but on the *demand* (consumer behavior) of households and how this differs by income and gender

- To understand household demand responses to potential policies, there are several approaches:

  - Qualitative/informal methods (interviews, focus groups)

  - Evaluation of pilot programs, preferably with experimental designs

  - Statistical (regression) analysis of demand using household survey data =>

Gender differentiated demand analysis

Use regression analysis to estimate the determinants of the demand for public services. Determinants may include:

Individual level variables: age, education, and sex

Household level: income, location, household structure

Service provider level: distance, cost, quality of local providers

When done correctly, demand analysis shows the effect of gender and income on utilization of specific services, or choice among providers (e.g., public vs. private).

For gender analysis, use interactions or estimate models separately for males and females to see if the effects of specific quality factors, cost, and distance differ. This will indicate how policy can increase use by women/girls (or by the poor).

Statistically compare effects of these factors on males and females

(See Glick Saha and Younger for details)

Requirements for demand analysis

- *Good data:* Need more detailed (though standard) household surveys than for BIA, and need complementary community or local provider surveys with detailed information on cost and characteristics

- *Good analysts*: Techniques more demanding than BIA.

- Analysis and interpretation must be careful given common statistical or data problems:
  - Missing variables (incomplete provider info)
  - Measurement error
  - Endogeneity of provider characteristics

Data requirements (cont.)

Household and especially service provider surveys should also include characteristics that may have different effects by gender on demand.

For example:

- Schools: share of female teachers; separate latrines for girls and boys; teacher attitudes; safeguards against sexual harassment

- Health centers: share of female personnel; availability of maternal care; attitudes of personnel; privacy safeguards (for HIV/AIDS related services in particular)

Uganda (1992) Determinants of primary enrollment, girls and boys age 6-12: marginal effects and their differences

	Girls		Boys			
Variable	Marginal effect	t-statistic	Marginal effect	t-statistic	Difference	t-statistic
Intercept	-0.401	-37.27	-0.347	-40.82	-0.054	-3.97
Age	0.385	8.24	0.385	9.89	0.000	0.00
(Age)2	-0.018	-7.10	-0.018	-7.95	-0.001	-0.23
Father less than primary	0.074	2.75	0.043	1.64	0.031	0.83
Father completed primary	0.167	5.54	0.104	3.39	0.063	1.47
Father secondary plus	0.204	6.60	0.092	2.72	0.112	2.45
Mother less than primary	0.088	4.05	0.101	4.87	-0.014	-0.46
Mother completed primary	0.19	5.11	0.144	3.37	0.046	0.81
Mother secondary plus	0.106	2.43	0.115	2.52	-0.009	-0.14
Fostered in child	-0.131	-5.23	-0.04	-1.25	-0.091	-2.22
# children <5	-0.001	-0.16	0.017	2.06	-0.019	-1.60
# males 6-16	-0.008	-1.00	0.006	0.69	-0.014	-1.19
# males 17+	0.011	1.04	-0.015	-1.49	0.025	1.79
# females 6-16	0.005	0.46	0.016	1.76	-0.011	-0.81
# females 17+	0.013	1.10	0.019	1.48	-0.006	-0.36
Log household expend.	0.108	6.35	0.102	5.28	0.006	0.24
Distance to school (km)	-0.025	-3.92	-0.02	-3.45	-0.005	-0.61
School costs	0.000	0.45	0.000	1.30	0.000	-0.59
Share teachers qualified	-0.078	-1.93	-0.037	-1.04	-0.04	-0.75
# shifts/day	0.015	0.45	-0.024	-1.22	0.038	1.01
Bldg. maintenance	0.007	0.40	0.012	0.64	-0.004	-0.17

Notes: 1/ Based on probit model estimates. For continuous variables, shows the derivative of the probability with respect to the variables. For discrete variables, shows the difference in probability for 0,1 values of the variable. Model also includes region dummies. Standard errors calculated using delta method. Source: Glick,Saha, and Younger 2004.

In this example (Uganda 1992) there are very few gender differences in response to variables despite a significant mean gap in enrollment. The gap comes primarily through difference in the intercepts rather than slopes.

Findings from the demand literature (mostly on education)

- Household income: some evidence that girls' schooling more income elastic than boys', espec. where gender gap is large.

- Distance/cost: many studies indicate girl's schooling more sensitive to distance to school. Some evidence that girls' schooling, health also more responsive to monetary costs

- Quality: scattered evidence that demand for girls' education is more sensitive than boys' to gender neutral changes in school quality;

  Limited but compelling evidence (including from policy experiments) that female enrollments respond to school factors that affect genders differently or that specifically target girls (special subsidy for enrolling girls; increasing # female teachers)

- Important not to overstate the evidence and to conduct context specific analysis: 'Some evidence' means that only that *some* studies found differences!