

Handout #4
Social programs and the art of targeting

0. Social assistance in poverty reduction strategies

Elements of a poverty reduction strategy:

- Fundamental importance of GDP growth, complemented by:
 - Increase the asset base of the poor (e.g., land, education)
 - Increase productive use of the assets held by the poor (quality of context where assets are used)
 - Provide social assistance (income or consumption transfers) for the poorest and for shocks.

Transfers (assets, social assistance) need to be targeted to maximize efficiency under budget constraint: this is the targeting problem. We address here the issue of targeting of social assistance programs.

Social assistance programs include:

- Cash transfers (child allowance, minimum income), food (quasi-cash) transfers (food stamps).
- In kind transfers: food subsidies, housing subsidies, utility subsidies
- Emergency jobs: workfare programs, guaranteed employment programs
- Minimum non-contributory pensions

I. Targeting: How to reach the deserving population?

- Targeting is an instrument to make programs more effective for the chosen purpose under a budget constraint.
- Important for cash transfers programs (e.g., child allowances), conditional cash transfers (e.g., Progresa, Bolsa Escola), safety nets programs (food aid), subsidized or free education-health-nutrition-housing-utilities programs: demand for transfers always in excess of budgets.
- If objective of the program is poverty reduction, targeting requires identification of the currently poor.
- If objective of program is other (e.g., education, health, nutrition), targeting requires identification of people at risk of not meeting this objective (not going to school, ill-health, malnutrition), but who would meet the objective if given a transfer (income or price (i.e., conditionality) effect). If objective is protection of forests (payment for environmental services), targeting requires identification of trees at risk of being cut.
- Good targeting has:

- Costs:**
 - Administrative costs:** identify who is poor and who is non-poor.
 - Private costs:** individual cost of getting the transfer (e.g., self-targeting imposes a cost on the self-selected poor to discourage the non-poor.
 - Incentive costs:** transfers change beneficiary behavior (moral hazard problem):
 - Can decrease labor supply, increase preference for leisure.
 - Public transfers can decrease private transfers
 - Can increase dependency on public programs (Sweden 2006 elections)
 - Social costs:** stigma attached to program participation, ostracization
 - Political costs:** less leakages lead to loss of political support by non-poor
 - Leakage costs:** benefits captured by non-targeted populations (masquerading, clientelism,

corruption)

Benefits: decrease errors of exclusion of poor and inclusion of non-poor. The cost of these errors can be quite large.

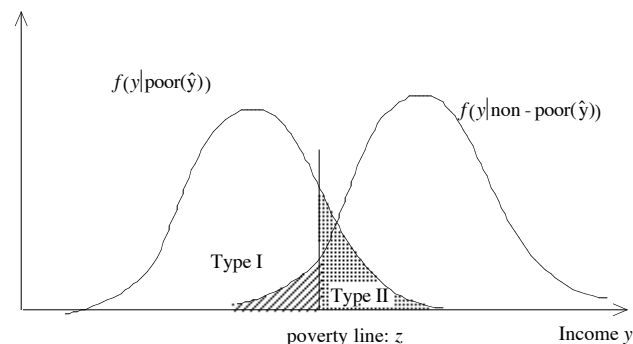
- Targeting is very difficult due to hidden/asymmetrical/strategic information (masquerading): adverse selection problem.

II. Errors in targeting: errors of exclusion (Type I) and inclusion (Type II)

- Error of exclusion (Type I):** categorize a poor as non-poor = poor is excluded
- Error of inclusion (Type II):** categorize a non-poor as poor = non-poor is included

Interpretation: classify households into two groups poor and non-poor according to the approximate measure \hat{y} of income (true y measured with error or proxy of poverty), and a corresponding poverty threshold \hat{z} . Let

$f(y|poor(\hat{y}))$ be the distribution of true income y (unknown) of the sub-population classified as poor, $f(y|non - poor(\hat{y}))$ be the true distribution of those classified as non-poor.



		Classification on the basis of approximate measure \hat{y}	
		"Poor"	"Non-Poor"
Classification on the basis of true measure y	Poor	OK	Type I error
	Non-Poor	Type II error	OK

Note: Can decrease Type I by increasing z (which increases the number of "poor"), but this increases Type II error. Use a loss function to choose the optimum \hat{z} to minimize the aggregate cost of Type I and Type II errors. The loss function could weight Type I error more than Type II.

Note: Different criteria for measuring poverty (P_0 , P_1 , or P_2) lead to different targeting of welfare budget to minimize poverty.

III. Targeting methods

Broad targeting (D. van de Walle): Target types of expenditures used more by the poor (baladi bread in Egypt, primary education, health centers) and give equal access to all. Poor will self-select.

Narrow targeting: Target categories of people. Alternative options to do this:

1. Means tests
2. Proxy-means tests
3. Geographical targeting
4. Demographic targeting
5. Self-targeting
6. Community-based targeting
7. Conditional cash transfers (Part II)

1. Means tests (compare declared income or expenditures to poverty line): Observing income or expenditures is expensive or imprecise: people do not know their income, lie about it, and it is expensive to verify. U.S.: burden on proof on beneficiary.

2. Proxy-means tests or indicator targeting (tagging, categorical targeting, statistical profiling): Use correlates of poverty to predict the risk of being poor (or meeting the targeted criterion). Will work well if there is low heterogeneity within the criterion used (e.g., all poor are women).

i) Use individual assessment by welfare agents

Subjective assessment, poverty ranking. Risk of favoritism, corruption.

ii) Use correlates of poverty

Poor area, ownership of durables, quality of housing, type of employment.

iii) Use two-step procedure to predict income

Step 1: Use income and expenditure survey to estimate income equation: $y = f(X)$, where X are easily measurable variables such as durables owned, quality indicators of housing, occupation in farm work.

Step 2: Run census of population to observe X for all households (Progresa census)

Use $\hat{f}(X)$ to predict household incomes.

Progresa in Mexico (7 determinants): secret formula to avoid masquerading.

If predicted income is below poverty line, declare as poor. But imprecise at the individual level (same problem as in poverty maps) due to large confidence interval over predicted income.

Useful for small area targeting (say groups of > 3000 people) like localities or municipalities (like in the construction of poverty maps): average income prediction has a variance that falls with the square of the number of people in the group.

iv) Use asset position: Land ownership. Grameen Bank (land holdings ≤ 0.5 ha)

But large heterogeneity among small holders due to off-farm activities and transfers (pluriactivity).

3. Geographical targeting. Easy, but large leakages (Type II errors) if intra-regional heterogeneity is high. Precision declines with size of area.

Location of fair price shops in poor neighborhoods (Egypt, India).

Welfare programs targeted at marginal localities:

- CONAPO marginality index in Mexico used by Progresa to target communities; followed by placing a poverty line in the community to separate poor from non-poor. Bolsa Escola: allocate budget to municipality based on marginality index (population census); the municipality then allocates the budget to selected beneficiaries (intra-municipality targeting).
- PRAF in Honduras (one stage targeting with universal targeting in poor communities).

India: Geographical targeting by states ineffective due to high income inequality within states.

China: Geographical targeting by communes effective as low intra-community disparities, but large inter-community disparities

Latin America: Targeting by municipality not effective as intra-municipal Gini as high or higher than the national Gini. Ecuador: 86% of total inequality is intra-parroquia; 14% between.

4. Demographic targeting

Gender, age (elderly, youth)

5. Self-targeting: Queuing, location of services (transactions cost), poor people's food, relief work program: use mechanism design principle to achieve self-selection.

Note: Self-targeting is achieved by imposing a cost on participation that is higher for the non-poor than for the poor. Optimum outcome: self-inclusion by the poor; self-exclusion by the non-poor.

Effective cost: location of stores close to poor, far from rich.

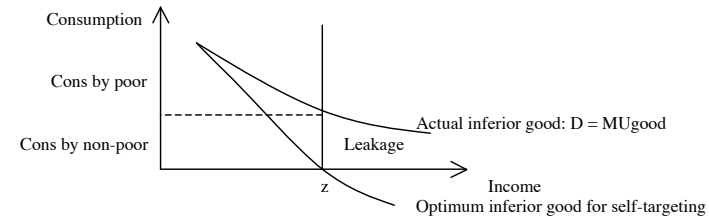
Opportunity cost of time: workfare (low wage), queuing (time wasted).

Utility cost: inferior foods (consumption decreases with income).

However, the cost on poor reduces the net gains to participants.

5.1. Queing: Imposes cost of time for access. Assumes that opportunity cost of time is less for the poor. But cost of time may be irrelevant for non-poor household members (use maids, non-working wives).

5.2. Inferior goods: Yellow corn in Mozambique (David Sahn), Mexico (feed). Consumption declines as income rises ($MU_{\text{poor}} > 0$, $MU_{\text{non-poor}} < 0$). This, however, restricts food subsidies to inferior foods which has a cost on the poor (they would prefer non-inferior foods).



5.3. Guaranteed employment schemes: workfare versus welfare. (Besley and Coate, AER 1992)

Conditional targeting: benefit from program if agree to work.

Self-targeting: poor choose to participate; non-poor self-exclude.

Example: India's Maharashtra Employment Guarantee Scheme, food-for-work programs (World Food Program)

Assumptions:

Two types of workers:

Low ability (L) (also called poor) with frequency γ and wage w_L

High ability (H) (also called non-poor) with frequency $(1 - \gamma)$ and wage w_H .

Poverty line: z

Income: y , with $y_L = l_L w_L < z < y_H = l_H w_H$. If $l = 8$, $w_L < w_H$

Time worked in the private sector: l

Mechanical design: Workfare contract = (cash b , work c):

Cash transfer: b

Required time worked in the public sector (non-productive labor): c

i) Targeted welfare program (full information)

The policy maker can identify types exactly.

Transfer to H : $b_H = 0$

Transfer to L : $b_L = z - y(w_L) = z - w_L l_L$

This is the cheapest option, but it cannot be implemented in developing countries where information on abilities (potential wage earnings) does not exist.

ii) Untargeted welfare program (full ignorance)

The policy maker cannot identify types, and hence need make a flat transfer to all, equal to what the L -types need to get out of poverty:

Transfer to H and L : $b_{HL} = z - y(w_L)$

This is quite expensive, especially if many non-poor, low wages.

iii) Workfare program

Use a work requirement to achieve a separating equilibrium (adverse selection problem): the offer (b, c) must be such that:

- Nobody has the incentive to masquerade into being of the other type (incentive compatibility constraints): the return to labor in workfare is below the opportunity cost for the non-poor: $w_L < w < w_H$.

- The poor are willing to participate (participation constraint): y with welfare $> y$ w/o welfare $= w_L l_L$.
- Participation brings the poor to poverty line (poverty alleviation constraint): y with welfare $= z$.

H-types: (b , c) offer induces them to self-screen out as private work is more profitable to them (separating work requirement).

L-types:

Require from them a fixed public sector work contribution \bar{c}_L (hence, $l'_L = 8 - \bar{c}_L$, private sector work).

Offer a flat transfer: $z - w_L l'_L(\bar{c}_L)$

Workfare has a cost trade-off between two effects:

A lower cost than un-targeted welfare since it requires no transfer to the non-poor.

A higher cost than targeted due to less private sector work by the poor, and hence lower private sector earnings that need to be compensated by higher welfare transfers. Hence, the welfare transfer to the poor is higher than under targeting.

iv) When is workfare better than untargeted welfare?

Workfare is better than untargeted welfare when $w_L < (1 - \gamma)w_H$

Hence, it works best when:

The share of poor γ is a small fraction of the population

The wage of the poor w_L is low (low private earnings potential).

Note: Can make public work productive, for example WFP-Plan Sierra (soil erosion practices), U.S. National Parks (clear paths).

v) Summary: for *L*-type:

Time before:	----- Private l_L -----	+ Full time work at low wage w_L
Time after:	----- Private l_L -----	+----- \bar{c}_L -----
Income before:	----- $w_L l_L$ -----	+----- Poverty line z -----
	Targeted: $z - w_L l'_L$ to m (poor)	
	Untargeted: $z - w_L l_L$ to n (all)	
Income after:	----- $w_L l'_L$ -----	+----- b_L -----
		+----- z ----- $l'_L < l_L$
	Welfare transfer $b_L = z - w_L l'_L$	

Targeted < Cost of workfare < Untargeted

6. Community-based targeting

6.1. Participatory mechanisms

Community selection of beneficiaries and delivery of benefits for social programs (Decentralization). Block grants to community like in Bolsa Escola, Brazil.

Advantages: Use local information for selection and monitoring.

- Use local notions of deprivation (community rankings using piles of cards)
- Use local social capital (local organizations) for enforcement (control corruption)
- Lower cost (lower administrative salaries)
- Local rent seeking; creates local conflicts (divisive of community)
- Local capture (appropriation by elites, corruption, use for clientelism)
- Local preferences may not be pro-poor (Differ from central agency preferences. Use differential matching formulas as community incentives).
- Lack of local administrative capacity
- Induce population movements (migration of poor seeking better welfare in response to community heterogeneity in quality of welfare)
- Loss of national political support (Sri Lanka's targeted food subsidies lost political support and budget relative to universal food subsidies)

Disadvantages:

Note: can use hybrid center-community mechanisms (e.g., matching formulas but local choices)

Examples: Colombian DRI, program priorities implemented through co-financing rules, Community-Driven Development (CDD).

J-C Faguet's results for Law of Decentralization in Bolivia: "needs" better met in poorer, smaller municipalities.

6.2. Cross-reporting

If qualifying households have full information about the endowments of everyone in the village, and can thus identify the non-qualifying households, a scheme of cross-reporting can be put into place.

The qualifying households are asked to identify the illegitimate participants, and in so doing gain a higher share of the program benefits as a consequence of weeding out the non-qualifying households. This contract is incentive compatible if the qualifying participants collectively keep the allocation to non-qualifying participants (reward to whistle blowers).

6.3. Group targeting and random audits

Self-targeting can be achieved when agents are informed, not necessarily about everyone in the community, but at least about a subset of others in their own surroundings. In this case, potential beneficiaries are induced to self-select into sub-coalitions. Screening is thus delegated to the group members who guarantee that the coalition does not include any non-qualifying members. Compliance is achieved by threatening the group of complete loss of benefits if any cheater is found by random audits (Rai).

7. Conditional targeting for education and health (CCT)

- Why target the currently poor? (Progres, Praf, Bolsa Escola)
- Target instead those at risk of not going to school, at risk of ill-health. Observe that many children of poor go to school (educated parents, close to a school) while many children of non-poor do not go to school (uneducated parents, far away from school).
- Make transfer conditional on school attendance, visits to health center: Is a contract with beneficiaries.
- Focus on symptoms (cash incentives to send children to school) or on determinants of not sending children to school? Build more schools (reduce distance), improve quality, inform uneducated parents about benefits of education, give access to credit, etc.

IV. Trade-offs in targeting

i) **Effective program budget** (budget that reaches the poor) vs. **administrative costs** (cost of reducing targeting errors): optimum trade-off.

ii) **Political economy**: Precise targeting may erode political support for the program (e.g., Sri Lanka's targeted food subsidies in 1977). Political function of leakages: optimum targeting for project viability that balances political support (increase Type II errors) and benefits to the poor (size of the program). With better targeting, poor may get a larger share of a smaller budget and be absolutely worse-off.

iii) **Targeting the poor is good for welfare programs but not for development project:** De-ghettoize the poor by linking them to the rich! (O. Damiani's results for Petrolina in Brazil where poor farmers benefit from development initiatives taken by non-poor farmers)

V. Food transfers and secondary markets

Alternative transfers:

(1) Cash transfers (Supplemental Security Income gives cash to widowed, orphaned, disabled).

(2) In-kind transfers (Food Stamps are vouchers that can be used to purchase a wide variety of foods. Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) are vouchers for nutritious foods)

i) Food subsidies programs

Infra-marginal transfers: food transfer < food expenditure after income effect.

The food received substitutes for food that would have been bought after income effect.

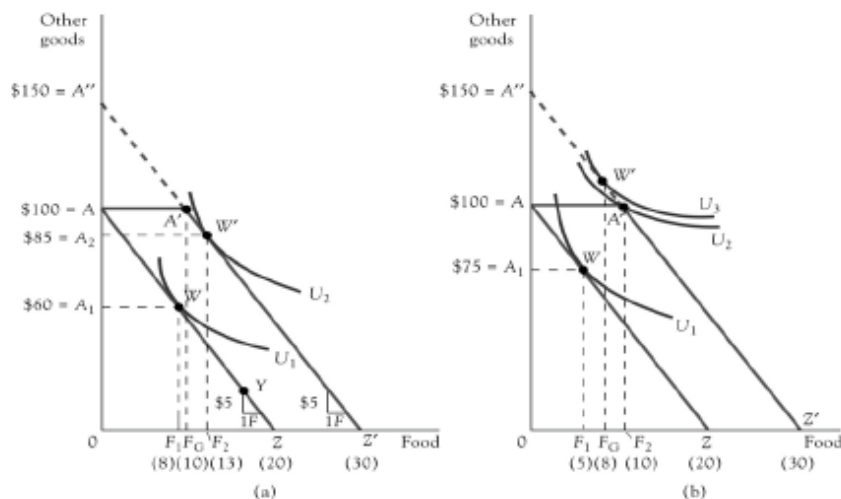
Effect on food consumption is a pure income effect.

Extra-marginal transfers: food transfer > food expenditure after income effect. The budget constraint is kinked at A'.

If secondary market: same as before

If no secondary market: consume more food that would have wanted of pure income effect.

If market with transactions costs: in-between the above two.



Effects of the Food Stamp Program on Consumption

(Browning & Zupan's Microeconomics: Theory & Applications, 7e, Ch 3)

ii) Price subsidies programs

If the national supply of food is inelastic: Fair price shops with subsidized foods impose a backlash effect on excluded poor through rising prices (unless food distributed in fair price shops is imported food with no real exchange rate effect). Example: India where food subsidies are only urban and implemented with domestic supply (see Table 11.3 at end of handout).

Welfare effects of food subsidies (Binswanger and Quizon for India) using a multimarket for India:

- Targeting and exclusion: who among the poor benefits?
- Source of food: domestic (price will rise) vs. imported (real exchange rate rises).
- Who pays the fiscal cost: domestic tax on farmers (forced procurement on large farmers), or tax on urban rich, or foreign aid

VI. Other issues

1. **Political feasibility of cash transfers vs in kind transfers** (food, energy, housing, etc.): cash always better, but political economy of cash transfers more difficult:

Difficult to obtain political support for cash transfers

Difficult to target (leakages, mimicking, corruption)

2. **Behavioral response of program participants:** the net impact on welfare?

- "Negative" incentives effects: the labor-leisure choice. Transfers increase leisure, decrease work and decrease private kin transfers, reduce savings.

- "Positive" incentives: Procampo in Mexico (income multiplier under credit constraint), higher school enrollment reduces child labor (Progresa).

3. **Social funds:** organized as temporary safety nets for shocks, transitions.

Programs: public employment, basic needs, microcredit.

Decentralized and demand-led by communities.

Administered by semi-autonomous service agency.

Popular with donors as administratively expedient: funded beyond emergencies

Bypass traditional public sector services: OK in the short run. Effective in the long run? Need be complemented by decentralized governance (Tendler).

VII. Programs for transitory versus chronic poverty

1. **Transitory poverty:** problem of income fluctuations (vulnerability)

- Provide access to risk-coping instruments: credit, insurance.

- Social funds, social safety nets programs

- Guaranteed employment programs as safety net (Maharastra): need setup program ex ante relative to income shocks): Immediately effective as safety net when shock occurs

Provides risk-coping instrument

2. **Chronic poverty:** problem of income level

- Provide access to productive assets (land, education, social capital)

- Increase the productivity of asset use (context: markets, institutions, public goods, policies)

- Increase prices of products and factors sold by the poor (but prices are zero sum games

instruments in the short run).

3. **Disability and old age:** welfare transfers, social security systems. What effect on participation to the labor force? (Contrast labor supply response to program for people of age just below age threshold and just above age threshold.) Do they provide a risk-coping instruments for the broader family?

Table 11.3. Untargeted food subsidies and urban ration shops (India)
(percentage change)

Targeting	Urban ration shops Domestic supply Forced procurement	Urban ration shops Domestic supply Excise tax	Urban ration shops Foreign supply Foreign aid	All poor Foreign supply Foreign aid
National per capita income	0.4	0.5	1.7	4.0
Output				
Total	0.1	0.2	-0.2	-0.4
Rice	0.0	0.3	-0.4	-0.3
Wheat	0.4	0.8	-4.1	-11.6
Coarse cereals	-0.1	-0.6	1.5	4.1
Other crops	0.1	0.3	1.0	2.3
GNP deflator	2.3	6.6	-2.7	-9.2
Price				
Rice	3.0	7.4	-4.9	-14.5
Wheat	3.6	8.0	-11.9	-35.0
Coarse cereals	3.1	7.2	-2.9	-10.1
Other crops	2.9	6.6	-0.7	-4.8
Real wage rate	0.1	-0.4	-0.5	-1.2
Employment	0.0	-0.2	-0.1	-0.2
Wage bill	0.1	-0.6	-0.6	-1.4
Profits	4.7	8.7	-3.0	-12.4
Real income per capita (by quartile)				
Rural				
Poorest	-0.5	-1.8	0.9	17.6
Second	0.2	-0.4	0.3	10.7
Third	-0.9	0.5	-0.1	-0.9
Richest	-1.5	2.2	-0.9	-3.8
Urban				
Poorest	8.1	4.5	12.7	20.1
Second	6.0	1.9	10.4	16.9
Third	3.7	-0.5	7.4	6.6
Richest	2.0	-2.4	3.8	2.8
Per capita cereal consumption				
Rural				
Poorest quartile	-0.5	-1.2	1.7	13.7
Richest quartile	-0.3	1.8	1.5	2.9
Urban				
Poorest quartile	5.7	3.1	11.3	20.0
Richest quartile	1.1	1.2	1.8	1.8

Source: Binswanger and Quizon, 1984.