# Subjective Agency Indicator

## Controlling for Adaptive Preferences

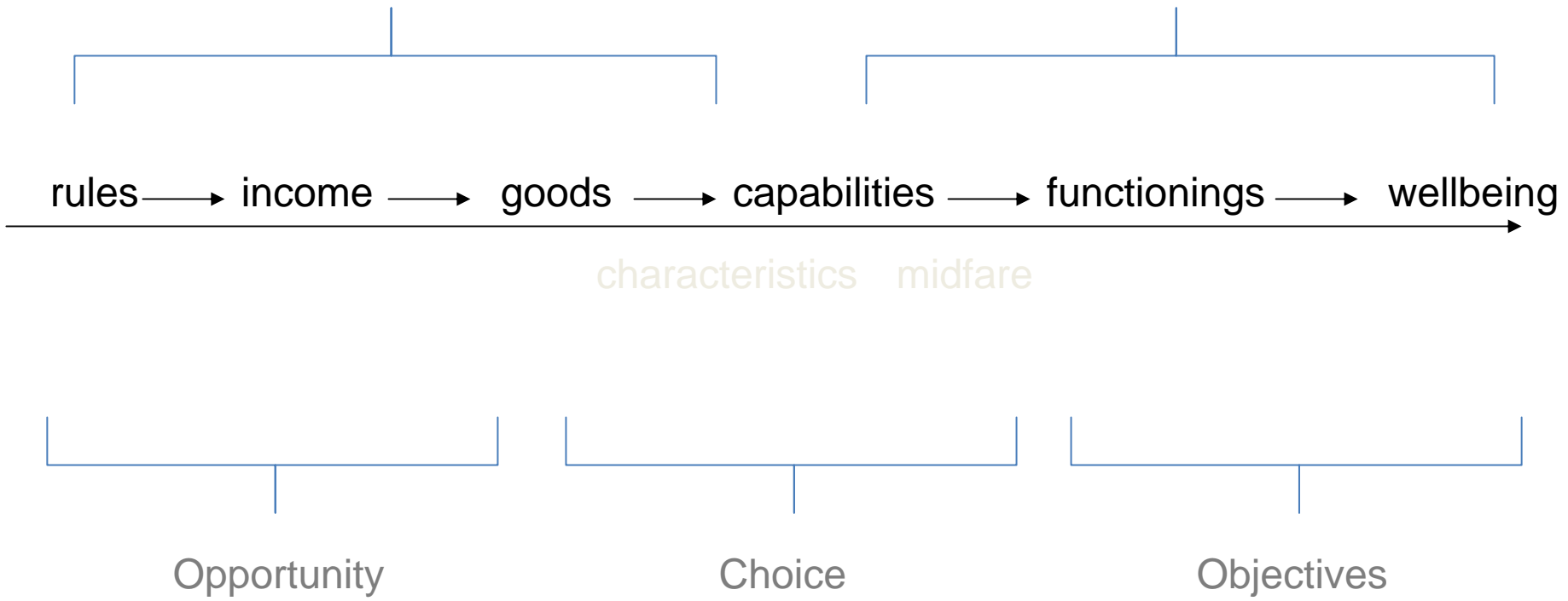# Concepts

rules ⟶ income ⟶ goods ⟶ capabilities ⟶ functionings ⟶ wellbeing

characteristics    midfare

Opportunity                    Choice                    Objectives

# Relevance

- Obesity
  - expansion of opportunity set lead to aggravation of wellbeing
- Social Exclusion
  - Self-esteem, etc.
- Gender
  - Internalised values (voting, intrahousehold, birth)
- Employment
  - Overworked, necessity, degrading
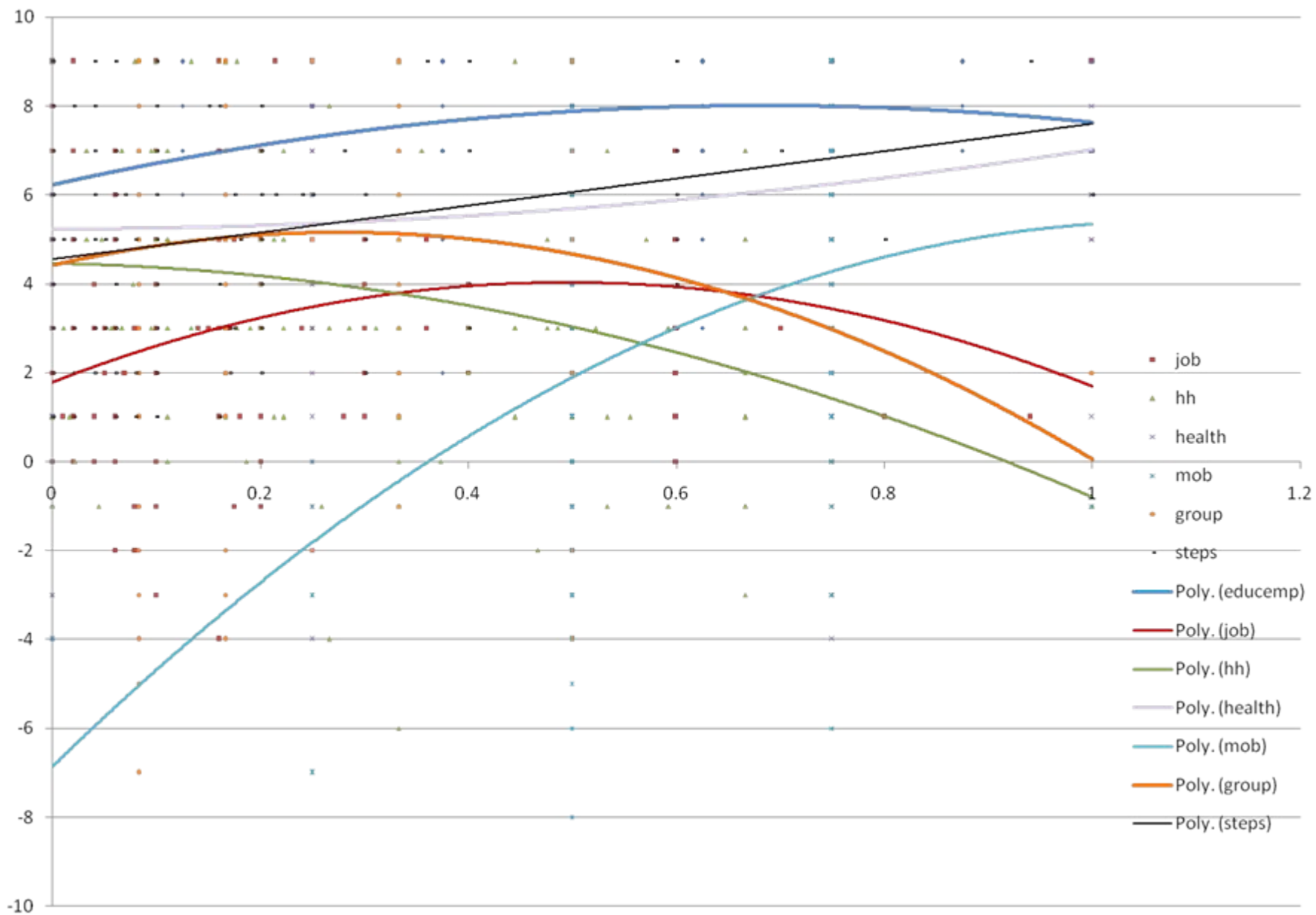
# Dataset

- 230 women: 2 spaces, 6 dimensions

| Deprivation | Agency | Decision |
|---|---|---|
| Own Education | Education | Children's Educ. |
| Income | Employment | Employment |
| Health | Health | Health |
| Personal Income | Household | Household Chores |
| Mobility | Mobility | Marriage |
| Nb of Associations | Group | Political |

- Agency question :
  - No control, external pressure, please others, instrumental importance, fully endorse.

# Problem
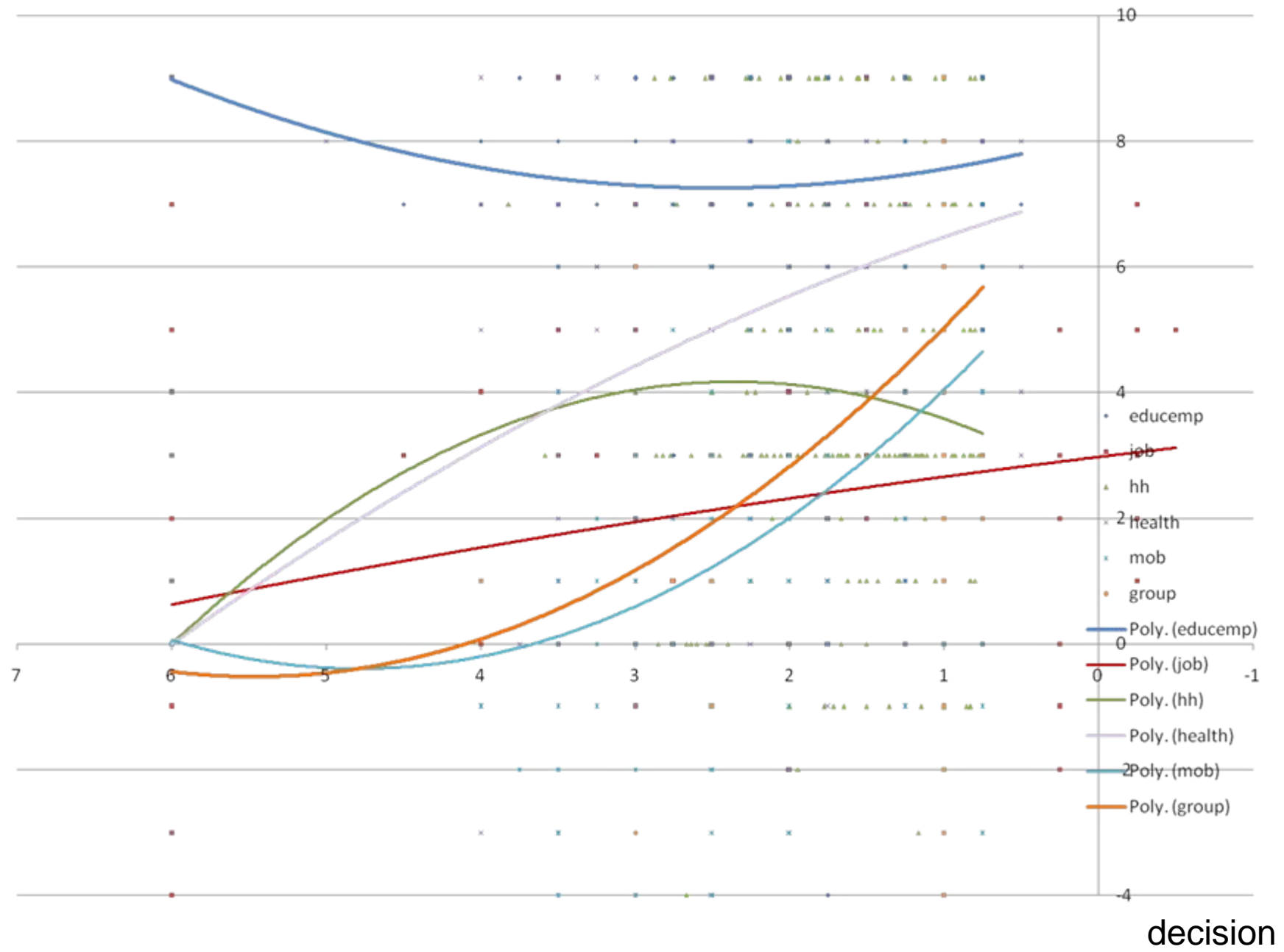
- Interpersonal comparability (Suh 1994)
  - Meaning, culture, etc.

- Idiosyncratic differences (Diener, Costa &McCrea, etc.)
  - Attitudes: optimism, self-esteem, neuroticism, etc.

- Time adaptation (Burchart, Brickman)
  - Duration of shock (injury, lottery, etc).

- Structural adaptation (Easterlin)
  - Social: caste, gender, religion, etc.

- Values (Diener and Fujita)

empowerment

| | |
|---|---|
| ■ | job |
| ▲ | hh |
| ✕ | health |
| ✕ | mob |
| ● | group |
| · | steps |
| —— | Poly. (educemp) |
| —— | Poly. (job) |
| —— | Poly. (hh) |
| —— | Poly. (health) |
| —— | Poly. (mob) |
| —— | Poly. (group) |
| —— | Poly. (steps) |

welfare

# empowerment



decision
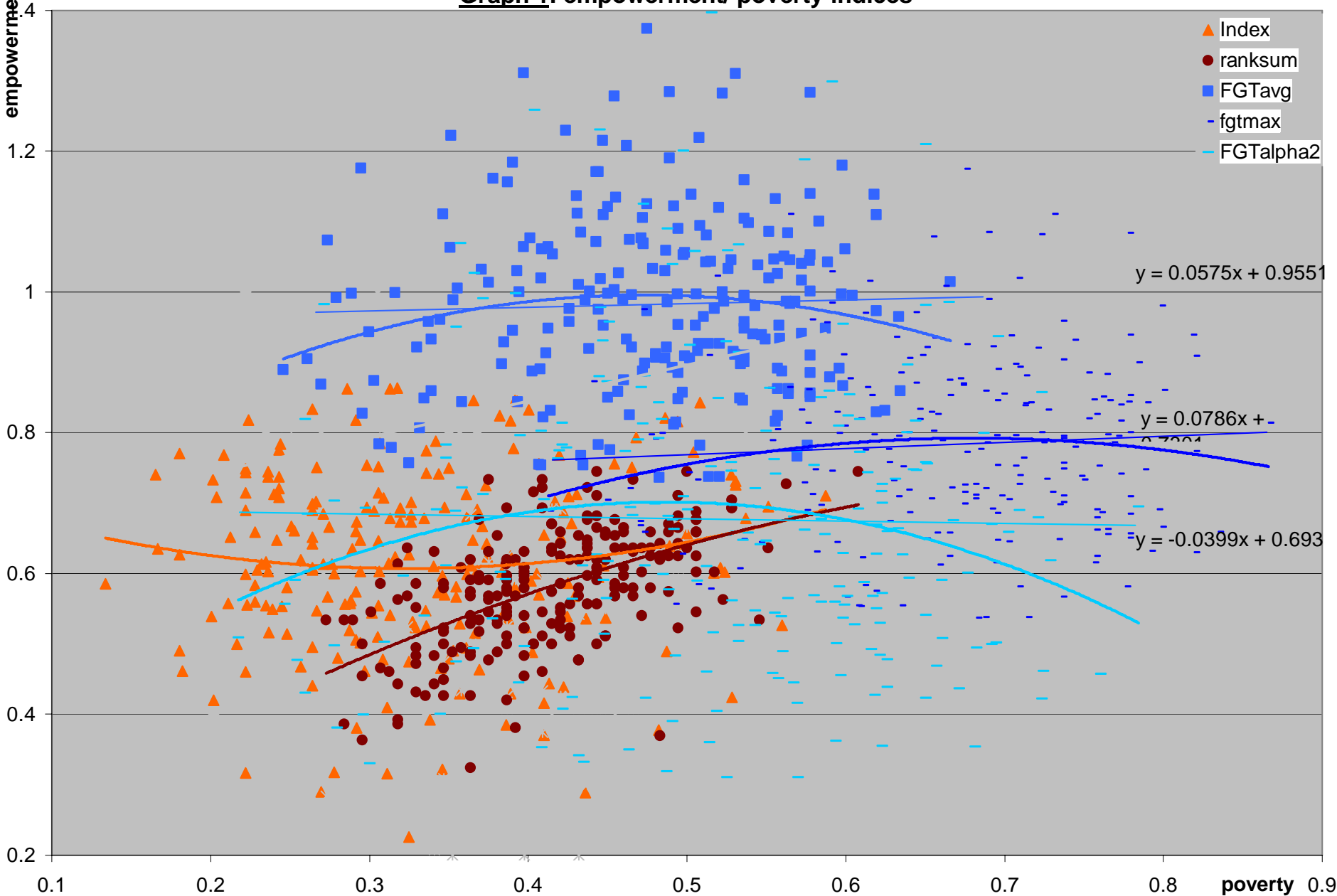
# Aggregating Across Dimensions

- Index :
    - each dimension is indexed 0,1 (max, min in sample for each dim.)
    - Average index score across 6 dimensions in poverty/ agency.
    - (-) Arbitrary weightings / (+) simplicity
- FGT scores:
    - Each dimension is considered as an observation
    - FGT score computed across 6 dimensions for each individuals in two spaces
    - (-) Arbitrary Poverty Line / (+) FGT
- Ranksum :
    - Mann-Whitney two sample statistics (each dimension 1 observ.)
    - Probability that $i$ has outperforms a given benchmark
    - (-) Less weight to outliers / (+) non-comparability of benchmarks across dimensions.

**Graph 1: empowerment/ poverty indices**

Legend:
- Index
- ranksum
- FGTavg
- fgtmax
- FGTalpha2

y = 0.0575x + 0.9551

y = 0.0786x + 0.7201

y = -0.0399x + 0.693

# Conflicting Phenomena

- Correlation:
  - Better off people feel more empowered
    - Problem: double counting
- Adaptation:
  - Better off people are more demanding
    - Problem: measuring the opposite of what we're trying to measure.
- Difference:
  - *Index*: If strong adaptation in some dimensions, strong correlation in others, it cancels out.
  - *Ranksum*: If correlation in more dimensions, then this will dominate.
  - *FGT*: If strong adaptation at high levels of income, this will dominate (see FGT2).
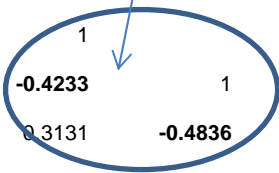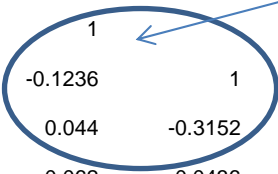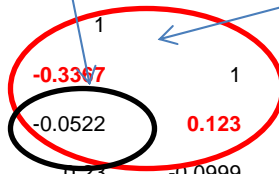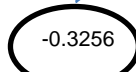
# Correlations

Objective

Adaptation

Correlation

| | educself | educemp | jobear~g | jobemp | persin~t | hhemp | health | health~p | mobility | mobemp | groupc~t | groupemp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| educself | 1 | | | | | | | | | | | |
| educemp | -0.0883 | 1 | | | | | | | | | | |
| educdec | -0.0339 | -0.058 | | | | | | | | | | |
| jobearning | 0.1695 | 0.0782 | 1 | | | | | | | | | |
| jobemp | -0.055 | 0.0829 | -0.0413 | 1 | | | | | | | | |
| jobdec | -0.0361 | 0.0253 | -0.0804 | .0188 | | | | | | | | |
| persinchhtot | 0.076 | -0.0081 | 0.4291 | -0.3256 | 1 | | | | | | | |
| hhemp | 0.0243 | 0.2676 | -0.1084 | 0.2663 | -0.3367 | 1 | | | | | | |
| hhdec | 0.0035 | -0.1303 | -0.1252 | -0.1463 | -0.0522 | 0.123 | | | | | | |
| health | -0.0642 | -0.1056 | -0.1586 | -0.2455 | 0.23 | -0.0999 | 1 | | | | | |
| healthemp | -0.0741 | 0.158 | 0.1991 | 0.0851 | 0.0966 | 0.1389 | -0.1236 | 1 | | | | |
| healthdec | 0.0602 | -0.1363 | -0.0804 | -0.1088 | -0.0521 | 0.0943 | 0.044 | -0.3152 | | | | |
| mobility | 0.0961 | -0.0523 | -0.167 | -0.1668 | -0.1002 | 0.0337 | 0.062 | -0.0436 | 1 | | | |
| mobemp | -0.0766 | 0.2608 | 0.1197 | 0.2192 | -0.0643 | 0.1801 | -0.1672 | 0.2321 | -0.4233 | 1 | | |
| mobdecmar | 0.0334 | -0.1426 | -0.1148 | -0.2415 | 0.0988 | 0.0326 | 0.0957 | -0.2583 | 0.3131 | -0.4836 | | |
| groupcount | 0.0295 | 0.1822 | 0.1659 | 0.0814 | -0.1698 | 0.1505 | -0.0736 | 0.2902 | 0.0247 | 0.0085 | 1 | |
| groupemp | 0.007 | 0.2765 | 0.1138 | 0.3331 | -0.1441 | 0.1347 | -0.361 | 0.024 | -0.2593 | 0.2817 | -0.033 | 1 |
| groupdecpol | 0.0407 | -0.2058 | -0.1042 | -0.1004 | -0.0343 | -0.0168 | 0.073 | -0.0554 | 0.2149 | -0.2544 | -0.0719 | -0.1921 |
| change | -0.0319 | -0.3017 | -0.1696 | -0.2226 | 0.0228 | -0.0859 | 0.243 | -0.0985 | 0.2681 | -0.3161 | -0.1828 | -0.3222 |
| steps | 0.0121 | 0.171 | 0.2691 | 0.1909 | -0.0041 | 0.1666 | -0.159 | 0.2652 | -0.241 | 0.2543 | 0.316 | 0.2595 |
| fate | -0.0295 | 0.2255 | -0.0389 | 0.1083 | -0.091 | 0.189 | -0.1689 | 0.2037 | 0.0736 | -0.0305 | 0.141 | 0.0336 |

# Solution

- ## Panel
  - Can eliminate idiosyncratic and structural differences but not time and value-related adaptation

- ## Time series analysis
  - Requires long data series (virtually impossible for poverty work)

- ## Structural equation
  - Can help understand endogenous preferences
  - Requires a theoretical model of preference formation process

- ## Simple regressions

# Solution

- Use the error term from the regression
  - Empowerment relative to peers.
- Advantage
  - Purge data of double counting and adaptation
- Disadvantage
  - Sample-specific
  - Peer-specific (might be judged as empowered, when in fact, it is just that your peers have adaptation)
  - Might lose important information in the process (correlation)

# Regressions

**Table 1**

| obs | 220 | | 220 | | 220 | |
|---|---|---|---|---|---|---|
| R2 | 0.2835 | | 0.1057 | | 0.1047 | |
| **health** | **reg** | | **ologit** | | **oprobit** | |
| pov | -0.309 | ** | -0.463 | ** | -0.287 | ** |
| hhsize | **-0.170** | -0 | **-0.273** | -0 | **-0.165** | -0 |
| houseown | | | | | | |
| landown | -0.254 | | -0.475 | * | -0.257 | |
| housequal | 0.038 | | 0.074 | * | 0.042 | * |
| educparen | 0.028 | ** | 0.043 | ** | 0.028 | ** |
| caste | | | | | | |
| age | **0.032** | 0 | **0.057** | 0 | **0.033** | 0 |
| maritalsta- | -0.176 | ** | -0.290 | ** | -0.169 | ** |
| jobdebts | **-0.328** | -0 | **-0.519** | -1 | **-0.307** | -0 |
| change | **3.449** | 3 | | | | |
| _cons | | | | | | |

**Table 2**

| | 212 | | 212 | | 212 | |
|---|---|---|---|---|---|---|
| | 0.1002 | | 0.0192 | | 0.0203 | |
| **healthem** | **reg** | | **ologit** | | **oprobit** | |
| pov | 0.820 | ** | 0.301 | | 0.214 | ** |
| hhsize | | | | | | |
| houseown | | | | | | |
| landown | -0.696 | | -0.451 | * | -0.266 | * |
| housequal | -0.088 | | -0.100 | ** | -0.045 | ** |
| educparen | 0.049 | | | | 0.015 | |
| caste | | | 0.150 | | 0.079 | |
| age | -0.045 | ** | -0.026 | ** | -0.014 | ** |
| maritalsta- | | | | | | |
| jobdebts | | | | | | |
| change | **7.515** | 8 | | | | |
| _cons | | | | | | |
| Hausman Test: | | 0 | Rejected | | | |
| G. Hausman: | | 0 | Rejected | | | |

**Table 3**

| | 220 | | 220 | | 220 | |
|---|---|---|---|---|---|---|
| | 0.0629 | | 0.0143 | | 0.0133 | |
| **healthded** | **reg** | | **ologit** | | **oprobit** | |
| pov | 0.147 | | 0.324 | * | 0.200 | * |
| hhsize | | | | | | |
| houseown | | | | | | |
| landown | -0.239 | * | -0.387 | | -0.294 | ** |
| housequal | 0.037 | * | 0.088 | ** | 0.051 | ** |
| educparen | | | | | | |
| caste | -0.114 | * | | | | |
| age | | | | | | |
| maritalsta- | 0.174 | ** | 0.234 | ** | 0.122 | * |
| jobdebts | | | | | | |
| change | -1.740 | ** | | | | |
| _cons | | | | | | |
| Hausman Test: | | - | N/A | | | |
| G. Hausman: | | 0 | Rejected | | | |

**Table 4**

| obs | 219 | | 219 | | 219 | |
|---|---|---|---|---|---|---|
| R2 | 0.1725 | | 0.1188 | | 0.1138 | |
| **mobility** | **reg** | | **ologit** | | **oprobit** | |
| pov | 0.126 | ** | 0.474 | ** | 0.308 | ** |
| hhsize | | | | | | |
| houseown | **0.051** | 0 | **0.242** | 0 | **0.127** | 0 |
| landown | | | | | | |
| housequal | 0.021 | * | 0.079 | | 0.051 | * |
| educparen | -0.013 | ** | -0.051 | ** | -0.031 | ** |
| caste | | | | | | |
| age | **0.012** | 0 | **0.054** | 0 | **0.028** | 0 |
| maritalsta- | | | | | | |
| jobdebts | **0.166** | 0 | **0.711** | 1 | **0.397** | 0 |
| change | **-2.817** | -3 | | | | |
| _cons | | | | | | |

**Table 5**

| | 196 | | 196 | | 196 | |
|---|---|---|---|---|---|---|
| | 0.1812 | | 0.0341 | | 0.0365 | |
| **mobemp** | **reg** | | **ologit** | | **oprobit** | |
| pov | 0.859 | ** | 0.347 | * | 0.228 | ** |
| hhsize | | | | | | |
| houseown | 0.273 | ** | 0.153 | ** | 0.074 | ** |
| landown | | | | | | |
| housequal | -0.121 | | -0.060 | | -0.034 | |
| educparen | -0.082 | * | -0.037 | | -0.025 | ** |
| caste | 0.376 | | 0.150 | | 0.113 | |
| age | 0.064 | ** | 0.024 | ** | 0.017 | ** |
| maritalsta- | 0.576 | ** | 0.310 | ** | 0.179 | ** |
| jobdebts | **1.203** | 1 | **0.569** | 1 | **0.341** | 0 |
| change | -3.330 | | | | | |
| _cons | | | | | | |
| Hausman Test: | | - | N/A | | | |
| G. Hausman: | | 0 | Rejected | | | |

**Table 6**

| | 214 | | 214 | | 214 | |
|---|---|---|---|---|---|---|
| | 0.0888 | | 0.0198 | | 0.0209 | |
| **mobdecm** | **reg** | | **ologit** | | **oprobit** | |
| pov | 0.286 | ** | 0.543 | ** | **0.334** | 0 |
| hhsize | | | -0.087 | | | |
| houseown | 0.056 | ** | 0.117 | ** | 0.067 | ** |
| landown | | | | | | |
| housequal | 0.035 | * | 0.078 | ** | 0.046 | ** |
| educparen | | | | | | |
| caste | -0.108 | * | -0.195 | * | -0.110 | |
| age | | | | | | |
| maritalsta- | | | | | | |
| jobdebts | 0.162 | ** | 0.279 | * | 0.182 | ** |
| change | **-2.934** | -3 | | | | |
| _cons | | | | | | |
| Hausman Test: | | - | N/A | | | |
| G. Hausman: | | 0.304 | Accepted | | | |

**Graph 3: FGT indices (corrected for adaptive preferences)**

empowerment

poverty

fgtempidx
fgtemporig
fgtempcrude
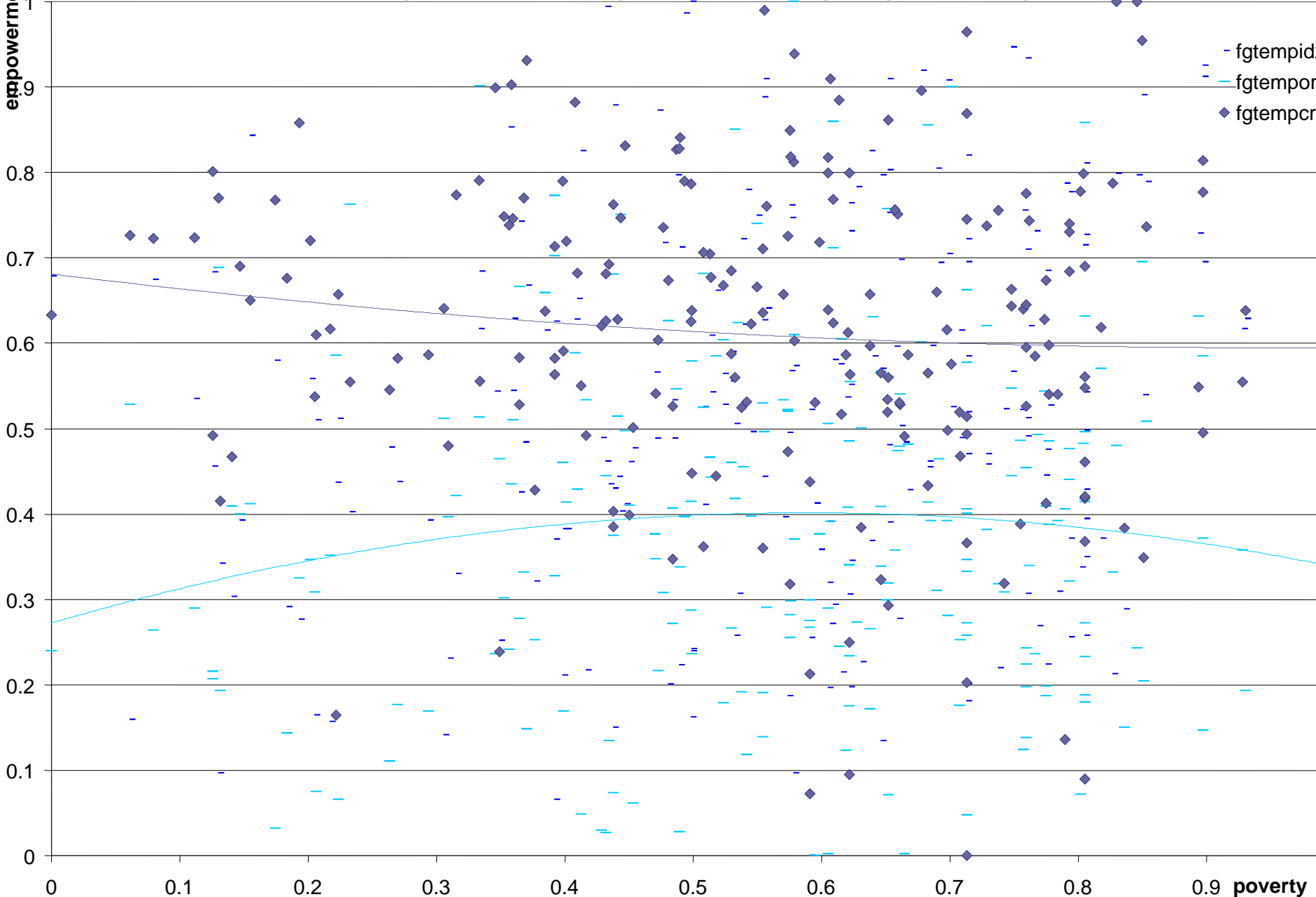
# Hybrid

- 1. General empowerment indicator (steps)
- 2. Decision Making Indicator
- 3. Agency Indicator


- Revised Agency Indicator : G + D *A

**Graph 3: FGT indices (corrected for adaptive preferences)**
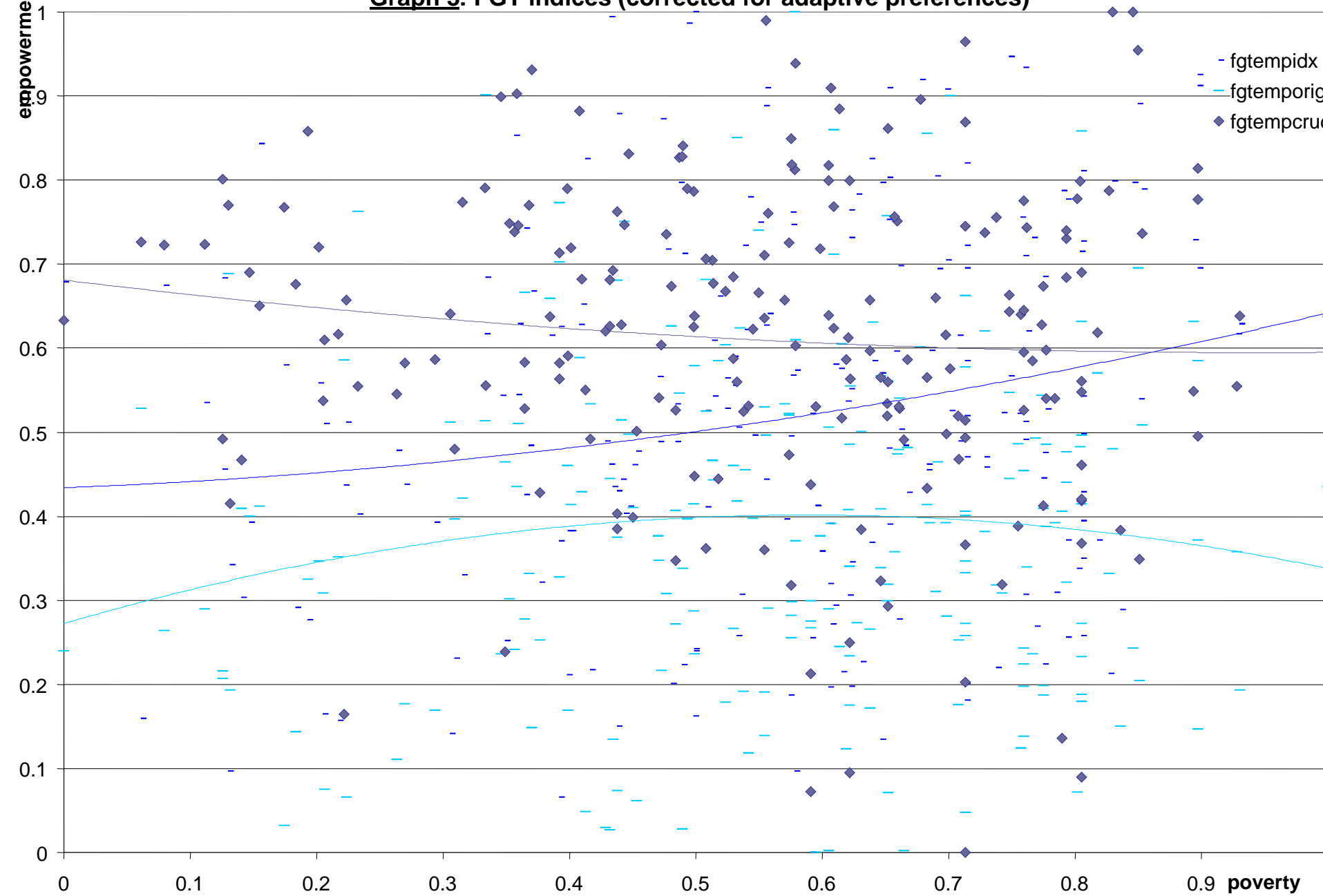
# Aggregation Across Spaces

- Stochastic Dominance (Duclos)
  - Union: poor if either disempowered or deprived
    - E.g. obesity
  - Intersection: poor if both disempowered and deprived
    - E.g. fasting.

# Poverty Dominance Surface