The measurement of economic empowerment

An example from rural Indonesia

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July 15,2021

A unique data set for studying WEE measurement

- Relatively large sample (2,852 women and 1,976 men business owners in mainly rural East Java, Indonesia)
- Data collected for an impact evaluation of a social experiment designed to increase the utilization of mobile phone-supported village banking services
- Data collected in three rounds, making it possible to compare measures over time
- Data include a wide range of objective and subjective WEE outcomes, (e.g., profits, HH income, savings, investment)
- Data are of high quality

The outcomes in the data set cover most dimensions of the Compendium's conceptual framework

*(numbers refer to distinct outcomes, * indicates composite variable)*

ACHIEVEMENTS

Personal income (4), Personal assets (2), Business assets (3), Household income* (2), Quality of life (2), Vulnerability to shocks (1)

AGENCY / EMPOWERMENT

Agency (3), Saving (3), Borrowing (7), Business investment (1), Personal work effort (1), Mobilization of additional labor (3), Business practices* (1), Use of financial services (4), Networking w peers* (1), Community participation* (1)

RESOURCES

Age/experience (2), Education* (2), Psychological characteristics* (2), Access to financial services* (2), Access to infrastructure (1), Social capital (1)

The analysis assesses the reliability and validity of WEE outcomes and the extent to which they affect both behavioral relationships and experimental estimates

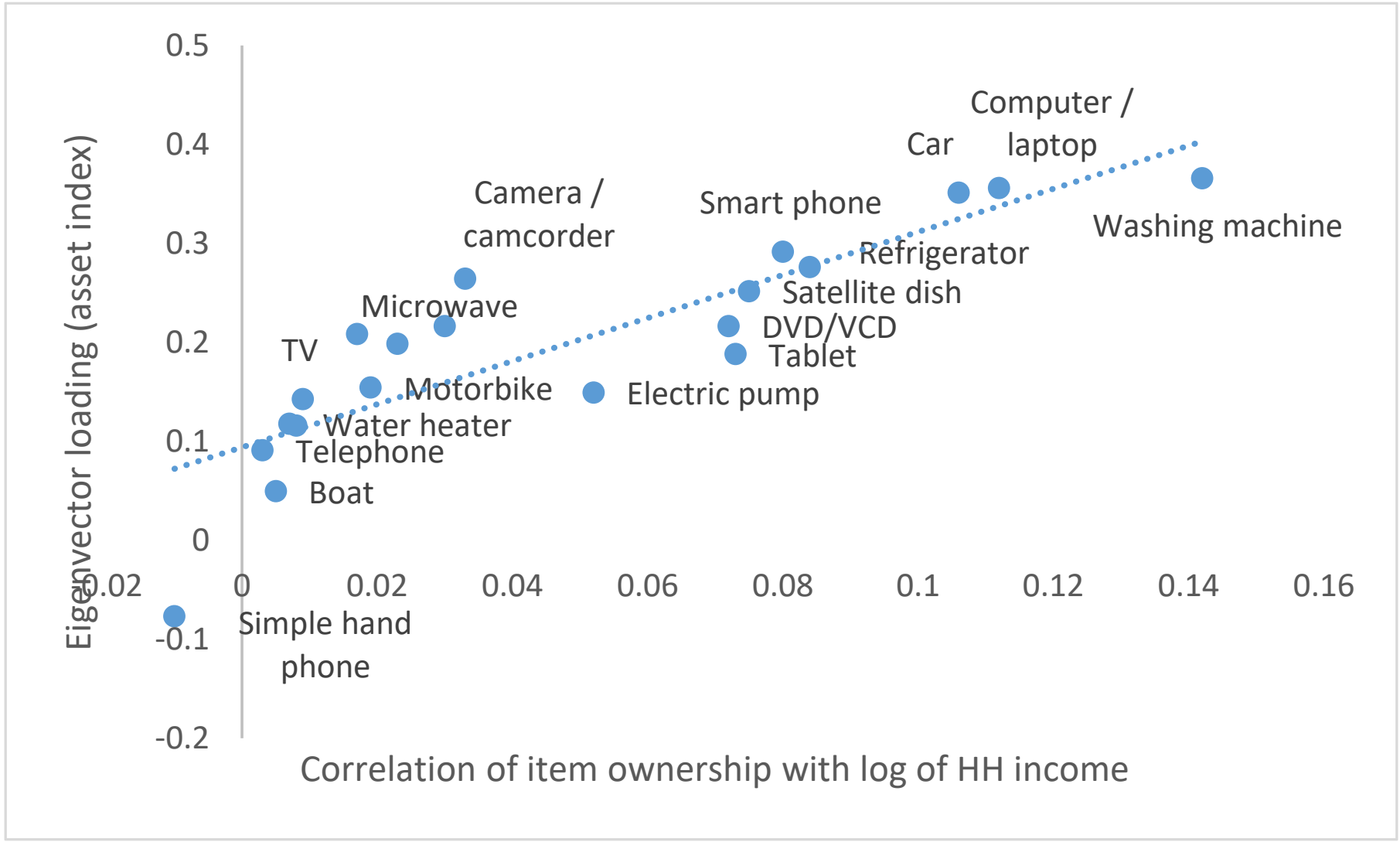
- **Reliability** is the consistency of a measure at different points in time-- is assessed here by “test-retest reliability” (i.e., correlation between repeated measurements over time)
- **Validity** is the extent to which a measure actually represents the variable it is intended to measure-- assessed here by “criterion validity” (the extent to which the measure is related to variables that it is expected to be related to and not related to variables that are conceptually distinct)
- The **behavioral relationships** involve gender differentials in outcomes with other factors held constant, while **experimental estimates** include both unadjusted (no covariates) or adjusted estimates (when possible)

Main findings: Economic variables

- Many economic variables are unreliable because they incorporate **random measurement error**, particularly when they are based on extended recall periods (e.g., savings during the past year versus current savings balances)
- 17 economic variables analyzed have **problematic distributions** that are either bounded below by zero with highly skewed positive values (e.g., profits) and/or have large concentrations of zero values (e.g., savings, investment).
- These problematic features can **bias estimates** of both behavioral relationships and experimental effects
- **Simple solutions are often available**: (1) avoiding variables with extended recall periods, (2) suppressing the effects of extreme values through transformations (e.g., the natural log) or by "winsorizing" extreme values, and (3) using special statistical models designed to deal with large concentrations of zero values (e.g., tobit or two-step models).
- Examples: business profits and personal savings

Main findings: Composite variables (“indexes”)

- Composite variables are **very common** in WEE research because it is very difficult to measure concepts like “household decision-making” or “business practices” with a single variable
- A total of 17 composite variables were analyzed. Of the 10 that were measured more than once, all but one (trust in banks, a subjective variable) are **relatively reliable**, while all but three (subjective well-being, subjective time preference, and marital agency) have **moderate or strong criterion validity**
- The “scale” used to aggregate the individual items to the composite measure does not affect either behavioral or experimental estimates in most cases
- Examples: household income, personal agency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-0.02
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0.14
0.16
Eigenvector loading (asset index)
Correlation of item ownership with log of HH income
Computer / laptop
Car
Camera / camcorder
Smart phone
Washing machine
Refrigerator
Satellite dish
Microwave
DVD/VCD
TV
Tablet
Motorbike
Electric pump
Water heater
Telephone
Boat
Simple hand phone