

IMF Statistical Forum

Measuring Material Conditions of Households

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November 20, 2015 | Frankfurt, Germany



Introduction

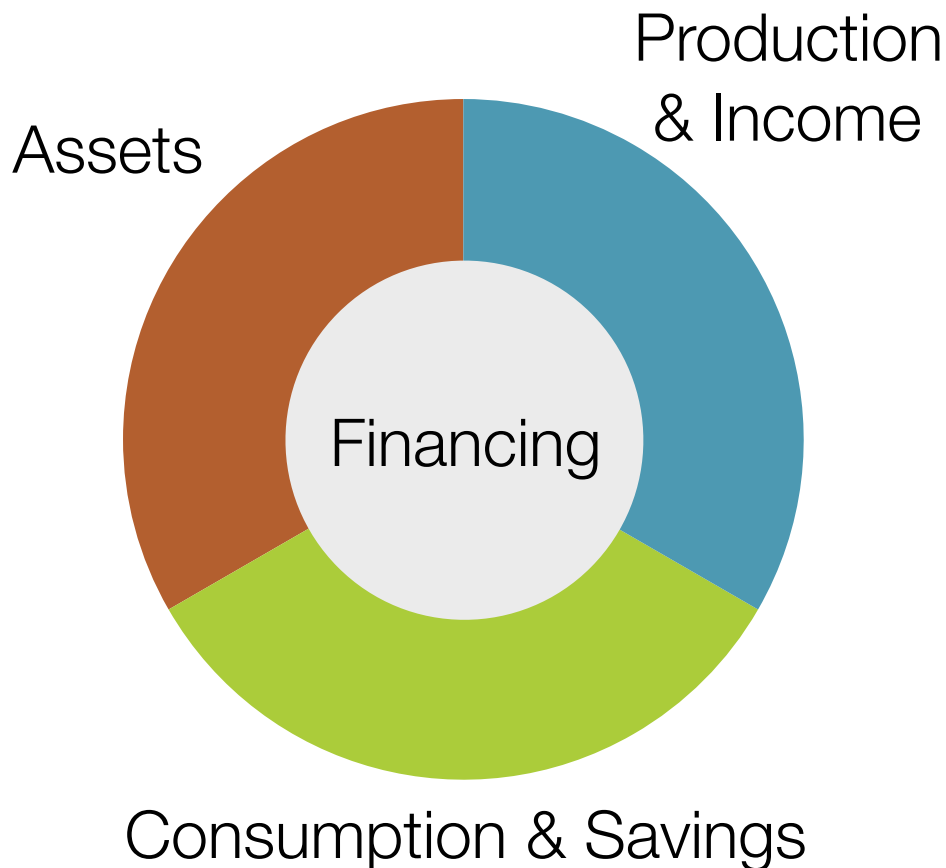
- Need to understand the distribution of individual's well-being within an economy
- Need to assess the impact of both universal and targeted interventions on well-being of different socio-economic groups

Need data on the distribution of
household consumption

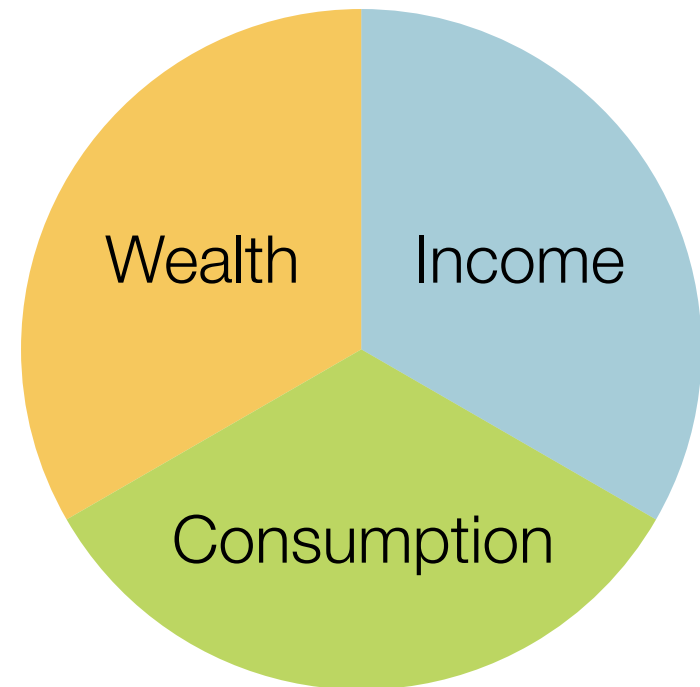
But consumption alone is not enough...
Also need other measures that determine consumption

Two Integrated Frameworks

Samphantharak-Townsend Household Financial Accounting Framework



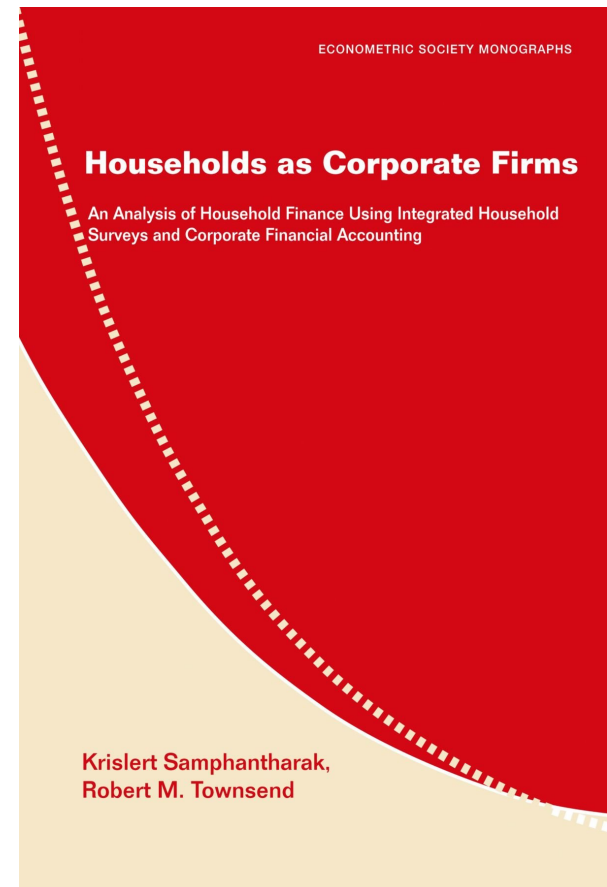
OECD Income, Consumption and Wealth Integrated Framework





I. Samphantharak-Townsend Household Financial Accounting Framework

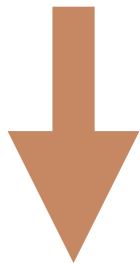
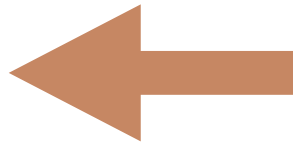
- Samphantharak and Townsend (2009) draw analogies between households and corporate firms
- Apply frameworks used in corporate financial accounting to the households and create financial statements for each household in each period



Income Statement
Revenues
(Associated) Expenses
Operating Income
Other revenues and expenses
Capital gains (loss)
Taxes
(Accrued) Net Income

Investment	Financing
Balance Sheet	
(Current and Long-term Fixed) Assets	(Current and Long-term) Liabilities
	Wealth

Production



Consumption
(Dividend)



Savings
(Retained Earnings)



Constructing Financial Statements from a Survey

Initial Survey

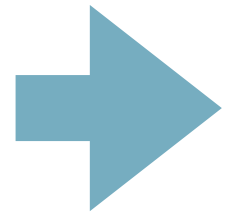
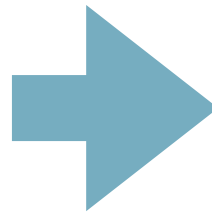
Re-Survey

Initial Balance Sheet

Updated Balance Sheet

Income Statement

Statement of Cash Flows





A Trivial Example: Household receives wage income in cash

“What is the total amount of cash payments that you received since the last interview for doing this job?....”

Balance Sheet

Income Statement

Statement of Cash Flows

Cash



Labor Income

Cash Inflow from Production

Cumulative Savings



Table 4.1. *Examples of Transactions and Their Records*

Transaction	Example of Corresponding Survey Questions	Balance Sheet	Income Statement	Statement of Cash Flows
Receive wage income in cash	JM4D What is the total amount of cash payments that you received since the last interview for doing this job? Include the value of any cash tips, bonuses or overtime payments. If no cash payments were received, record 0.	Increase in cash; Increase in cumulative savings	Revenue from labor	Net income (Cash inflow)
Use cash to pay telephone bill	XM1A [6] Since the last interview, have you or members of your household made any cash purchases of [telephone and telecommunication services]? If yes, what is the total amount that you and members of your household have spent on [telephone and telecommunication services] since the last interview?	Decrease in cash; Decrease in cumulative savings	Consumption	Consumption (Cash outflow)
Deposit cash with the production credit group	SM3B How much have you deposited to [the production credit group] in total since the last interview?	Decrease in cash; Increase in deposits at financial institutions		Increase in deposits at financial institutions (Cash outflow)

Source: Samphantharak and Townsend (2009)



Table A.1. *Balance Sheet of Household A*

Month	5	6	7	8	9
Cash in Hand	1,966,139	1,862,121	1,701,863	1,663,257	1,593,938
Account	688,971	805,259	952,359	1,059,382	1,126,773
Receivables					
Deposits at	167,271	167,969	168,094	156,799	157,474
Financial					
Institutions					
ROSCA	33,000	37,000	41,000	11,500	16,050
(Net Position)					
Other Lending	153,136	153,136	153,136	153,136	153,136
Inventories	1,346,939	1,440,729	1,576,481	1,697,413	1,842,527
Livestock	326,280	323,018	319,787	316,590	313,424
Fixed Assets	967,342	973,759	970,949	968,151	965,365
Household	598,758	596,261	593,775	591,299	588,833
Assets					
Agricultural	66,104	65,829	65,554	65,281	65,009
Assets					
Business	2,479	11,669	11,620	11,572	11,523
Assets					
Land and	300,000	300,000	300,000	300,000	300,000
Other Fixed					
Assets					
Total Assets	5,649,079	5,762,991	5,883,669	6,026,228	6,168,687
Total Liabilities	1,132,310	1,280,270	1,425,465	1,570,660	1,715,855
Account	1,078,505	1,228,465	1,375,660	1,522,855	1,670,050
Payables					
Other	53,805	51,805	49,805	47,805	45,805
Borrowing					
Total Wealth	4,516,769	4,482,721	4,458,204	4,455,568	4,452,832
Initial Wealth	3,439,250	3,439,250	3,439,250	3,439,250	3,439,250
Cumulative	-6,664	-6,046	-6,357	-6,319	-7,576
Net Gifts					
Received					
Cumulative	1,084,182	1,049,517	1,025,311	1,022,637	1,021,158
Savings					
Total Liabilities	5,649,079	5,762,991	5,883,669	6,026,228	6,168,687
and Wealth					

Remark: The unit of currency is THB. Month 5 is corresponding to January 1999.



Table A.2. *Income Statement of Household A*

Month	5	6	7	8	9
Revenue from Cultivation					
Revenue from Livestock	30,485	27,753	26,180	21,780	26,730
Livestock Produce	28,985	27,753	26,180	21,780	26,730
Capital Gains	1,500				
Revenue from Fish and Shrimp					
Revenue from Business	184,360	145,360	183,875	152,890	160,455
Revenue from Labor Provision	11,440	11,440	11,440	11,440	11,440
Other Revenues	6,000	3,000	6,000	6,000	6,000
Total Revenues	232,285	187,553	227,495	192,110	204,625
Cost of Cultivation					
Cost of Livestock	31,944	30,281	27,642	22,813	21,715
Capital Losses					
Depreciation (Aging)	3,281	3,263	3,230	3,198	3,166
Other Expenses	28,663	27,018	24,412	19,615	18,549
Cost of Fish and Shrimp					
Cost of Business	220,176	167,323	199,933	150,300	159,472
Cost of Labor Provision					
Cost of Other Production Activities					
Total Cost of Production	252,120	197,604	227,575	173,112	181,187
Interest Revenue					
Interest Expense	55	55	55	75	55
Other Expenses	2,794	2,783	2,810	2,798	2,786
Depreciation of Fixed Assets	2,794	2,783	2,810	2,798	2,786
Insurance Premium					
Extraordinary Items					
Capital Gains					
Capital Losses					
Net Income	-22,684	-12,889	-2,945	16,125	20,597
Consumption	9,035	9,362	8,145	10,849	8,566
Savings	-31,719	-22,251	-11,090	5,276	12,031

Remark: The unit of currency is THB. Month 5 is corresponding to January 1999.



Table A.3. *Statement of Cash Flows of Household A*

Month	5	6	7	8
Net Income (+)	-22,684	-12,889	-2,945	16,125
Adjustments:				
Depreciation (+)	6,075	6,046	6,040	5,996
Change in Account Receivable (-)	-147,488	-116,288	-147,100	-107,023
Change in Account Payable (+)	149,960	149,960	147,195	147,195
Change in Inventory (-)	-126,465	-106,205	-148,866	-128,883
Change in Other Current Assets (-)	1,781	3,263	3,230	3,198
Consumption of Household-Produced Outputs (-)	-350	-314	-383	-373
Cash Flow from Production	-139,171	-76,427	-142,830	-63,765
Consumption Expenditure (-)	-8,685	-9,048	-7,762	-10,476
Capital Expenditure (-)	-3,281	-12,463	-3,230	-3,198
Cash Flow from Consumption and Investment	-11,966	-21,511	-10,992	-13,674
Change in Deposit at Financial Institution (-)	-8,895	-698	-125	11,295
Change in ROSCA Position (-)	-4,000	-4,000	-4,000	29,500
Lending (-)	0	0	0	0
Borrowing (+)	-2,000	-2,000	-2,000	-2,000
Net Gifts Received (+)	-710	618	-311	38
Cash Flow from Financing	-15,605	-6,080	-6,436	38,833
Change in Cash Holding (from Statement of Cash Flows)	-166,742	-104,019	-160,258	-38,606
Change in Cash Holding (from Balance Sheet)	-166,742	-104,019	-160,258	-38,606

Remark: The unit of currency is THB. Month 5 is corresponding to January 1999.



Benefits of Household Financial Accounting Framework

1. It helps researchers/users better define variables

Indonesia Family Life

Survey 1993: “What is the approximate amount in rupiah of total expense spent by the household for the farm business during the past 12 months?”

LSMS survey: “In a month with ‘average sales,’ how much have you spent in total on the purchase of inputs (labor, raw materials, items for resale, transport, electricity, water, fuel, rental, maintenance, taxes, registration fees, insurance, etc.)?”

- Issues: Inputs received for free? Use of inputs purchased in earlier year and was kept in inventory? Inputs derived from other production activities of the household and household’s own labor?

2. It helps researchers/users systematically categorize many sub-items of the main variables in each account

3. By definition, financial statements have to reconcile across accounts

Household assets	=	Household liabilities + household wealth
An increase in household wealth from the balance sheet	=	Savings from income statement
Net change in cash from the statement of cash flows	=	Change in cash from the balance sheet

- With these balanced accounts, we avoid having a common problem that a variable generated from one set of questionnaire responses yields a different value when computed from an alternative set of responses

Kochar (2000): Household savings in the LSMS surveys computed as 'household income minus consumption' is different from household savings computed from 'change in household assets'

4. Financial accounts provide a simple way to apply standard financial accounting analysis to the study of household finance

Financial Analysis

ROA & ROE

Capital Structure

Liquidity Management

Risk Management

Wealth Management

Economic Modeling

Productivity

Financial Constraints

Payout Policy

Risk-Return Tradeoff

Misallocation

5. It allows researchers to have consistent metrics to compare self-employed enterprises and larger corporations

Self-employed
Enterprises



Large
Corporations

6. It defines the measure of accrued income from household enterprises as value added, consistent with the definition of national income in the National Income and Product Accounts (NIPA)

Value Added
from
Household
Enterprises



Total Value Added



The Use of Household Financial Statements: An Example

The Townsend Thai Monthly Survey

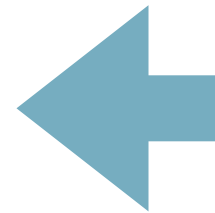
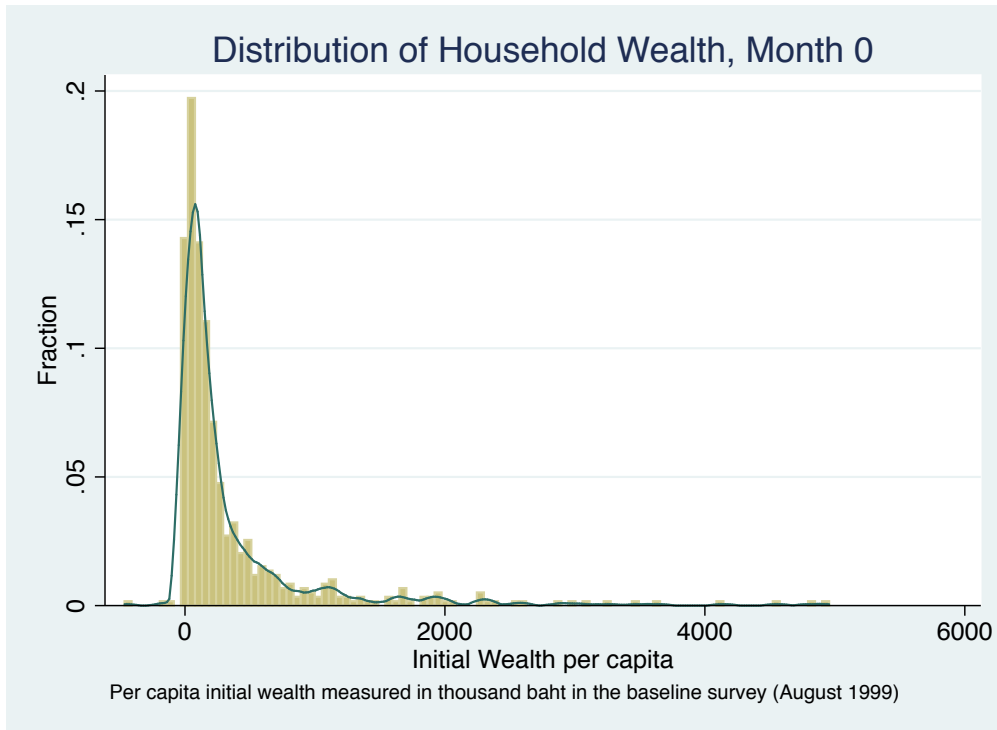
- On-going intensive monthly survey initiated in 1998 in 4 provinces of Thailand
 - In each of the four provinces, the survey is conducted in 4 villages, chosen at random within a given subdistrict
 - Approximately 45 households surveyed in each village
-

-
- Longest running high-frequency panel in developing world
 - Data from the survey shed light on several issues of households in a developing, industrialized economy
-



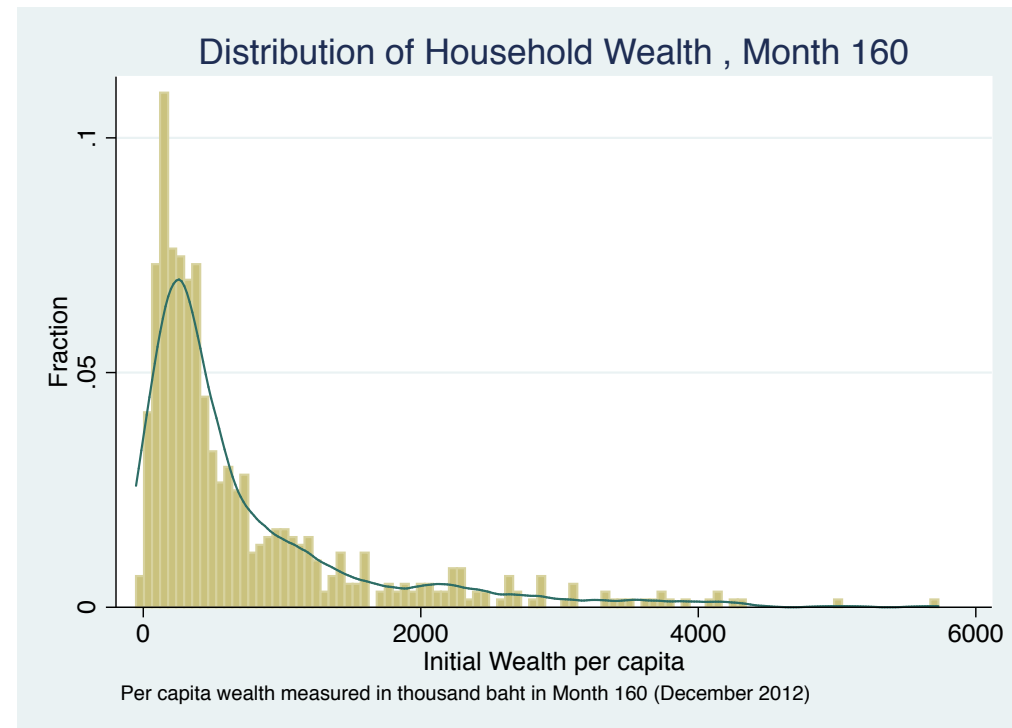
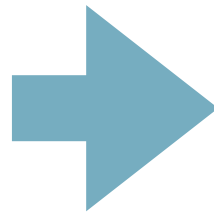


There is accumulation of material wealth;
distribution also becomes more equal



Initial per capita
Wealth in 1999

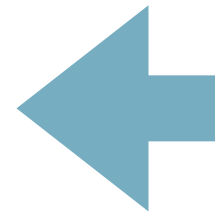
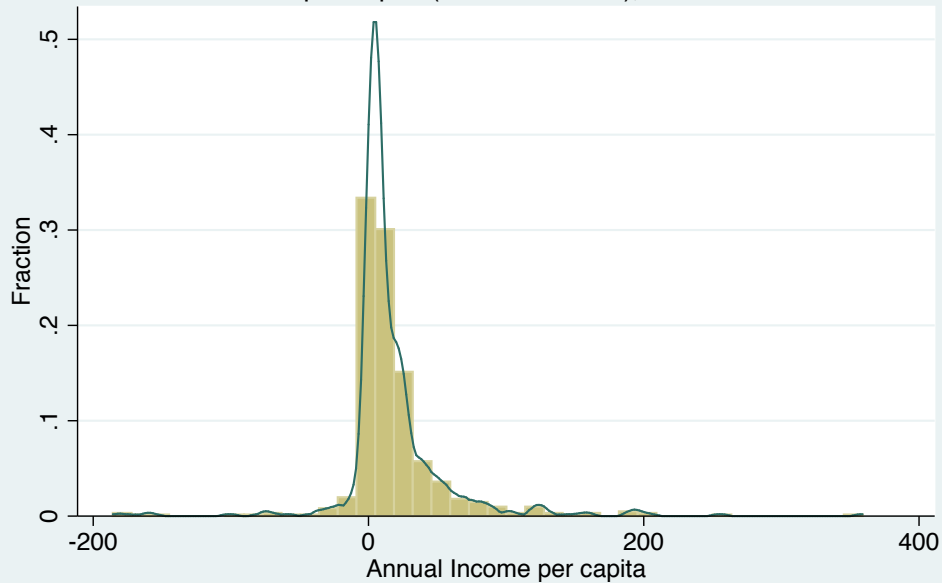
Per capita
Wealth in 2012





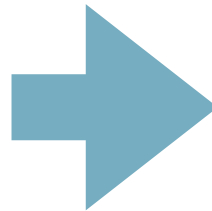
Similar trend of growth and distribution is also observed for income

Distribution of Household Annual Income per capita (Thousand Baht), 2000

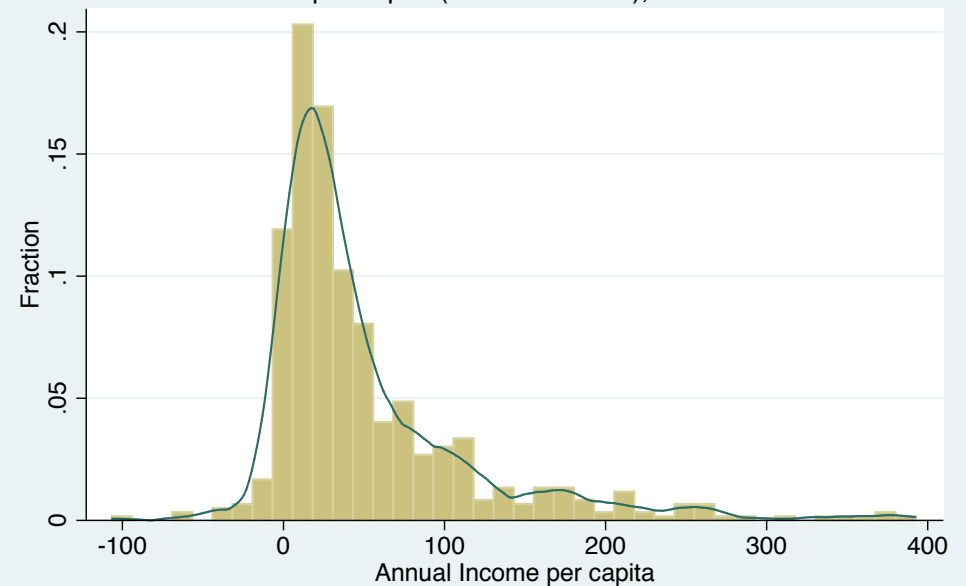


Household income per capita in 2000

Household income per capita in 2012



Distribution of Household Annual Income per capita (Thousand Baht), 2012

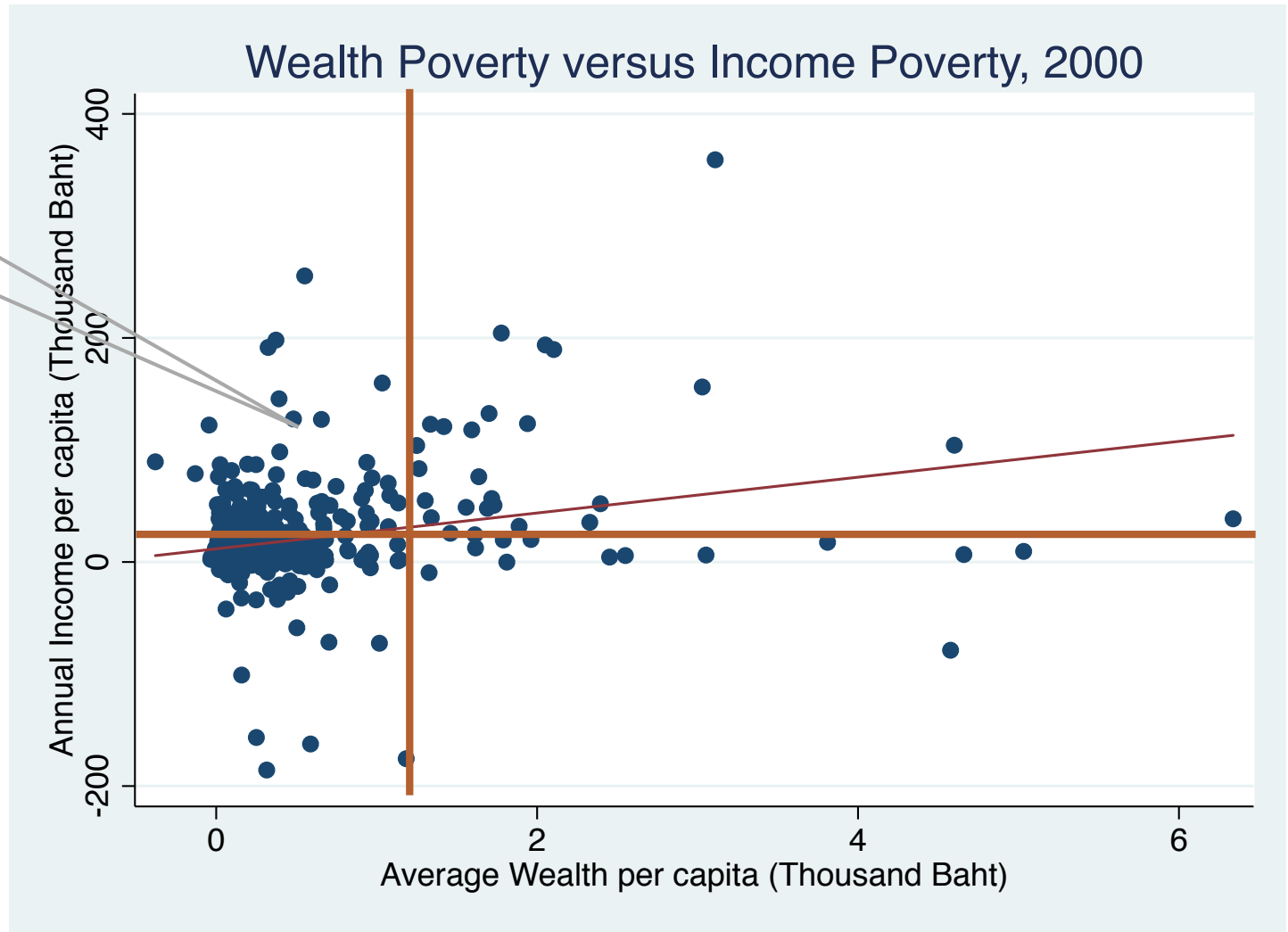
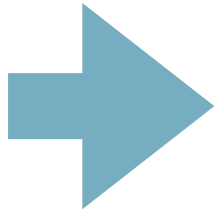




But correlation between income and material wealth is not very high: The role of non-material wealth (e.g. human capital)

Low material wealth but high income

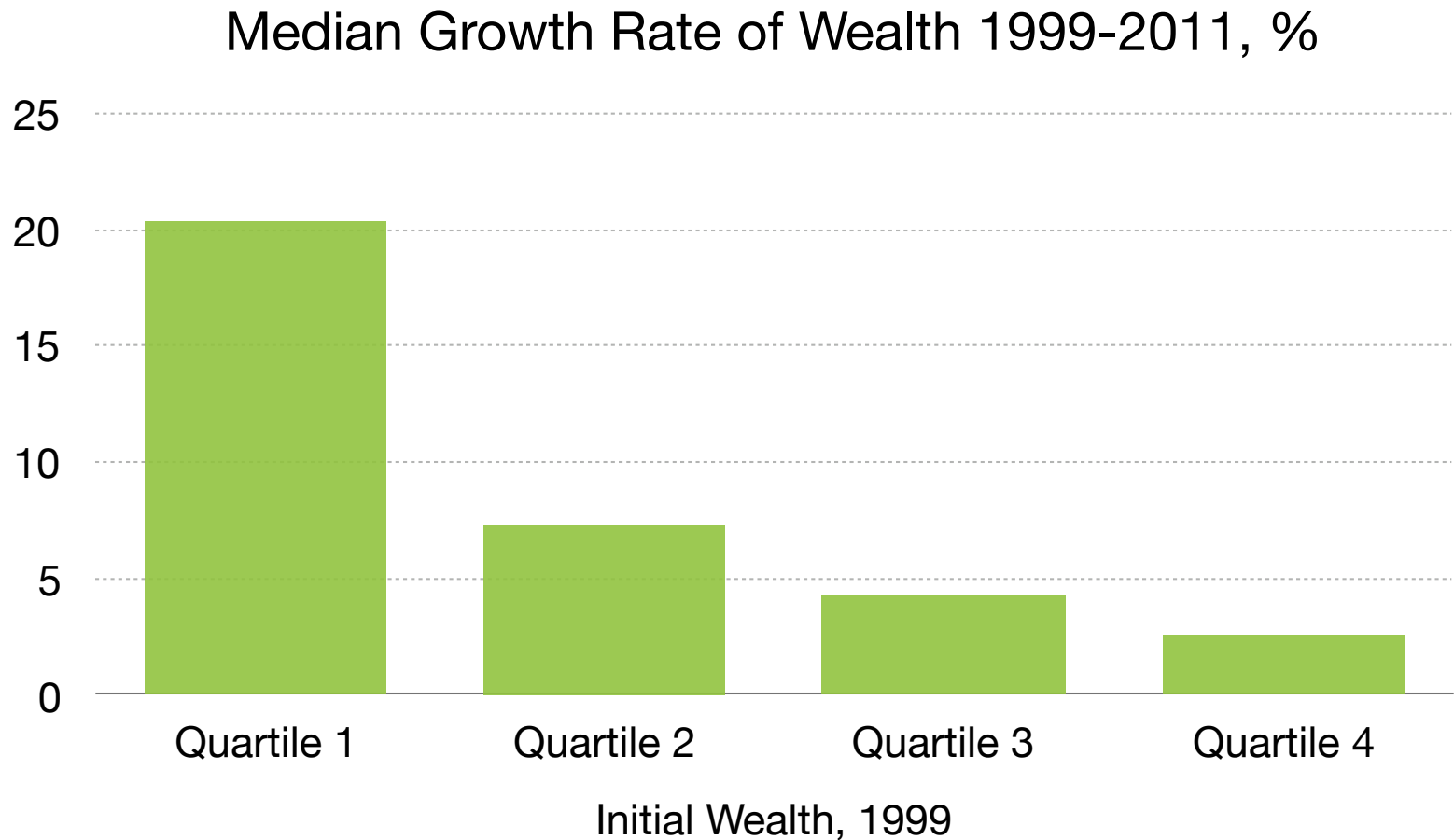
\$1 per day



Correlation Coefficient = 0.25 (Significant at 1%)



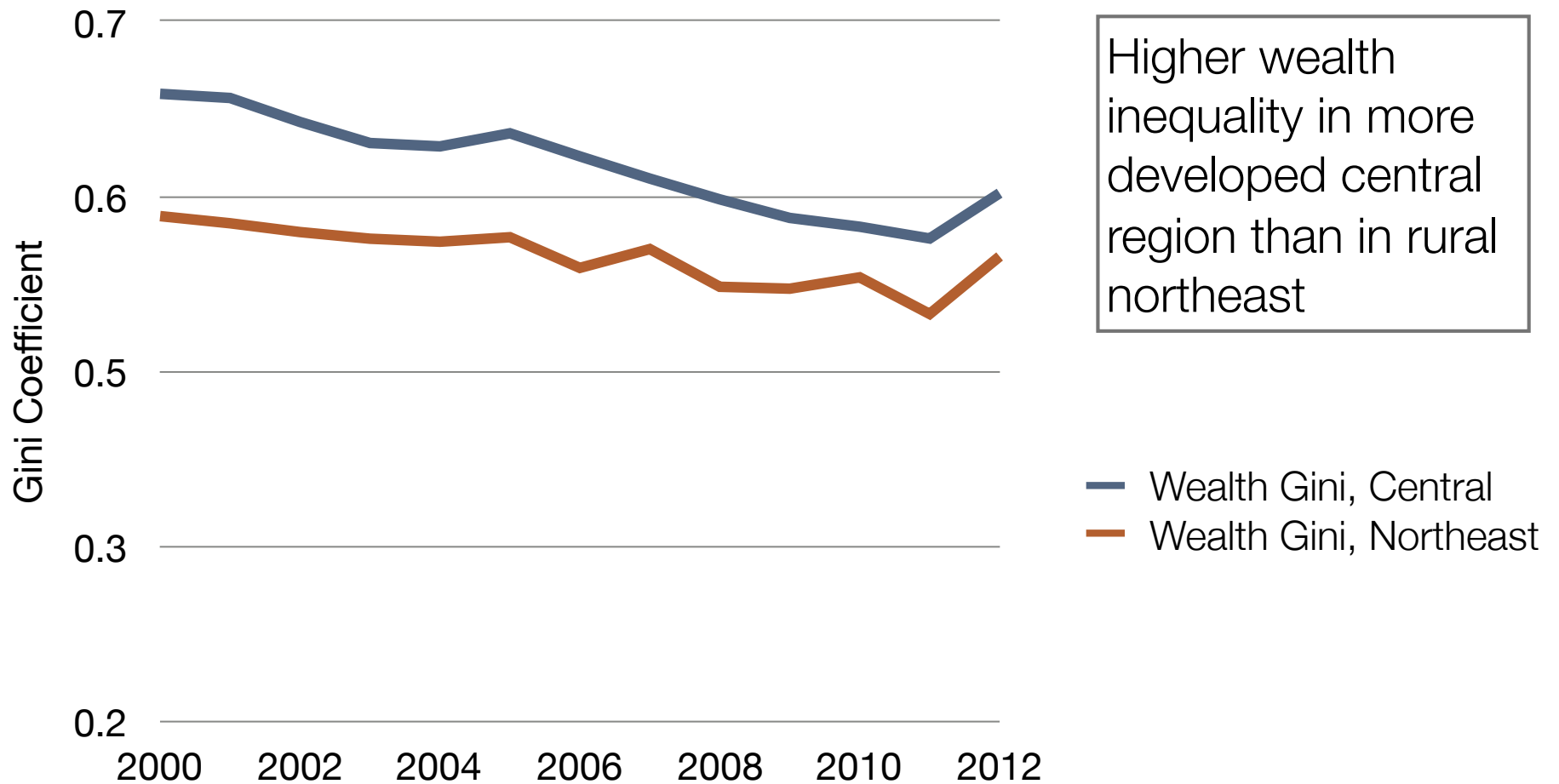
Convergence: Households with low initial wealth have higher growth rate of wealth



Source: Pawasutipaisit and Townsend (2011)



Wealth inequality is declining but remains high...





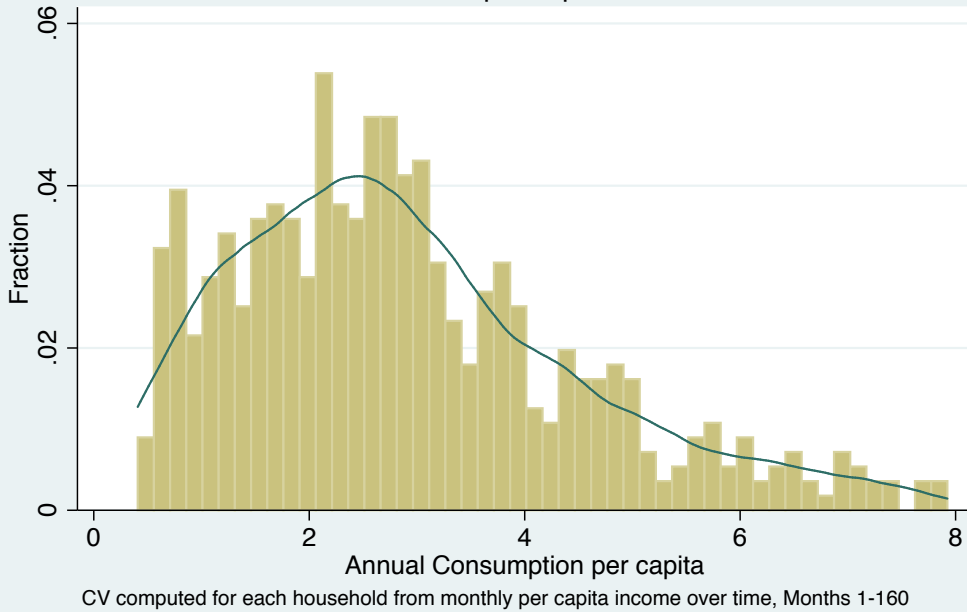
... while consumption inequality is much lower



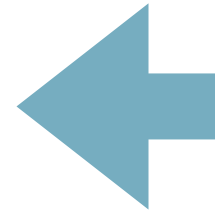


There exists consumption smoothing

Distribution of Coefficient of Variation
Household per capita Income

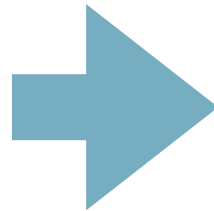


Distribution of
Coefficient of Variation:
Income vs. Consumption

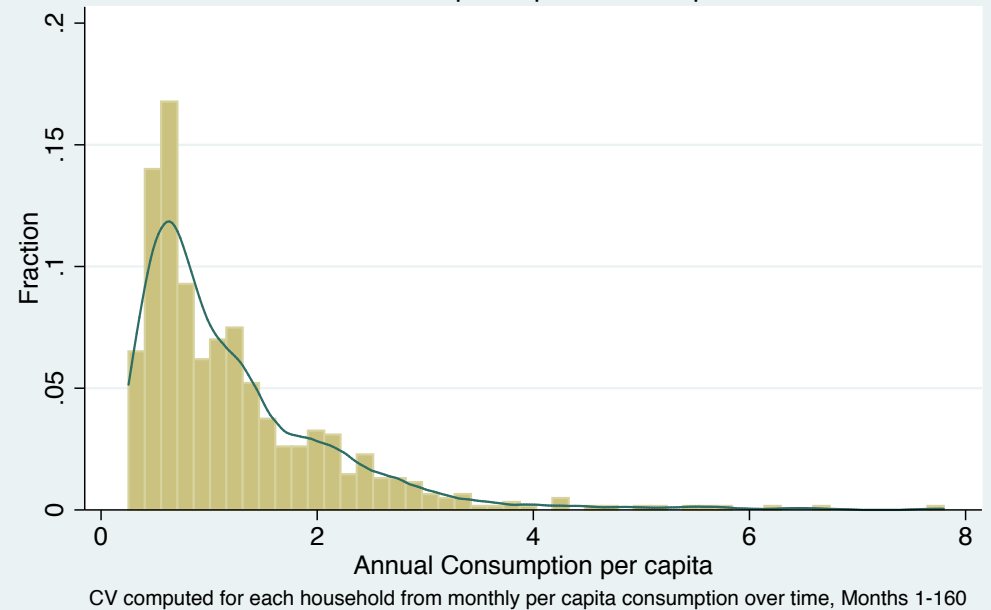


Highly volatile income

Less volatile consumption



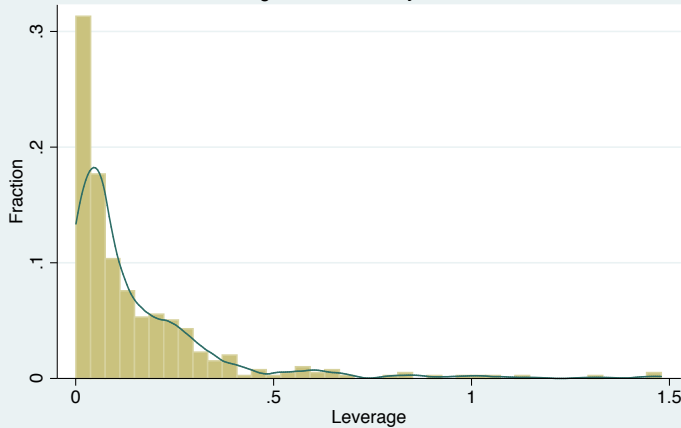
Distribution of Coefficient of Variation
Household per capita Consumption





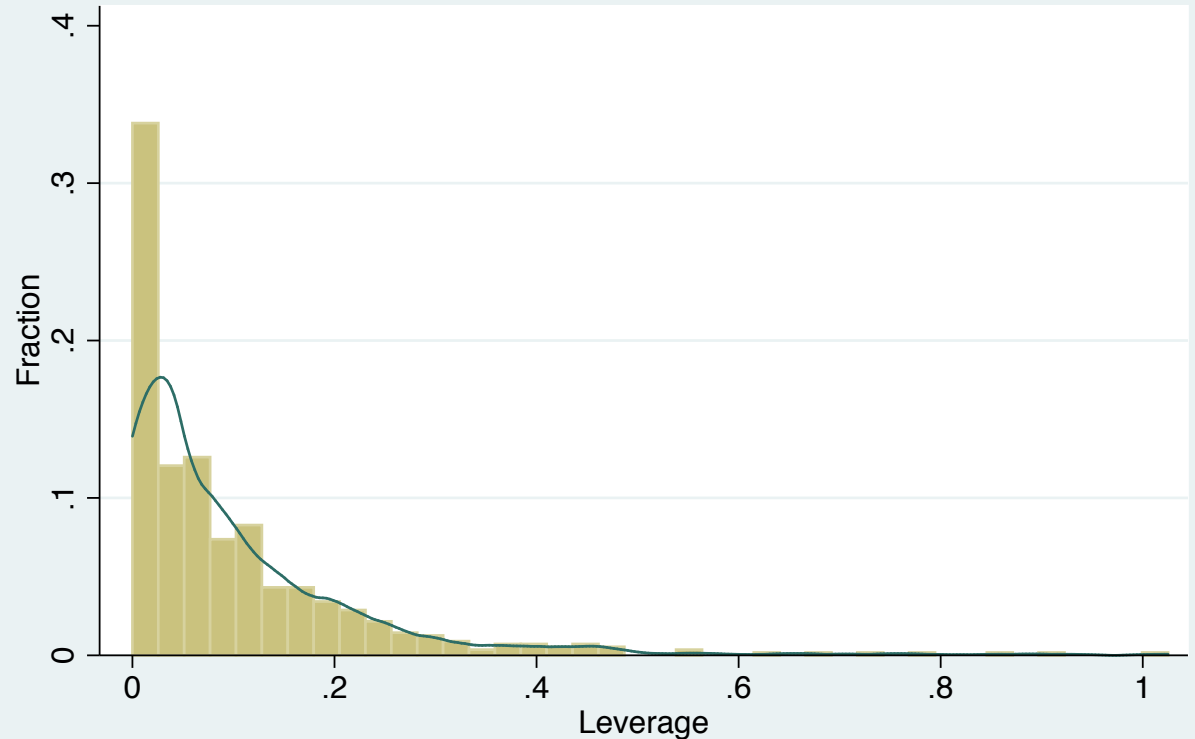
Use of debt remains limited to certain households: The role of gifts and savings (especially cash) in rural Thailand

Distribution of Household Leverage, Month 0
Leverage = Total Liability / Total Assets

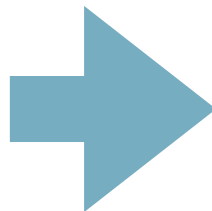


Low leverage for most households in 1999

Distribution of Household Leverage, Month 160
Leverage = Total Liability / Total Assets



Similar
for 2012





Household financial accounts allow us to study the extraordinary lives of ordinary households...

Financial Lives Srivisal & Townsend **Financial Analysis**
Samphantharak & Townsend 2009 **Cash Management**
Alvarez, Pawasutipaisit & Townsend 2014 **Loan Management**
Sripakdeevong **Life Cycle** Silva & Townsend **Wealth**
Accumulation Pawasutipaisit & Townsend 2011 **Production**
Tazhibayeva & Townsend **Return on Assets** Samphantharak
& Townsend 2012 Townsend & Ru **Risk and Return**
Samphantharak & Townsend 2015 **Diversification**
Samphantharak & Townsend 2013 **Risk Sharing** Chiappori,
Samphantharak, Schulhofer-Wohl & Townsend 2014
Bonhomme, Chiappori, Townsend & Yamada **Investment**
Samphantharak & Townsend 2009 Kinnan & Townsend 2012
Labor Townsend & Yamada 2007 Nelson 2012 **Land** Srivisal
2010 **Financial Regimes** Kinnan 2010 Karaivanov & Townsend
2014 **Aggregate Economies** Paweenawat & Townsend 2012

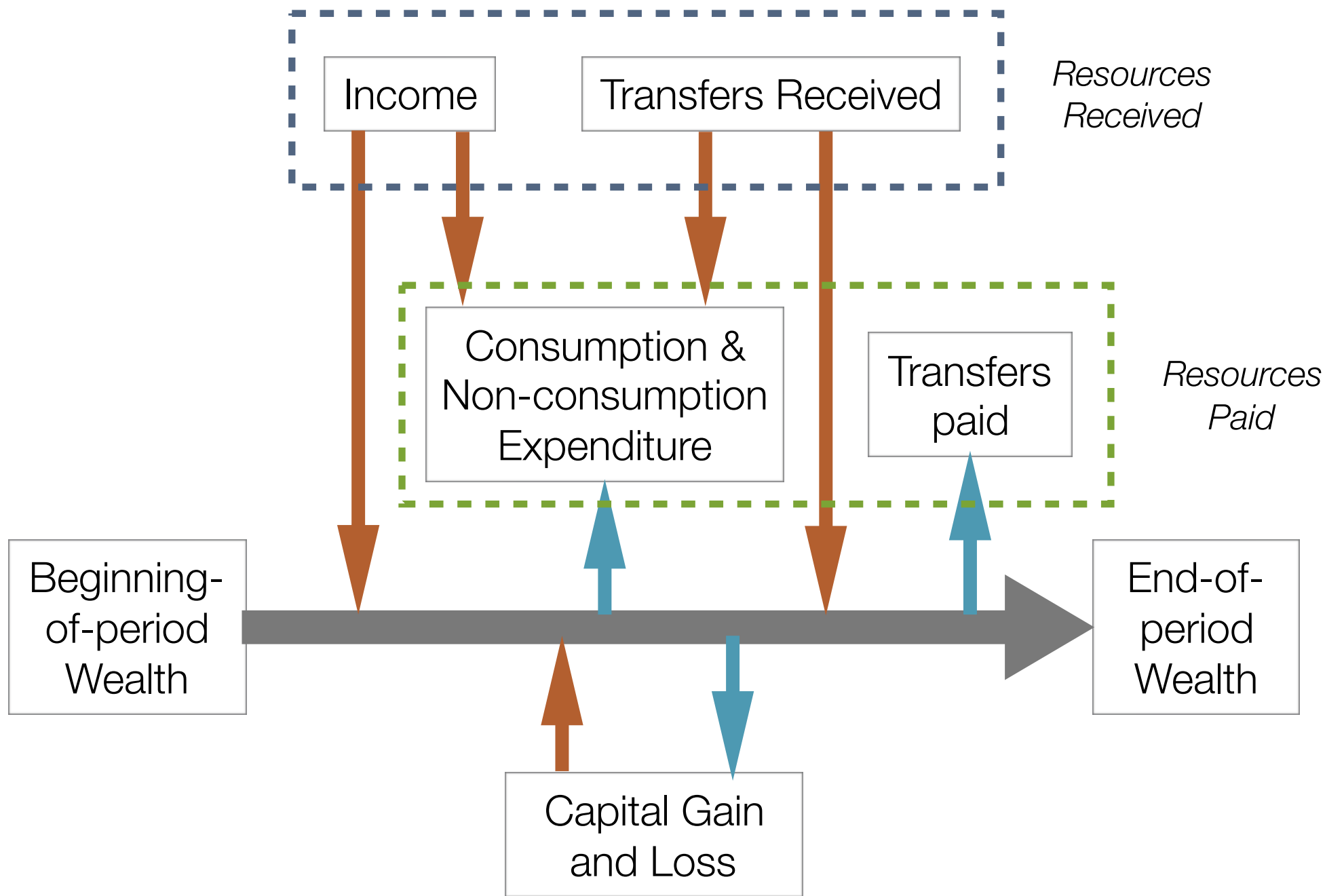


II. OECD's ICW Integrated Framework

- The Income, Consumption and Wealth (ICW) Integrated Framework (OECD 2011, 2013)

“When assessing well-being, it is better to emphasize the perspective of households and individuals, rather than the aggregate condition of the economy, since there may be a discrepancy between the economy-side economic situation and the material well-being of households”

- Focused on households and view transactions from household perspective



Source: Adapted and simplified from Box 3.1 in *OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth*, 2013



Samphantharak-Townsend & OECD Frameworks: A Reconciliation

The need to define
and measure
variables from
household micro
survey



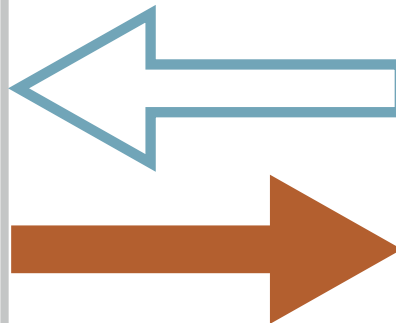
Samphantharak-
Townsend Household
Financial Accounting
Framework

The need for data on the
distribution of household
consumption, income, and
wealth at the micro level that
are not available in the system
national income accounts



OECD's Income,
Consumption and Wealth
(ICW) Integrated Framework

*Less information
on production
and financing*





Final Discussion - 1

Is household financial accounting useful for households in both advanced and developing economies? Is it useful for urban households or household without business enterprises?

Yes. Just with different types of income, expense, and financing instrument



Final Discussion - 2

Do we really need to construct a panel of complete household financial accounts?

Not always necessary, but needed in several issues



Final Discussion - 3

If we do not plan to construct household financial accounts, do we have to care about household financial accounting concepts?

Yes, household financial accounting concepts help us define household variables clearly and consistently, allowing us to better design questionnaires and avoid confusion, double counting, or missing questions



Further Challenges: Non-Trivial Issues

Non-separability

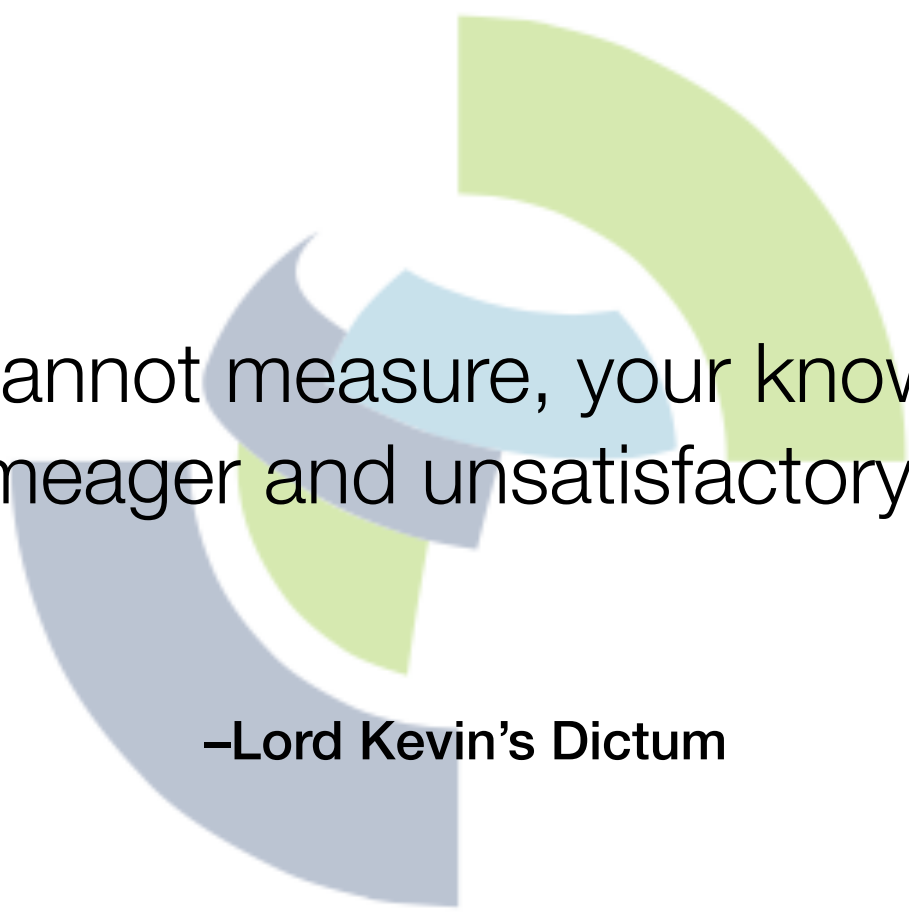
Gifts and
Transfers

In-kind
Transactions

Contingent
Claims

Intangibles

Timing &
Frequency



“If you cannot measure, your knowledge is meager and unsatisfactory.”

-Lord Kevin's Dictum