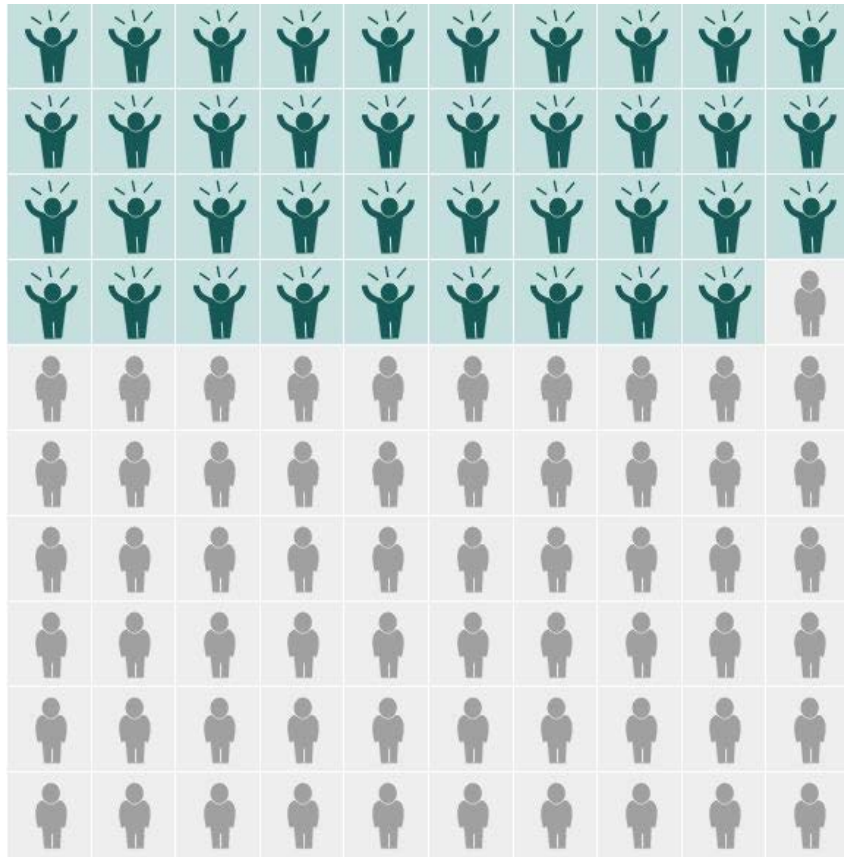


Panel Data Surveys and A Richer Policy Discussion

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Panel Data in the News



39 out of 100 U.S. households will break into the top 10% of incomes (roughly \$153,000*) for at least 2 consecutive years



20 out of 100 U.S. households will fall into poverty (roughly \$23,850 for a family of 4*) for at least 2 consecutive years.

Panel Data

Research design that collects information from the same units over time

Count	%	Value/Range	Text
10,390	14.18	1	Working now
92	.13	2	Only temporarily laid off
1,755	2.40	3	Looking for work, unemployed
1,653	2.26	4	Retired
630	.86	5	Permanently disabled
1,101	1.50	6	Housewife; keeping house
1,241	1.69	7	Student
145	.20	8	Other
152	.21	9	NA; DK
56,092	76.58	0	Inap.: from Latino sample (ER30001=7001-9308); main family nonresponse by 2011 or mover-out nonresponse by 2009 (ER34101=0); mover-out nonresponse for 2011, only if deceased (ER34102=81-89); in an institution in both 2009 and 2011 (ER34102=51-59 and ER34102=01); not a person aged 16 or older (ER34104=001-015, 000); associated with 2011 FH but moved out before 2010

Source: Panel Study of Income Dynamics, 2011

Panel Data vs. Cross Sectional Data

Panel Data

“Longitudinal data”

**Measures the same units
over time**

Asks the same questions

**Refreshes data sample at
some specific interval**

Cross Sectional Data

“Snapshot data”

**Measures swatch of population
at one moment**

**Asks new population at next
interval**

**Examples: BLS Unemployment
Rate; Consumer Expenditure
Survey**

Panel Data Benefits

- Measuring change over time at the individual level
- Separating age and cohort effects
- Controlling for omitted variable bias
- Assessing causality
- Compensating for measurement error

Measuring Change Over Time

Asks the same questions at regular to determine if there has been a change over time

Income and poverty:

Of people who were below the poverty level in the previous year, how many are in poverty now?

Separating Age & Cohort Effects

Measures same units over time so units belonging to the same cohort (generation) can be analyzed together to see how age affects the characteristics of different generations; are there any trends?

Controlling for Omitted Variable Bias

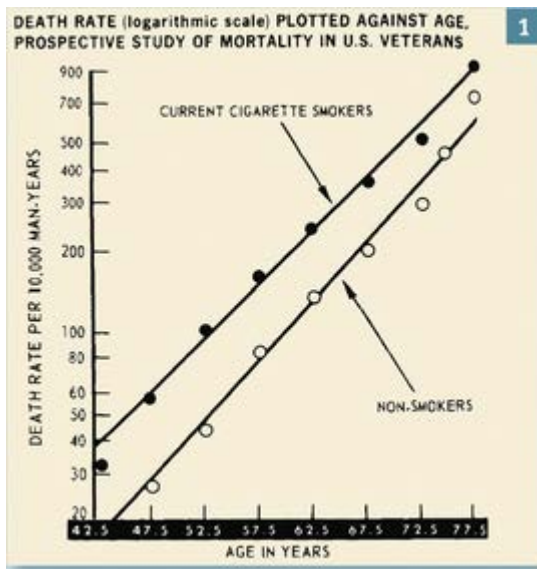
Controlling for omitted (unobserved) variables is a common issue in empirical research, particularly with cross-sectional data.

Panel Data:

Panel data controls for some unobserved variables that are consistent over time.

Assessing Causality

Causality: two variables (x,y) are causally related **if** you manipulate x and it causes effect in y



Panel Data:

Units measured over time so you can assess if changes in x precedes change in y

Chart source: The Economist, 2014

Compensating for Measurement Error

- Test reliability of variables over time
- Prone to some measurement error, but has advantage over cross-sectional data

Panel Data Issues

- Maintaining participants (attrition) and representing unbiased population over time
- Representing accurate immigration sample
- Controlling for question fatigue

Panel Attrition

Respondents may drop out

Problem I

Sample size may get too small for meaningful analysis

Problem II

Remaining respondents may over-represent certain demographic

Immigration & Demographics

Influx of immigrants may not be accounted for if sample stays the same

Question Fatigue/Anticipation

View I

Answering the same questions, respondents “learn” the order of questions to speed through

View II

Answering the same questions, respondents become more knowledgeable and attune to their meaning over time

Panel Data History

- Comes from field of market research
- Applied to voting preferences in 1940s and 1950s presidential campaigns
- First panel data surveys of economic data began in 1960s: American National Longitudinal Surveys of Labor Market Experience (NLS); University of Michigan Panel Study of Income Dynamics (PSID)

International Panel Data

- German Socioeconomic Panel Study (SOEP)
- British Household Panel Survey (BHPS)
- Swiss Household Panel (SHP)
- OECD Panel Data – Social Expenditure Survey (SOCX)
- Korean Labor Income Panel Study (KLIPS)
- Longitudinal Individual Data for Sweden (LINDA)

Applications of Panel Data

- Happiness (Easterlin Paradox)
- Immigration
- Inequality

Luttmer, E.F.P. 2005. "Neighbors as Negatives: Relative Earnings and Well-Being," The Quarterly Journal of Economics, MIT Press, MIT Press, vol. 120(3), pages 963-1002, August.

- Used National Survey of Families and Households (NSFH) and matched data to local earnings of Public Use Microdata Areas (PUMAs)
- Higher earnings result in lower levels of happiness
- Causes may lie in relative consumption and “keeping up with the Joneses” phenomenon

Gardner, J. & Oswald, A. J., 2007. "Money and mental wellbeing: A longitudinal study of medium-sized lottery wins," Journal of Health Economics, Elsevier, vol. 26(1), pages 49-60, January.

- Used British Household Panel survey, General Health Questionnaire (GHQ)
- 137 cases of respondent winning £1,000 and £100,00
- Respondents who won lottery has 1.4 GHQ points on 36 point scale

Hansen, J. & Lofstrom, M. 2003. "Immigrant Assimilation and Welfare Participation Do Immigrants Assimilate Into or Out of Welfare?," Journal of Human Resources, University of Wisconsin Press, vol. 38(1).

- Used Longitudinal Individual Data for Sweden (LINDA) from 1990-1996
- Immigrants used welfare system more than natives, however that participation rate decreases over time
- Refugees assimilate out of welfare faster than non-refugees, but neither group reaches parity with natives for welfare use

Mayda, A. 2010. "International migration: a panel data analysis of the determinants of bilateral flows," *Journal of Population Economics*, Springer, Springer, vol. 23(4), pages 1249-1274, September.

- Used OECD International Migration Statistics (IMS), merged with GDP per capita of origin and destination countries; World Bank Development Indicators; UN youth population statistics; datasets from other studies in the literature
- Finds that “pull factors” ie: income opportunities in destination countries are strongly correlated with emigration rates; however “push factors” ie: poor economic opportunity in origin country do not seem to correlate with emigration rates of OECD countries
- Theorizes that migration policies (quotas) mitigates the supplyside effects of migration

Heathcote, J., Perri , F., & Violante, G.L. 2010. "Unequal We Stand: An Empirical Analysis of Economic Inequality in the United States: 1967-2006," Review of Economic Dynamics, Elsevier for the Society for Economic Dynamics, vol. 13(1), pages 15-51, January.

- Used Panel Study of Income Dynamics (PSID), merge with Current Population Survey (CPS), Consumer Expenditure Survey (CEX), and Survey of Consumer Finances (SCF)
- Finds between 1967 and 2006 there is a large and steady increase in wage inequality in US
- Inequality in wages rise steadily for men beginning in early 1970s; women in early 1980s
- Determine that the CPS, CEX, and PSID demonstrate consistent findings, in that they closely align to wages, hours, earnings and disposable income

Rank, M.R., Hirschl, T.A. & Foster, K.A. 2014. *Chasing the American dream: understanding what shapes our fortunes*. New York: Oxford University Press.

- Used PSID data, Washington University's American Panel Survey, in-person interviews and focus groups; other macroeconomic data
- Found that over 44 years up to 2009, 12% of US population will be in the top 1% of income distribution for at least one year; 39% in top 5% of income distribution; 56% in top 10%
- However, only 0.6% of US population will remain in top 1% for 10 consecutive years
- Americans are likely to be exposed to both prosperity and poverty in their lifetime

Some Publicly Accessible Panels and their Characteristics

National Longitudinal Surveys of Labor Market Experience (NLS)

Bureau of Labor Statistics

- Over 40 years of data
- Covers labor market activities and significant life events
- 7 cohorts: 1979 cohort; 1997 cohort; children and young adults; young men; older men; young women; mature women

<http://www.bls.gov/nls/>

Panel Study of Income Dynamics

University of Michigan

- Began in 1968
- Covers 18,000 individuals and 5,000 families
- Collects data covering employment, income, wealth, expenditures, health, marriage, childbearing, child development, philanthropy, education, and numerous other topics

<http://psidonline.isr.umich.edu/>

OECD Social Expenditure Database (SOCX)

OECD

- Began in 1980
- Covers 33 OECD countries
- Includes health data, OECD Labor Market Programmes database, and Eurostat data

<http://www.oecd.org/social/expenditure.htm>

German Socio-Economic Panel (SOEP)

German Institute for Economic Research

- Began in 1984
- Covers 20,000 individuals; 11,000 households
- Data includes household composition, occupation, employment, earnings, health and life satisfaction

<http://www.diw.de/en/soep>

British Household Panel Survey (BHPS)

University of Essex

- Began in 1991
- Covers 5,500 households and 10,300 individuals from Great Britain; 1,500 households from Scotland and Wales (added in 1999); 2,000 households from Northern Ireland (added in 2002)
- Data includes household composition, housing conditions, residential mobility, education and training; health and the usage of health services; labour market behaviour; socio-economic values; income from employment; benefits and pensions

<https://www.iser.essex.ac.uk/bhps/>

Korean Labor Income Panel Study (KLIPS)

Korean Labor Institute

- Began in 1998
- Covers 11,000 individuals; 5,000 households
- Data includes labor force supply and mobility; including schooling and school-to-work transition of youth; job mobility and labor market transition processes; unemployment experiences; job training and education; working conditions and welfare; childcare and female labor force participation; income and consumption; health and retirement

<http://www.kli.re.kr/klips/en/about/introduce.jsp>

The American Panel Survey (TAPS)

Washington University in St. Louis

- Began in 2011
- Covers 2,000 adults surveyed monthly

<https://wc.wustl.edu/TAPS>

Sources

Andreß, H. J. , Golsch, K. & Schmidt, A.W.
(2013). *Applied panel data for economic and social surveys*. Philadelphia: Springer.