Milton Friedman
and the Methodology of Positive Economics

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Milton Friedman

Born in 1912 in New York City

BA Rutgers University (1932)
MA University of Chicago (1933)
PhD Columbia University (1946)

Professor at University of Chicago (1946-1977)
Fellow at the Hoover Institution, at Stanford University (1977-)

Mentors: Arthur Burns, Wesley Mitchell, Jacob Viner, Frank Knight

1976: Nobel Memorial Prize in Economics

Influenced: in economics New Classical Macroeconomics, in policy Ronald Regan and Margaret Thatcher (1980s)

Controversy: lecture in Chile in 1975

He died in San Francisco in 2006
Scientific contribution

Statistics

Friedman non-parametric test (JASA 1937, JASA 1939, AMS 1940)

Methodology

“The Methodology of Positive Economics” in Essays in Positive Economics (1953)

Consumption

A Theory of the Consumption Function (1957)

Monetary theory, history and policy


Business cycles and inflation

“Money and business cycles” (with A. Schwartz RES, 1963), Monetary Trends in the US and the UK (with A. Schwartz, 1982); “Inflation and Unemployment” (JPE, 1977)

Ideology, Pop

Capitalism and Freedom (1962), Free to Choose (with R. Friedman, 1980)
The monetarist counter-revolution

- The quantity theory of money approach
- The expectations-augmented Phillips Curve
- Aversion to stabilization policy

«the drastic change that occurred in economic theory has not been the result of ideological warfare. It has not resulted from divergent political beliefs or aims. It has responded almost entirely to the force of events: brute experience proved far more potent than the strongest of political or ideological preferences.»

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The revival of the *homo economicus*

- Idea of *homo economicus* (cfr. Mill 1836; Robbins 1932)
- Keynes (1936): alternative views:
  - *animal spirits*
  - *fundamental psychological law*
- Friedman: revival of rational behaviour in economics
  - cfr. concept of “permanent income” in consumption
  - cfr. rejection of permanent trade-off between inflation and unemployment due to expectations of future inflation
- F. (1953: 30-31): assumptions of a model should not in line “with each new development in psychology” unless it “yields better predictions for a wide range of phenomena”.
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- F. (1953: 30-31): assumptions of a model should not in line “with each new development in psychology” unless it “yields better predictions for a wide range of phenomena”.
However, Friedman was not as radical as the New Classical Macroeconomics (Lucas, Sargent):

rejection of Rational Expectation Hypothesis

*Marshallian* vs. *Walrasian* methodology

- Walrasian perspective:
  - general equilibrium
  - complete micro-foundation in individual optimization
  - secondary role of empirical evidence

- Marshallian perspective: partial equilibrium
  - theory as “an engine for the discovery of concrete truth” (Marshall 1885)

importance of empirical economics

F. considered himself a *Marshallian*
Opening lines (F 53: 3, emphasis added):

«In his admirable book on The Scope and Method of Political Economy, John Neville Keynes distinguishes among “a positive science . . . a body of systematized knowledge concerning what is; a normative or regulative science ... a body of systematized knowledge discussing criteria of what ought to be . . . ; an art ... a system of rules for the attainment of a given end”; comments that “confusion between them is common and has been the source of many mischievous errors”; and urges the importance of “recognizing a distinct positive science of political economy”.”

▶ The positive-normative distinction
Positive economics

«The ultimate goal of a positive science is the development of a “theory” or, “hypothesis” that yields valid and meaningful (i.e., not truistic) predictions about phenomena not yet observed. Such a theory is, in general, a complex intermixture of two elements. In part, it is a “language” designed to promote “systematic and organized methods of reasoning.”a In part, it is a body of substantive hypotheses designed to abstract essential features of complex reality.»b

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a Quote from Marshall The Present Position of Economics(1885)
b F53: 7, emphasis added
«the only relevant test of the validity of a hypothesis is comparison of its predictions with experience. The hypothesis is rejected if its predictions are contradicted (“frequently” or more often than predictions from an alternative hypothesis); it is accepted if its predictions are not contradicted; great confidence is attached to it if it has survived many opportunities for contradiction. Factual evidence can never “prove” a hypothesis; it can only fail to disprove it, which is what we generally mean when we say, somewhat inexactely, that the hypothesis has been “confirmed” by experience»

\[a\] F53: 8-9
Digression I: logical positivism


- Six tenets or tendencies (cfr. Hacking 1983: 41-42):
  1. Emphasis upon verification
  2. Pro-observation
  3. Anti-cause
  4. Downplaying explanation
  5. Anti-theoretical entities
  6. To sum up: against metaphysics!
Popper’s variant: falsificationism

- Emphasis on *modus tollens*
- Simplicity
- Duhem-Quine problem
“Truly important and significant hypotheses will be found to have “assumptions” that are wildly inaccurate descriptive representations of reality, and, in general, the more significant the theory, the more unrealistic the assumptions (in this sense). The reason is simple. A hypothesis is important if it “explains” much by little, that is, if it abstracts the common and crucial elements from the mass of complex and detailed circumstances surrounding the phenomena to be explained and permits valid predictions on the basis of them alone. To be important, therefore, a hypothesis must be descriptively false in its assumptions; it takes account of, and accounts for, none of the many other attendant circumstances, since its very success shows them to be irrelevant for the phenomena to be explained.”

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\(^a\)F53: 14-15, emphasis added
Problem of unobservables: lack of *direct* sensory access to theoretical entities in science (e.g. electrons, quarks, radio waves, viruses, demand curve, permanent income, velocity of money)

Realism:
- scientific theories (should) deliver true description of the world (or of some structure of the world), included the unobservable part
- emphasis on description and explanation

Instrumentalism:
- we are in no position to get true descriptions of the world: theories are (should be) useful instruments to generate predictions
- emphasis on prediction and manipulation
In economics it is particularly important to distinguish *realism*, which emphasizes the possibility of identifying faithful description of some structures of the reality, from the degree of *accurateness* of the description.

- Uskali Mäki (1994, 1998) call descriptive accuracy *realisticness*

- NB: one can be realist with respect to some model or theory without emphasizing its realisticness

- abstraction and idealization
«the relevant question to ask about the “assumptions” of a theory is not whether they are descriptively “realistic,” for they never are, but whether they are sufficiently good approximations for the purpose in hand. And this question can be answered only by seeing whether the theory works, which means whether it yields sufficiently accurate predictions.»

\(^a\)F53: 15
1946-1953: controversy on the “marginalist” theory of the firm

Hall and Hitch (1939): “Price Theory and Business Behaviour”, *Oxford Economic Papers*

- survey on how prices emerged within firms
- rules of thumb inconsistent with the hypothesis of maximization of expected profits
- psychological mechanisms different from model’s mechanism: false assumptions

F.’s answer: a model should not be tested by the realism of its assumptions
«It is an accepted hypothesis that the acceleration of a body dropped in a vacuum is a constant - \( g \), or approximately 32 feet per second per second on the earth - and is independent of the shape of the body, the manner of dropping it, etc. This implies that the distance traveled by a falling body in any specified time is given by the formula \( s = \frac{1}{2}gt^2 \), where \( s \) is the distance traveled in feet and \( t \) is time in seconds. The application of this formula to a compact ball dropped from the roof of a building is equivalent to saying that a ball so dropped behaves as if it were falling in a vacuum. Testing this hypothesis by its assumptions presumably means measuring the actual air pressure and deciding whether it is close enough to zero. »\(^a\)

\(^a\)F53: 16-17, emphasis added
First example: Galilean experiment

«This example illustrates both the impossibility of testing a theory by its assumptions and also the ambiguity of the concept “the assumptions of a theory.” The formula \( s = \frac{1}{2}gt^2 \) is valid for bodies falling in a vacuum and can be derived by analyzing the behavior of such bodies. It can therefore be stated: under a wide range of circumstances, bodies that fall in the actual atmosphere behave as if they were falling in a vacuum. The formula is accepted because it works, not because we live in an approximate vacuum - whatever that means. »\(^a\)

\(^a\)F53: 17-18
Second example: an evolutionary argument?

«Consider the density of leaves around a tree. I suggest the hypothesis that the leaves are positioned as if each leaf deliberately sought to maximize the amount of sunlight it receives, given the position of its neighbors, as if it knew the physical laws determining the amount of sunlight that would be received in various positions and could move rapidly or instantaneously from any one position to any other desired and unoccupied position. Now some of the more obvious implications of this hypothesis are clearly consistent with experience: for example, leaves are in general denser on the south than on the north side of trees but, as the hypothesis implies, less so or not at all on the northern slope of a hill or when the south side of the trees is shaded in some other way. ... the hypothesis does not assert that leaves do these things but only that their density is the same as if they did. Despite the apparent falsity of the “assumptions” of the hypothesis, it has great plausibility because of the conformity of its implications with observation.»

aF53: 19-20, emphasis added
Consider the problem of predicting the shots made by an expert billiard player. It seems not at all unreasonable that excellent predictions would be yielded by the hypothesis that the billiard player made his shots as if he knew the complicated mathematical formulas that would give the optimum directions of travel, could estimate accurately by eye the angles, etc., describing the location of the balls, could make lightning calculations from the formulas, and could then make the balls travel in the direction indicated by the formulas."$^a$

$^a$F53: 21
«individual firm behave as if they were seeking rationally to maximize their expected returns ...and had full knowledge of the data needed to succeed in this attempt; as if, that is, they knew the relevant cost and demand functions, calculated marginal cost and marginal revenue from all actions open to them, and pushed each line of action to the point at which the relevant marginal cost and marginal revenue were equal. »

\[a\] F53: 21
Hausman (1992): “Why look under the hood?"

Should prediction be the only criterion to judge the quality of a theory of model?

Problem of (un-)observational equivalence

Problem of stability (cfr. Phillips curve)
F.’s ambiguities

- It would not be fair to dub F. as instrumentalist
- He swings between realism (but anti-realisticness) and instrumentalism
- Especially if we judge F53 vis-à-vis Friedman and Schwartz (1963) and his professed Marshallian methodology (cfr. Hoover 2009)

«Marshall took the world as it is; he sought to construct an “engine” to analyze it, not a photographic reproduction of it »

\[a\] F53: 35

- Pluralism vs. dogmatism
«A meaningful scientific hypothesis or theory typically asserts that certain forces are, and other forces are not, important in understanding a particular class of phenomena. ... In general, there is more than one way to formulate such a description - more than one set of "assumptions" in terms of which the theory can be presented. »

\[a\]

\[a\]F53: 40
What can we learn from F53?

“More than other scientists, social scientists need to be self-conscious about their methodology” (F53: 40)

- empirical stance
- fallibilism
- importance of a causality-based epistemology