Ideas in the History of Chicago Economics Milton Friedman & Negative Income Tax

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Outline

Contents

1 Overview

Ideas and Concepts
Many "Histories of Chicago Economics" discuss people, politics, ideology
But I want to change focus

- Discuss *Ideas* and *Concepts* that have sprung from Chicago

Two Central Themes:

1. Taking economics seriously
2. Applying and testing economics empirically

> In discussions of economic science, Chicago stands for an approach that takes seriously the use of economic theory as a tool for analyzing a startling wide range of concrete problems, ... that insists on the empirical testing of theoretical generalizations, and that rejects alike facts without theory and theory without facts. [1974 address to the University of Chicago Trustees. cf UofC Magazine Jan-Feb 2007, volume 99, issue 3]

I. I am going to discuss ideas from Chicago and focus specifically on the University of Chicago.

(A) But let me be very explicit – I am not saying Chicago is the only source of good ideas in economics. But I have only limited time and we are here at Chicago and so we will focus on Chicago.

(B) The "Chicago School" includes Chicago, but there are economists not at Chicago and universities other than Chicago that think in the same way and have contributed to the "Chicago School".

Heckman's "Three Ground Rules for Chicago Economics"
Quoting from 2012 presentation at the Friedman Centenial Celebration

1. Faculty know and understand the corpus of economic theory and economic empirical knowledge – not just their specialty within the field. *Students and faculty speak a common language – the language of basic price theory and the economics of incentives – and that we can communicate these ideas clearly.*
2. Chicago views economics as a serious subject, tackling serious problems.
3. Chicago economics demands that scholars move beyond selective and self-serving appeals to "stylized facts" to "illustrate" theories and instead engages and promotes the serious scientific task of careful and creative analyses of data, linking theory and evidence. Chicago values the hard empirical work that produces convincing evidence and rigorous economic theorizing that produces lasting contributions to important problems.

2 History of Ideas

Contents

A History of Ideas – The Big Names & Big Ideas

- Thorstein Veblen: *Conspicuous Consumption*
- Frank Knight: *Risk* vs *Uncertainty (Ambiguity)*
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- James Heckman: *Econometrics; Labor; Early Childhood*
- Lars Hansen: *Econometrics; Ambiguity*

I. The first thing I want to look at is a brief overview of some of the ideas that have come from Chicago.

(A) This list is very selective and idiosyncratic. And importantly, it leaves out many of the contributions from economists who have made substantive contributions but who are not as well know as the giants like Friedman or Becker or Fogel or Heckman.

1. People like Larry Sjaasted and his work on Human Capital and Migration
2. Or H. Gregg Lewis and his work on union wages.
3. Or the group of open-economy macroeconomists (Jacob Frankel, Harry Johnson, Robert Mundell) who worked on the Monetary Approach to the Balance of Payments

But let us go through this (selective and partial) list because these are ideas that have come from Chicago but are still critical to our understanding of economics today

I. Frank Knight: *Risk* versus *Uncertainty* or *Ambiguity*

   (A) This is the idea that there is knowable risk (probabilities we can calculate such as winning at poker or in bridge) versus unknowable and uncalculatable uncertainty or ambiguity (things for which we just don't have probabilities such as the chance that James Heckman, the nobel laureate, will walk in here in the next 10 min – unlikely; not impossible because his office is upstairs and he does work late; but no way to put a firm probability on it).

      1. This is related to the two strands of probabilistic thinking going under the names *objective* versus *subjective* probability although better names might be *frequency-type* versus *belief-type* probability
      2. Frank Knight is credited by most economists for introducing the idea in his book *Risk Uncertainty and Profit*, although John Maynard Keynes developed some of the same ideas at the same time (in his *A Treatise on Probability*).
      3. The idea of risk versus uncertainty shows up in various areas of economics. Expected utility theory, the foundation of most economics and finance under uncertainty, is based on the idea that agents can assign probabilities and calculate expected utility. Behavioral economics invokes the idea of uncertainty and calls the assumption of expected utility into question.
         i. Ellsberg paradox
      4. Lars Hansen and others have worked, in recent years, with ambiguity and how this may apply in macroeconomic modeling to agents' thinking about the future and forming expectations. This question about expectations formation is one of the more difficult issues in economics – and is the core idea that Robert Lucas was addressing in the rational expectations revolution.

II. Henry Simon and Monetarism

III. Thorstein Veblen & *Conspicuous Consumption*

   (A) Introduced by Veblen in *The Theory of the Leisure Class* to describe the spending of money and acquisition of luxury goods to advertise economic power and social class.

   (B) Originally used to describe behavior of the nouveau riche that emerged at the end of the 19th c, recently Kerwin Charles (Harris) & Eric Hurst (Booth) have investigated the connections between conspicuous consumption and race, finding that "Blacks and Hispanics devote larger shares of their expenditure bundles to visible goods (clothing, jewelry, and cars) than do comparable Whites." (NBER paper 13392). This seems to be a reversal of Veblen's original idea.

IV. Jacob Viner and *Price Theory*

   (A) Viner taught Econ 301 – Price and Distribution Theory – from the 1920s through 1946. Econ 301, Price Theory, is still the core and central course for microeconomics for economics PhDs. I took it. Allen took it. Friedman took it from Viner, Becker took it from Friedman, I took it from Becker.

   (B) I think there is an important difference in focus between Chicago price theory and microeconomics as it is taught at many other institutions. In fact Chicago (BFI) offers a one-week summer program – Price Theory Summer Camp – that is targeted at graduate students from other institutions.

   (C) The distinction between Price Theory and Microeconomics is not in the underlying economic theory but rather in thinking about problems and applications. Taking price theory seriously as a way of looking at the world and the way that people behave. In my mind (and this is an exaggeration but a useful one)

1. Microeconomics
    i. The mathematics and models of utility maximization, consumer choice, firm profit maximization, market equilibrium
    ii. The material of Varian's Intermediate Microeconomics
2. Price Theory
    i. How we use microeconomics. How to think about economic puzzles
    ii. Existing problems – such as how a tax affects the rental price of apartments.
    iii. Pushes us to think about new problems or existing problems in new ways
        i. Why do ski resorts sell lift tickets on a per-day basis rather than per-ride basis?
        ii. Why is family size lower in developed countries than developing countries?
    iii. Steven Landsburg's Price Theory is great. And McCloskey's The Applied Theory of Price

(D) I am Exaggerating Distinction / Differences

1. But the exaggeration is useful – highlights two faces of microeconomics

V. Ronald Coase: *Externalities* & The Coase Theorem

(A) The idea of externalities – that costs (or benefits) from an activity may be born by people who do not choose the activity – is central to understanding many issues in public policy, pollution, and many others aspects of economics.

(B) Coase had the central insight – an insight that had escaped earlier economists – that externalities should disappear in a world of perfect information and no transactions costs. In such a world agents can negotiate side-payments and return to equilibrium.

(C) This is not to say that we actually live in such a world, but it forces us to think about *why* externalities matter – not because of the externalities per se but because of the transactions costs or informational asymmetries

(D) Coase Theorem says that in the absence of transaction costs the assignment of property rights has no effect on the economically efficient outcome. It will obviously have equity effects.

(E) It also forces us to think carefully about property rights, and is closely connected with the area of Law and Economics that has been important at Chicago since at least the 1940s.

(F) "The Problem of Social Cost" published in the *Journal of Law and Economics*, 1960. Apparently "the most-referenced article in both legal and economics scholarship." (http://www.law.uchicago.edu/a history – also has the story of dinner at Director's house after the workshop where the group went from 20-1 against the Coase theorem to all in favor)

(G) Example of cattle rancher & farmer (from paper, this quote from Wikipedia):

> Coase argued that without transaction costs the initial assignment of property rights makes no difference to whether or not the farmer and rancher can achieve the economically efficient outcome. If the cost of restraining cattle by, say, building a fence, is less than the cost of crop damage, the fence will be built. The initial assignment of property rights determines who builds the fence. If the farmer is responsible for the crop damage, the farmer will pay for the fence (as long the fence costs less than the crop damage). If the rancher is responsible for the crop damage, the rancher will build the fence. The allocation of property rights is primarily an equity issue, with consequences for the distribution of income and wealth, rather than an efficiency issue.

VI. Friedman

(A) Friedman is such an important figure, with so many ideas, that I am including him on his own.

(B) But it is critical to understand that I am focusing on Friedman's *ideas*, not his advocacy or politics.

(C) The source of Friedman's continuing influence lies in the power of his ideas – ideas built on the twin pillars of sound economic theory and careful empirical analysis. History tells us that ideas matter--and that ideas have the power to change our world. And Friedman's ideas have changed the way economists, the way we all, approach our world. As Friedman himself said, the function of economists is to provide a "stockpile of ideas" – to make available solutions when a crisis arises. And Friedman has provided an abundance of ideas.

(D) In the second part of this mini-course I will talk in some detail about Friedman's book *The Consumption Function* and his idea of *Permanent Income* and the relation to the marginal propensity to consume, the multiplier, and fiscal stimulus. But for now let me briefly discuss these ideas – each of which was an important contribution and continues to be vitally important today

1. Consumption Function and Permanent Income: There was a puzzle (prior to Friedman's 1957 book *A Theory of the Consumption Function*) between cross-sectional and cross-country (or time-series) observations. Using cross-sectional data – across individuals at a point in time – economists found that people saved most of any increase in income and did not consume very much of the increase, while cross-country data or observations over long periods showed that consumption went up roughly one-for-one with income. Not only was this a puzzle but it had profound implications for Keynes's macroeconomic theories and the fiscal multiplier. Friedman introduced the idea of *Permanent* versus *Transitory* income to reconcile the ovservations. These ideas had important implications for Keynes's theory and the debates about the multiplier are as relevant today as in the 1950s. *The Theory of the Consumption Function* was a tour-de-force of methodology, and leads us to the next idea.
2. Methodology: Friedman in his *Methodology of Positive Economics* stressed the idea that it is not the *assumptions* of a theory that are important but rather the *predictions*. This work remains as fresh and relevant to modern economics as it was 60 years ago and, rightly, remains on the reading list for graduate students today (at least at the University of Chicago). Friedman used the example of Newton's laws of motion and dropping a lead weight from the leaning tower of Pisa. Newton's laws technically apply only in a vacuum and Pisa is most certainly not in a vacuum. Still we use the laws because we know that they work – As Friedman says "The formula is accepted because it works, not because we live in an approximate vacuum – whatever that means." We know that for a lead weight over that distance air pressure does not matter. But think about a feather – we would not apply Newton's laws because we know that for a feather the air pressure matters. Or millitary ballistics calculations – they are adjusted for wind and other factors. These ideas of how do we build and test economic theories are as relevant today as in 1953 – indeed James Heckman has recently written on this very topic.
3. Monetary History: Friedman may be best known for his monetary theory, and this remains as relevant today as it did when he was writing in the 1950s, 1960s, and 1970s. The idea that a pegged interest rate will lead to unstable inflation / deflation – expressed in his justly-famous address as president of the AEA ("The Role of Monetary Policy," *The American Economic Review*, Vol. 58, No. 1 (Mar., 1968), pp. 1-17) – is still held as a basic operational tenet by most central bank economists. Even thought the six-seven years post-2009 proved that a rate pegged at zero actually produces remarkably low and stable inflation. *The Monetary History of the US* with Anna Schwartz changed the way economists viewed monetary theory, and our understanding of the Great Depression. Among other things it taught us about the proper role of the Fed in a financial crisis. In 2002 at an event here in Ida Noyes, Ben Bernanke, then only a member of the Board of Governors rather than the Governor

of the Federal Reserve, turned to Friedman and Schwartz, saying "I would like to say to Milton and Anna: Regarding the Great Depression. You're right, we [the Fed] did it. We're very sorry. But thanks to you, we won't do it again." In 2008, as Governor, Bernanke followed through and injected massive liquidity into the US banking system, in doing so probably saving the world from another Great Depression.

4. Phillips curve and Non-Accelerating Inflation Rate of Unemployment (NAIRU): The Phillips curve is a monster that never seems to die. Many economists and central bankers still seem to believe that there is some trade-off between inflation and growth or unemployment – lower inflation means lower growth. Neither logic nor evidence seems to dissuade people from this idea. Yet Friedman disposed of the idea in his 1968 AEA presidential address, and in work with Edmund Phelps (still active, at Columbia). Friedman and Phelps argued that employment and unemployment will depend on *real* wages not *nominal* wages, and thus not on inflation, but that the distortions imposed by inflation can temporarily mislead workers into thinking real wages have gone up while at the same time employers believe real wages have gone down. There is a temporary increase in employment (fall in unemployment) when inflation rises – but there is no permanent trade-off. The argument is masterful and is as strong today as when originally proposed.

VII. George Stigler: *Regulatory Capture*; *Economics of Information*

(A) "Stigler is best known for developing the Economic Theory of Regulation, also known as capture, which says that interest groups and other political participants will use the regulatory and coercive powers of government to shape laws and regulations in a way that is beneficial to them."

(B) Ideas that are crucial for Calomiris & Haber's argument, but they actually do not cite Stigler very extensively

(C) Another important name for government regulation: Sam Peltzman (business school – noted for his distinctive sartorial style)

VIII. Robert Mundell: *Optimal Currency Areas*

(A) The idea is to ask what are the conditions and characteristics that make a single currency successful across a region. The US has a single currency, and it seems to have worked pretty well over a couple hundred years. But what is it about the US that has made it work?

(B) This is a really important question today when we look at the euro and ask why the euro area is undergoing the turmoil it is. But the ideas were put forth by Mundell (1961, "A Theory of Optimum Currency Areas". *American Economic Review.* 51 (4): 657–665.)

(C) Mundell thought about three conditions:

1. Mobility, openness, and flexibility with respect to labor, capital, and prices. The idea is that when one region has a relative shock (say American auto-makers and Detroit do poorly like in the 1970s and 1980s) then workers and capital can move to areas where things are better – say Atlanta. The decreased supply of labor and capital in Detroit will help to stabilize wages and prices in Detroit relative to Atlanta. In contrast, if Colombia does poorly relative to Chile, then the exchange rate can help equilibrate – there is no exchange rate between Detroit and Atlanta that can move. And clearly there is quite a bit of mobility, of both labor and capital, between Detroit and Atlanta while much less between Colombia and Chile.
2. Risk-sharing or transfers between regions. When Detroit suffers high unemployment there are federal transfers and stabilizers that help those in Detroit. As Americans living in Atlanta we don't think *too* much about transfers to Detroit becuase, well, we're all Americans and maybe I moved from Detroit or my cousin lives in Detroit.

3. Similar business cycles across regions. The stress on a currency area arises when one region does well, another does not, and there are no mechanisms to resolve the stress (such as the mechanisms above). But if all regions move together, then there are not big stresses *across* the regions.

(D) Think now about applying those three conditions to the US. Mobility is pretty good – Americans are pretty comfortable moving from Detroit to Atlanta – or at least there are few legal, language, or culteral barriers to making the move. Fiscal transfers are not a big political issue – at least geography is a much lesser issue than transfers from rich to poor. Synchronized business cycles may not be perfect, but they're not too bad and anyway conditions (1) & (2) help.

(E) OK, now what about the Euro area?

1. Mobility – certainly better than 50 years ago but a far cry from the US. Unemployed Greeks don't simply move to Germany and then fit in seamlessly the way Detroit auto-workers move to Atlanta.
2. Fiscal transfers – not much. Think about the huge isses with any hint of German transfers to Greece.
3. Synchronized business cycles? Think Denmark and Greece or Finland and Croatia. These are dramatically different countries with very different economies and subject to, potentially, very different business cycles.

(F) On these criteria the US seems like a reasonable candidate for a currency area, and the euro zone potentially problematic. And indeed the euro area has had problems. One part of the Greek crisis of the past 5-7 years has been a messy adjustment to mis-aligned labor costs.

1. Prior to 2010 German productivity increased much more than Greek productivity.
2. Post-2010 labor costs in Greece needed to come down
3. Without adjustment in exchange rates, wages in Greece needed to fall and productivity increase – accomplished through the pain and suffering of unemployment and falling wages.

IX. Robert Barro:

(A) *Ricardian Equivalence*

X. Robert Fogel:

(A) *Economic History*

XI. Robert Lucas:

(A) *Rational Expectations*

XII. Gary Becker:

(A) Gary Becker is another of the towering figures from Chicago, but like Friedman I am interested in the ideas that he has contributed to economics. I will focus on two, related ideas.

(B) *Human Capital*;

1. The ideas of human capital – that we treat a person's skills and attributes as a stock of capital resulting from investment over time, using the same tools that we apply to analysis of stock of physical capital – are commonplace today. It is hard to believe that we, as economists, have not always understood this and used those tools for analysis a wide range of labor market and other behaviors.

2. And the ideas go far back. Adam Smith in *The Wealth of Nations* "identified the improvement of workers' skills as a fundamental source of economic progress." (from Rosen's essay in *New Palgrave*). T.W. Schultz (another Chicago economist, who I have negligently left off the list) worked on national income accounts and technological change, and adopted an all-inclusive concept of human capital to account for the residual between inputs and outputs in national accounts.
3. But it was Gary Becker who organized the theoretical ideas of human capital and investment around the rate of return on investment – explicitly considering the trade-off between current costs (direct costs and foregone earnings) verus higher future expected earnings.

(C) *Economics of the Family*

XIII. Aaron Director – came to Chicago Law School in 1946, trained "generations of law students and even his colleagues on the faculty in this then-new way of thinking about the law" (UofC press release on Director's death - http://www-news.uchicago.edu/releases/04/040913.director.shtml)

> Law and Economics as a field attempts to apply the scientific methods of economics—including statistics and price theory—to behaviors that in the past had been analyzed solely by appeal to the history and intuitions of the law. With coherent theory, precise hypotheses and a willingness to subject those hypotheses to empirical tests, it has transformed legal thinking in the United States and in many nations around the world. (UofC press release on Director's death - http://www-news.uchicago.edu/releases/04/040913.director.shtml)

(A) Aaron Director also has the distinction of helping to bring Milton Friedman to Chicago (see paper by David Mitch in October 2016 JPE - Director was not in the economics department but was an ally of Knight and some of his students – Simons, Mints), and of being Friedman's brother-in-law (Rose Director sat next to Friedman in economics and they eventually married)

A History of Ideas – Lesser-Known Names

But also the ideas and some of the lesser-known names

- These are not the household names of Friedman, Becker, Lucas, Heckman. But it is because of these that Chicago is great
- Henry C. Simons: *Quantity Theory of Money*
- Paul Douglas: *Cobb-Douglas function*
- Wesley C. Mitchell
- Henry Schultz: *The Theory and Measurement of Demand*
- Law & Economics
  - Aaron Director: *Law & Economics*
  - Edward Levi
  - Richard Posner
- Trade and Open-Economy Macro
  - Harry Johnson, Larry Sjaasted, D. Gale Johnson (also Ag Econ)
- Labor & Applied Micro
  - H. Gregg Lewis: *Labor*
  - Jacob Mincer, Al Rees
  - Sherwin Rosen
- Econometrics
  - Henri Theil
  - Arnold Zellner
  - Zvi Griliches
- Regulation (Stigler)
  - Victor Zarnowitz
  - Lester Telser
  - Sam Petlzman
- Consumer & Home Economics
  - Margaret Reid , Mary-Jean Bowman

Price Theory

PRICE THEORY

- Seatbelt & Peltzman Effect
- Thinking about economic decisions

Jacob Viner, to Friedman, Becker, Murphy

MICROECONOMICS

- Revealed Pref & Axioms
- Mathematics of economic decision-making

Economic Vignettes
Practical guides to some of the ideas:

- Human Capital (Gary Becker)
- Natural Rate of Unemployment (Milton Friedman)
- Permanent Income (Milton Friedman)
- Vignettes available at www.hilerun.org/econ/chicagohistory (my site)

Heckman speaking at Harris 2017:

- Short clips: https://www.youtube.com/watch?v=ivzCmrY_iAw&feature=youtu.be
- Full: https://www.youtube.com/watch?v=9N8GSDwGYzI&feature=youtu.be

3 Milton Friedman & Negative Income Tax

Contents

"Case for the Negative Income Tax" – 1968

> There is a far better way to guarantee a minimum annual income to all than our present grab bag of programs

Standard income tax: government takes income above standard deduction

Income above Standard Deduction ($24,400 for married)
Pay to Government – 10% for income just above SD

NIT: Government *pays* when below standard deduction – fraction of difference

NIT: Government pays *Below Standard Deduction*
Receive from Government – fraction of difference $\tau \cdot (24,400 - E)$
Friedman proposes 50%

Earn	0	12,200	24,400	36,600
Gov Pay	12,200	6,100	0	-1,220
Total	**12,200**	**18,300**	**24,400**	**32,940**

Negative Income Tax = Universal Basic Income
Net effect: Universal Basic Income ("Universal Subsidy" or "Social Dividend")

- Even if earn zero, get minimum $12,200 ($24,400 / 2)
- Guarantees Minimum Income to everyone
  - Adjust Standard Deduction to adjust Minimum Income
- Friedman argues using tax system to administer is effective & efficient

Friedman's Arguments in Favor
Friedman argues

- Simplifies current grab-bag of benefits
- Uses existing tax system
- Provides incentive to work (get to keep 50% of any earnings below $24,400)

Arguments based largely on economic efficiency

- Government supports "poor" and transfers income
- This is more effective and efficient method
  - Uses cash rather than "in-kind" (e.g. Food Stamps (SNAP))
    - Strong argument to let *individuals* make their own rather than gov't saying "spend on food, ..."
    - Partly addressed since 1968
  - Uses existing income tax system
    - Reduces bureaucracy (cost)
    - Reduces temptation to use programs for other political ends

Contrast with EITC (Earned Income Tax Credit)
EITC enacted 1975, expanded since
One of the largest US anti-poverty programs
Sounds like a Negative Income Tax (and is in some respect)

- Negative tax rate on *wages* rather than income

Does *not* provide UBI – excludes those who don't work

- Positive: provides incentive to work ("deserving poor")
  - Politically easier
- Negative: does not help those who do not work
  - Displaced workers, out of work due to "globalization"

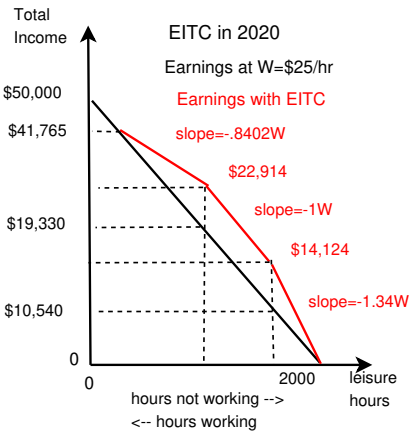
Structure of EITC:

Structure of EITC (Earned Income Tax Credit)

NIT: Pay even if no earnings EITC: Pay extra when earn

Think about budge line, and EITC "pushes out" budge line
Structure of EITC (2020, one child)

- Low income: Extra \$0.34 for each dollar earned up to \$10,540 (extra \$3,584, total \$14,124)
- Moderate income: between \$10,540 and \$19,330, keep \$3,584
- Higher income: take away \$0.1598 per dollar between \$19,330 and \$41,765
- High income over \$41,765, gone



Outline [Friedman(1987)]

- "There is a far better way to guarantee a minimum annual income to all than our present grab bag of programs"
  - "Use the mechanism by which we collect the bulk of our taxes, the personal income tax"
  - If earn above the standard deduction (2019 – \$24,400 for married, \$12,200 single) then pay regular tax
    - Pay tax on (E – 24,400). Tax $= \tau \cdot (E - 24,400)$
  - If earn below the standard deduction, receive payment
    - *Receive* Payment $\tau \cdot (24,400 - E)$
    - Friedman proposed 50%
    - If earn \$14,400, then get paid extra \$5,000 or 0.5*(24,400 – 14,400), earn total \$19,400
    - If earn nothing, get paid \$12,200 – minimum guaranteed income
  - Friedman argues
    - Simplifies current grab-bag of benefits
    - Uses existing tax system
    - Provides incentive to work (get to keep 50% of any earnings below \$24,400)
- Contrast with EITC
  - Effectively provides a negative tax rate on wages (for low wages).
  - But EITC focuses on wage – pays only those with earnings, not everyone
- Friedman's arguments in favor of Negative Income Tax
  - More efficient method for distributing "welfare"

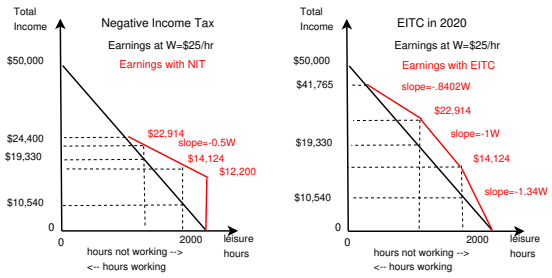


Figure 1:

  - Government already transfers resources, but costly and inefficient
    * Overlapping programs (medicare (health care for older people), medicaid (health care for poor), social security (retirement for older), SNAP (Supplemental Nutrition Assistance Program or food stamps))
    * Costly to identify and target relevant populations ("poor", "elderly", etc)
    * Paying in kind rather than in cash (SNAP or Medicaid) is less useful for recipients than paying in cash
  - Friedman argues five particular benefits:
    I. Concentrates public funds on the poor (identified by low reported tax income)
    II. Treats poor ("indigent") as responsible individuals – giving them cash and letting them make their own decisions
    III. Gives poor incentive to help themselves. Point that some programs take away benefits if the person works or earns income. Some programs since 1967 (e.g. EITC) explicitly designed to address this criticism.
    IV. Cost less than existing programs
    V. Eliminates bureaucracy and "political slush fund".
  - Addresses various criticisms
    I. Removes means test – not correct
    II. Destroys incentive – depends on "negative tax rate" at income below standard deduction. Not true for 50% rate Friedman proposes
    III. Cannot be adjusted to specific needs of each family.
    IV. Would be divisive
    V. Yet another program – important critique, that eventually led to Friedman's opposition in Congress (because those other programs were not being replaced)
    VI. Will foster political irresponsibility

- Negative Income Tax is essentially a UBI
  - set at half the standard deduction SD
  - Tax rate 50% up to SD, regular tax rates above SD
  - Friedman argues that Negative Income Tax is an efficient way to administer UBI
- NOT negative income tax or UBI. EITC subsidizes those who work rather than

EITC as of 2020 (https://fas.org/sgp/crs/misc/R43805.pdf)

- Tax credit equals $0.34 for each dollar of earned income for income up to $10,540. (Slope 1.34)
- For income between $10,540 and $19,330, the tax credit is a constant "plateau" at $3,584. (Slope 1)

- For income between \$19,330 and \$41,765, the tax credit decreases by \$0.1598 for each dollar earned over \$19,330. (Slope 0.8402)
- For income over \$41,765, the tax credit is zero (Slope 1)

NIT: Guarantees Income, Discourages Work

NIT: Pay even if no earnings EITC: Pay extra when earn

NIT: Gov't Pays *when Below SD; EITC:* Negative *Tax Rate*

NIT: Pay even if earn nothing: $\tau \cdot (24,400 - E)$; EITC: Negative rate for low earnings $-\tau^* \cdot E$

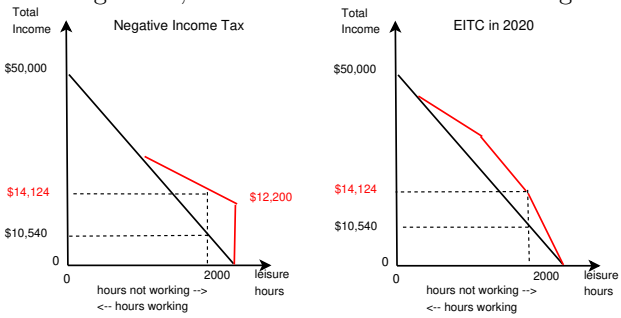
Friedman proposes 50%

Earn	0	10,540	19,330
Gov Pay	12,200	6,930	2,535
Total	**12,200**	**17,470**	**21,865**

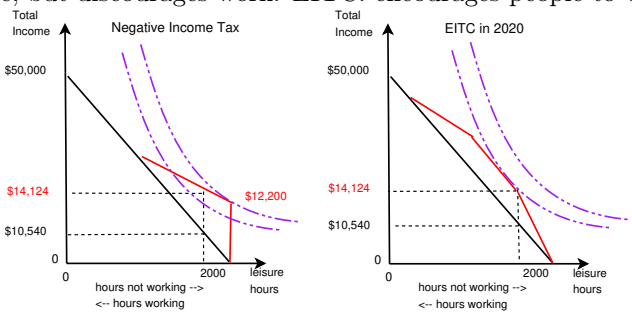
Earn	0	10,540	19,330
Gov Pay	0	3,584	3,584
Total	**0**	**14,124**	**22,914**

Incentive to work – total increases with earnings (but effective **50% tax rate!**)

NIT and EITC push out budget line; NIT – income even if no earnings



NIT: increases welfare, but discourages work. EITC: encourages people to work



Question – Has EITC Affected Earnings?

It looks like tax policy over past 40-50 years has *decreased* inequality

- Decreased relative to what it would be without tax policy
- I think partly or largely due to EITC
- Seems taxes have become *more* progressive – Contrary to standard narrative

Data from taxes, income for bottom and top of income distribution

- How much has income grown, 1979-2014
- Before taxes & transfers: bottom half grew 26.9% (real)
- *After* taxes & transfers: grew 59.3%
- Seems taxes have supported bottom half. Probably due to EITC

National Income, 1979-2014	Average	0-50th	50-90th	90-99th	Top 1%
AS Pre-Transfer / Pre-Tax	70.9%	26.9%	63.3%	93.2%	157.1%
AS Pre-Tax (after transfer)	80.2%	58.5%	71.2%	95.7%	156.8%
AS After-tax	70.9%	59.3%	68.8%	83.2%	104.6%

Auten, Gerald, and David Splinter. 2019. "Income Inequality in the United States: Using Tax Data to Measure Long-Term Trends." http://www.davidsplinter.com/.

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