TOWARDS A GENERAL THEORY OF DEEP DOWNTURNS

Joseph E. Stiglitz
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Deep downturns

- The world has been plagued by episodic deep downturns
  - 2008 crisis most recent
    - In spite of alleged “better” knowledge of economic system, and belief among many that we had put economic fluctuations behind us
      - Evidence is belief in those models may have contributed to crisis
      - Ideas about Great Moderation, ability of economy through diversification to effectively eliminate risk contributed to complacency
      - Supported by (pre-crisis) DSGE models
      - Which did well in “stable” times, but had little to say about crises
        - Almost any “decent” model would do well in “normal” times
    - Similar hubris exhibited in earlier crises (Kindleberger)

Not just a hundred year flood

- Crisis was man-made—created by the economic system
- Studying crises provides us insight into the behavior of economic system in less extreme times

Outline of talk

- Basic questions posed by deep downturns
- Three alternative approaches
- Focus on the capitalist economy as a *credit economy* and its implications

I. Three fundamental questions

A. What is the source of perturbation?

Exogenous or endogenous?

How do economic structures, policies, affect magnitude and frequency of perturbations

B. How can we explain magnitude of volatility?

- Change in *physical* state variables small
- No destruction as in war or natural disaster
- Yet huge changes in behavior
- Shocks seem to have been amplified, rather than “buffered,” as suggested by traditional economic models
  - Price adjustments and inventories

C. How do we explain *persistence?*

- Losses in GDP after crisis greater than those associated with misallocation of resources before crisis
  - Same real assets (physical, human, natural capital) after crisis as before
  - Even debt shouldn't matter: standard General Equilibrium theory says that there is a market clearing competitive equilibrium
    - More than just a sunspot equilibrium
- Key question is what is source of persistence
  - Not in K or labor supply

- Answering these questions is important to know appropriate policy response
  - Explaining unemployment is key
    - Not (or not just) ZLB
    - Also critical to understand what gave rise to ZLB problem
      - Liquidity in hands of those who don't want to consume/spend
  - *If* decrease in hours worked were evenly shared and there were full intertemporal and interstate smoothing, social cost of economic fluctuations would be much less
    - *One of central flaws in Lucas' analysis*

II. Three strands of theory

A. Real business cycles (and related work)
B. New Keynesian Theories with Rigid Wages/Prices
C. Alternative strands of New Keynesian—Fisher-Greenwald-Stiglitz

Each may have worked to help explain different historical episodes (oil price shocks, great moderation and early 90s)

A. Real business cycles (and related work) (1st generation DSGE models)

- Exogenous shocks
- Perfectly flexible wages and prices
  - All markets clear—full employment
- Price system, inventories dampen shocks
- Rational expectations/common knowledge
  - Still uncertainty
  - But nothing to learn
- Financial markets largely irrelevant
  - Obviously the case in representative agent models
  - In any case, efficient, and efficiently mediate between savers and investors
- Distribution not important
- Economy in equilibrium—market acts *as if* there were futures markets going out infinitely far into the future

Policy: markets respond efficiently to exogenous shocks
No market failure, no role for government
No unemployment: just enjoying leisure
Supply shocks: can't explain recessions with *deflation*

B. New Keynesian theories with rigid wages/prices (DSGE Generation II)

- Shocks exogenous (and still mostly supply side shocks)
  - No news that could explain sudden decrease in demand
- Rigid wages and prices
  - So markets do not clear
  - Focus on *nominal rigidities*
    - Largely explained by menu costs
- Price system, inventories dampen shocks
- Rational expectations
- Early versions: financial markets work efficiently; later versions: financial frictions
- Key: Minimal deviations from standard model
  - Limited modeling of nature of financial frictions, credit markets

C. Alternative strands of New Keynesian

Several strands: Fisher debt deflation (revived by Greenwald-Stiglitz in 80's, early 90's);Minsky

- Endogenous shocks, which can affect supply and demand
  - Credit, asset price bubbles
  - Fluctuations in expectations of future wealth
    - Pseudo-wealth creation and destruction (e.g. with heterogenous expectations, individuals will engage in bets, sum of expected wealth greater than actual wealth)
- There was no change in technology in 2008, no news of changes in technology, no changes in beliefs about changes in technology which could account for 2008 crisis
  - Demand shock is consistent with decrease in output, employment and deflation

“Real” rigidities matter

- Markets may not clear
  - Because of real rigidities, associated with imperfect information
    - Efficiency wage theory
    - Credit rationing theories
  - Because of slow processes of adjustment (leading to real rigidities)
    - in a decentralized economy—wages adjust to shortages in labor market, prices in product market, real wages reflect balance of two (Solow-Stiglitz)
    - With risk aversion, firms and households adjust slowly
      - It is not cost of adjustment that matters, but *risk*

Other sources of rigidities

- Labor may not move easily across sectors
- Can be “trapped” in sector with low wages
- Takes capital to move into other sectors
  - But many of those who would like to move have lost their capital
  - And financial market imperfections prevent access to funds

Other explanations of nominal rigidities

- Menu cost theories unpersuasive
  - Shifts in demand for nonstorable commodities must lead either to changes in prices or quantities
  - Costs of adjustments of quantities almost surely far more significant
  - Contracts may affect *infra-marginal adjustments*
    - but there is normally ample scope for marginal adjustments
    - And in “standard theories” (e.g. ignoring efficiency wage effects) those marginal adjustments should suffice to restore full employment
- It is the risks of adjustments that matter
  - Uncertainty about reactions of rivals
  - With storeable commodities risks associated with adding to or subtracting from inventories limited

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- Deflation (not price rigidities) can be a source of problems
  - Arising from imperfect indexing of contracts
  - **Redistributions have real effects**
    - Changes in bank and firm balance sheets have first order effects
    - Changes in bank balance sheets affect ability and willingness to lend
      - Affect credit availability and terms at which credit is available
        - What matters is lending rate, not T-bill rate
        - Spread between two is endogenous

Short run adjustments may be disequilibrating

- Lowering (real) wages lowers aggregate demand, exacerbating problems of unemployment
- Lowering nominal wages and prices increases leverage of households and firms, lowering aggregate demand
  - Even applies to *disinflation*—lower rates of wage and price inflation than were anticipated
  - Can increase bankruptcy probabilities
    - Leading to destruction of information and organizational capital
    - Increasing uncertainty, with both supply and demand side effects
    - Leading to weaker banks, decreasing lending and increasing interest rates charged by banks
    - Disparities in perceptions between borrowers and lenders can lead to negative pseudo-wealth, with further adverse effects on aggregate demand

Introduces conflicts in open economy models

- Lower costs necessary to increase competitiveness (in presence of exchange rate rigidities)
- But adverse effect on non-traded goods' demand and on supply side from increased bankruptcy may outweigh these "competitiveness" benefits
- Some evidence that this was the case in East Asia crisis

Rational expectations model provides poor guide to understanding macro-behavior

- World is always changing, so that it is not even clear what is entailed by rational expectations
- **There hasn't been a downturn as deep as this one for 80 years**
  - World 80 years ago was markedly different
  - Different politics
  - Different economic and financial structure
- Helps explain large diversity of interpretations of events and policies
  - But in rational expectations models, everyone has same beliefs
  - Divergences in beliefs are of first order importance for understanding markets and macroeconomic behavior
  - Even now, there are disagreements about magnitudes of multipliers
  - Gradual recognition that inferences based on models estimated in "normal" times are of little relevance in deep downturn
- In RE models, there is no learning, no problem of assessing whether we are experiencing an extreme outcome in an old regime, or whether we have moved into a new regime
  - Such learning is central to behavior of economic agents

- In run up to crisis, many critical aspects of what went on cannot be reconciled with rational expectations behavior on the part of large fraction of economic actors
  - Although there were often a few who made some money by exploiting seeming irrationality of others
  - But these did not suffice to prevent the creation of a major bubble
- This is more than just a statement that crisis was not "expected"
  - Design of mortgages did not represent "rational" and efficient system of risk sharing
    - Greenspan's encouragement of variable rate mortgages
  - Was it conceivable that housing prices/real estate prices could continue to grow?
    - Limits on spending on housing
    - Unlimited supply of land in Nevada desert
  - If, of course, crisis had been widely expected (at some earlier date), then consumption would have fallen at that earlier date

Financial sector is critical

- Not just T-bill rate or money supply
- Lending rate and credit availability
  - "Liquidity"—access to funds—can dry up
  - Term has no meaning in "standard" models
- Credit to SME's linked to banking system
  - SME lending linked to regional banks (local informaiton)
  - Made a difference to aggregate lending where you pumped money into the system
    - Fed didn't really grasp this
- Need theory of banking (Greenwald-Stiglitz, 2003)
  - Balance sheets matter
  - Prudential and macro-prudential regulations matter
  - Risk perceptions matter
- Financial *networks* (interlinkages) matter
  - And financial sector cannot be adequately described by a representative agent model
  - Related to problems of macro-economic externalities discussed below

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- Fundamental flaws in model of securitization
  - Helps explain why government still has central role in mortgage market
- Information as a public good
  - No easy solution to credit agency problem (perverse incentives under current arrangement, no viable private alternative)
  - Related to Grossman-Stiglitz

Contrasting implications

- Problem may not be price rigidities, but price flexibilities
- Large macroeconomic externalities
  - Especially related to financial sector
  - Which help explain both amplification and persistence
- Regulating financial sector crucial
  - And **financial sector cannot be adequately summarized in a money demand equation**

Policies: 1. Monetary policy

- Conventional monetary policy may be ineffective not just (or even) because of ZLB
  - Access to credit, not just interest rates, is what matters
    - Real interest rates already negative
    - No evidence that lowering them from -2% to -4% would solve economic problem
      - Obviously, -100% would change matters
    - If ZLB were the problem, could change intertemporal prices through tax policies

Explaining ineffectiveness of monetary policy

- Banks are unable or unwilling to lend
  - Low T-bill rate has little effect
- Banks may not pass on lower interest rates to customers
- Lowering interest rates to depositors/investors can be counterproductive
  - In short run: distributive effects
  - In medium term: inducing firms to use more capital intensive technology, leading to jobless recovery

2. Fiscal policy

- Fiscal policy can be very effective
  - Large multipliers
  - Crowding in of investment, if complementarity between public and private investment
  - Crowding in of consumption, if there are expectations of future higher incomes
  - Many econometric studies focused on periods in which the economy was at or near full employment
    - Irrelevant for problem at hand
  - Large balanced budget multiplier means that expansionary fiscal policy can work even with budget constraints

3. Debt Policy

- Debt restructuring may be an effective way of restoring aggregate demand
  - Deleveraging
  - May reduce negative pseudo-wealth
  - Redistribution, but more than just redistribution
    - But contrary to standard model, redistributions do matter
- Inflation used to be an effective way of debt restructuring
  - No longer seems acceptable
- Government should have enacted a homeowners' chapter 11
  - Resistance from banks proved crucial
    - Supported by Obama administration

III. The capitalist economy as a credit economy

- Simple models of financial market provide a description of a corn economy
- Some farmers have more seed than they want to plant or consume
- Others want to consume/plant more seed than they have
- Banks (financial system) intermediate
  - Good system of intermediation—low transactions costs
- Markets clear demand and supply of seed

But this model provides a poor description of our economy

- What enables individuals to spend more than the resources they have available (either for consumption or investment) is access to credit
- Credit is *different* from ordinary commodities

Credit creation

- Credit can be created out of "thin" air
  - Unlike seeds
- Still, one needs to explain supply of credit (e.g. through banking system)
- With aggregate demand depending on credit availability, changes in credit availability can have macroeconomic consequences
  - Adjustments in prices do not instantaneously offset
  - No presumption that the market supply of credit will ensure aggregate demand equaling aggregate supply
    - A key function of monetary policy is to provide the requisite coordination

A credit economy is based on trust

- Trust that the “money” that is borrowed will be repaid
- Trust that the money that is received will be honored by others.
- If a financial institution is trusted, it can create “money” (“credit”) on its own, issuing IOU’s that will be honored by others
  - Can thereby increase effective demand

Old model of credit economy

- Strong system of accountability for banks issuing IOU’s
  - Net worth at risk
    - If they issue loans that are not repaid, they suffer the consequences
  - Personal liability of bankers
- But old model often didn’t work
  - Limited ability to punish
  - Sudden disappearance of confidence could lead to macroeconomic fluctuations
- Problems exacerbated by limited liability
  - And difficulty of holding those in corporations accountable
- Problems exacerbated by increasing complexity of financial system
  - No one can really monitor a big bank

Response

- Today, underlying "trust" in financial system is belief that government will come to the rescue
  - And that government is adequately regulating the financial system
  - But this exacerbates moral hazard problem
  - Worse for financial institutions that are too big, too interconnected, too correlated to fail
    - Distorted market
  - But belief is tempered by government's ability to rescue
    - Giving advantage to banks from rich countries

Sudden changes in credit availability

- Can result from sudden changes in trust
- Sudden changes in banks' perceptions of risk
- Sudden changes in banks' balance sheets (actual and perceived)
  - As a result of changes in market prices
  - As a result of changes in pseudo-wealth
  - As a result of defaults (actual or anticipated)

Fundamental asymmetry

- Asymmetry: Loss of wealth or purchasing power (access to credit) may force those who want to spend more than their income to decrease spending in tandem
  - Those who gain in wealth (access to credit) do not have to increase spending in a corresponding way
- Problem familiar in international context
  - Worry about global imbalances
  - Adverse effect on global aggregate demand from surpluses

Inequality gives rise to corresponding imbalances

- Those at the bottom who see their incomes decline are forced to reduce spending
  - Unless one temporarily creates a housing bubble
- Those at the top continue to save
- Lowering interest rates will not likely resolve problem
    - Target savers (for purchasing home, financing college education, retirement) will increase saving
    - Retirees depending on T-bills will reduce consumption
    - How interest-sensitive is consumption of the very wealthy?
      - Even taking into account effects of lower interest rates on capital assets
      - Especially if interest rate reductions are expected to be temporary
      - Especially if policy regime introduces new macroeconomic uncertainties

Easy solution for some governments

- They can create money and credit
  - Power to tax and print money—to make good on their promises
  - They have delegated powers, allowing others to profit
  - Contributing greatly to ongoing inequality
- Standard approach
  - Enhance the ability of banks to provide credit
    - Through regulatory and monetary policies
    - Through open and hidden subsidies
  - Hope that they do so
    - And that the money goes to increase effective demand
    - Rather than purchasing preexisting assets (land)
  - And that they don't take advantage of the unwary

Solution hasn't worked

- Banks often haven't lent
- And when they have lent, money hasn't gone to where it would lead to an increase in effective demand
  - Helps explain ineffectiveness of monetary policy
    - Outcome might have been different if we had done a better job at recapitalizing community banks and "fixing" mortgage market
  - Not the traditional Keynesian liquidity trap
  - Nothing to do with ZLB
- Politically unsavory
  - Giving money to those who caused the economic crisis seems "unjust," argument that is was necessary to "save the economy unpersuasive

Alternative solutions

- Government uses its own credit capacity
- To engage in high return public investments
- To address other major social needs
  - E.g. related to growing inequality
  - Climate change

Alternative approach

- Induce banks to focus on lending activities
  - Should have been one of major foci of regulatory reform
- Direct lending by the government
  - Student lending
  - Mortgage lending
  - Other categories of investment (climate)
  - Criticism: government is not good at lending
  - Response: neither is the private sector; government has done better job at least in these areas

Money rain

- Would induce more spending
- Would not be inflationary, so long as amounts were appropriately calibrated
- But in many countries (e.g. US) the problem is not an insufficiency of consumption, but of investment, and broad based money rain would restore full employment by encouraging consumption

IV. The crisis in economics

Standard models

- Criticism is not just that the models did not anticipate the crisis (even shortly before it occurred), they did not contemplate the possibility of a crisis
  - Said it couldn't/wouldn't happen
  - Had no insights into what generated it
- Have provided inadequate guidance on how to respond
  - Even after bubble broke, it was argued that diversification of risk meant that the macro-economic consequences would be limited
  - Large parts of the world well below potential
  - In some countries, downturn worse than the Great Depression
  - Risk of significant hysteresis effects from protracted unemployment, especially of youth

There are alternative models

- Both Real Business Cycles and the New Keynesian DSGE models that provide better insights into the functioning of the macro-economy
  - More consistent with micro-behavior
  - More consistent with what has happened in this and other deep downturns
- And provide alternative insights into what kinds of macroeconomic policies would restore the economy to prosperity and maintain macro-stability
- This talk has attempted to sketch some elements of these alternative approaches