Fundamental Insurance Principles and Issues

- ***Risk Pooling*** is the source of all value in insurance
- ***Moral Hazard*** dealt with partially by deductions and co-insurance
- ***Selection Bias*** dealt with by group policies, by testing and referrals, and by mandatory government insurance

Risk Pooling

- If n policies, each has independent probability p of a claim, then the number of claims follows the binomial distribution. The standard deviation of the fraction of policies that result in a claim is

$$\sqrt{p(1-p)/n}$$

- *Law of large numbers*: as n gets large, standard deviation approaches zero

Radical Financial Innovation
Example I: Insurance

- Burial societies ancient Rome, true insurance policies appeared in Italy in 14th century
- Rapid development of actuarial theory starting in1600s with notion of probability
- Morris Robinson Mutual Life of NY 1840: highly-paid salesmen (agency theory)
- Henry Hyde Equitable Life Assurance Society 1880s: large cash value (psychological framing)
- Viviana Zelizer: challenging God, tempting fate (psychological framing)
- Inventions copied around the world
- Life insurance is a relic, of a day when people died young

Federal Insurance Office (Dodd Frank)

- Monitors insurance companies, looking for systemic risk. (Still no national insurance charter)

"(A) to monitor all aspects of the insurance industry, including identifying issues or gaps in the regulation of insurers that could contribute to a systemic crisis in the insurance industry or the United States financial system;

"(B) to monitor the extent to which traditionally underserved communities and consumers, minorities (as such term is defined in section 1204(c) of the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (12 U.S.C. 1811 note)), and low- and moderate-income persons have access to affordable insurance products regarding all lines of insurance, except health insurance;

"(C) to recommend to the Financial Stability Oversight Council that it designate an insurer, including the affiliates of such insurer, as an entity subject to regulation as a nonbank financial company supervised by the Board of Governors pursuant to title I of the Dodd-Frank Wall Street Reform and Consumer Protection Act;

State Insurance Guarantee Funds

- Most U.S. states have guarantee funds protecting insurance against failure of the insurance company
- The first state to set up such a fund was New York, in 1941
- Protects individuals, not businesses or group insurance

Connecticut Life and Health Insurance Guaranty Association

- Founded 1972 by Connecticut legislature
- Maximum death benefit $500,000 and maximum cash value insurance $500,000. Connecticut's (along with NY and NJ) is generous. (benefits not taxable)
- Even so, not big enough. If you were buying life insurance for your family, $1 million minimum
- You can't increase coverage by buying multiple policies (as you can with FDIC)
- CT disallows mentioning the guaranty in insurance company advertising (opposite FDIC)

China

- In September 2008, CIRC set up a nonprofit state-owned corporation with a registered capital of 100 million yuan to manage its insurance protection fund, amounting to at least 7 billion yuan (about US$1 billion). [1]

China Insurance Protection Fund

- Policyholders' losses that are no more than 50,000 yuan (US$7,500) will be fully covered by the fund
- For losses in excess of that number, the fund covers 90 percent of the extra for individual policyholders and 80 percent for corporate policyholders

US Government Regulation of Insurance

- McCarran Ferguson Act 1945 delegated insurance regulation to the states. Fifty different state regulators
- National Association of Insurance Commissioners (NAIC) creates standardized suggested laws
- In 1993 the NAIC adopted risk-based capital requirements.
- Gramm-Leach-Bliley Financial Modernization Act of 1999 allowed banks to affiliate with insurance companies

Health Insurance

- Proposed in 1694 by Hugh the Elder Chamberlen
- First U.S. health insurance: Franklin Health Assurance Company of Massachusetts, 1850

The Health Maintenance Organization Act of 1973

- Required employers with 25 or more employees to offer federally certified HMO options
- Designed to overcome moral hazard problem, doctors earning fees for procedures make more money if people are sick
- HMO doctors are salaried, each patient has a “primary” who serves as gatekeeper
- Yale Health Plan is an HMO, Yale employees can also choose Blue Cross, which is not

U.S. Emergency Medical Treatment and Active Labor Act (EMTALA) 1986

- Requires hospitals and ambulance services to provide care to anyone needing emergency treatment
- An “unfunded mandate”

U.S. Patient Protection and Affordable Care Act 2010 (Obamacare)

- Penalty for individuals not buying insurance
- Penalty for companies not buying insurance for their employees
- New insurance exchanges A health insurance exchange is a set of state-regulated and standardized health care plans, from which individuals may purchase health insurance that is eligible for Federal subsidies
- Insurance companies may not disallow for preexisting conditions, or drop people who get sick

Haitian Earthquake 2010

Casualty Insurance in Haiti

- Since 2007, Haiti has participated in the Caribbean Catastrophe Risk Insurance Facility, funded by donors and member countries
- But that covered only $8 million of losses
- Coverage from private insurers similarly small (premiums about 0.3% of GDP)
- Losses from the Haitian earthquake reached into many billions

Hurricane Katrina twenty-foot high Storm Surge, August 29, 2005

Assessment of Insurance Performance in U.S. after Katrina

- The total insured property loss of Katrina, $34.4 billion
- 70% of claims were settled by January 2006, $7.5 billion paid out by insurers (Insurance Information Institute)
- Roughly 200,000 homes severely damaged, so payment was about $40,000 per home
- Insurance companies argued homes were damaged by flood, not wind
- Many homeowners did not have flood insurance (60% of homeowners in Orleans parish)
- insurance premiums in Louisiana had already gone up by 70% between 1997 and 2005, causing many people to cancel their insurance

Terrorism Risks

TRIA, 2002

- Before 9/11/2001, insurers generally did not exclude terrorism risk, which they then saw as inconsequential
- After 2001, insurers wanted these exclusions
- US Terrorism Risk Insurance Act of 2002 (TRIA) required insurers to offer terrorism insurance for three years
- Government agreed to pay 90% of insurance industry losses above a deductible of $100 billion
- December 2005 TRIA renewed for two more years, and in 2007 for 7 more years. In 2015, the act was renewed again to 2020