

Evolutionary Economics, Small Business Dynamics, & Economic Growth

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The Information Technology & Innovation Foundation is a Washington, D.C.-based think tank at the cutting edge of designing innovation policies and exploring how technological innovation will boost economic growth and improve quality of life. ITIF focuses on:

Innovation processes, policies, and metrics,

- Internet, big data and IT policy,
- Science and tech policy,
- Innovation and trade policy and,
- Innovation and economic theory and policy.

- How Economics Conceives of an Economy



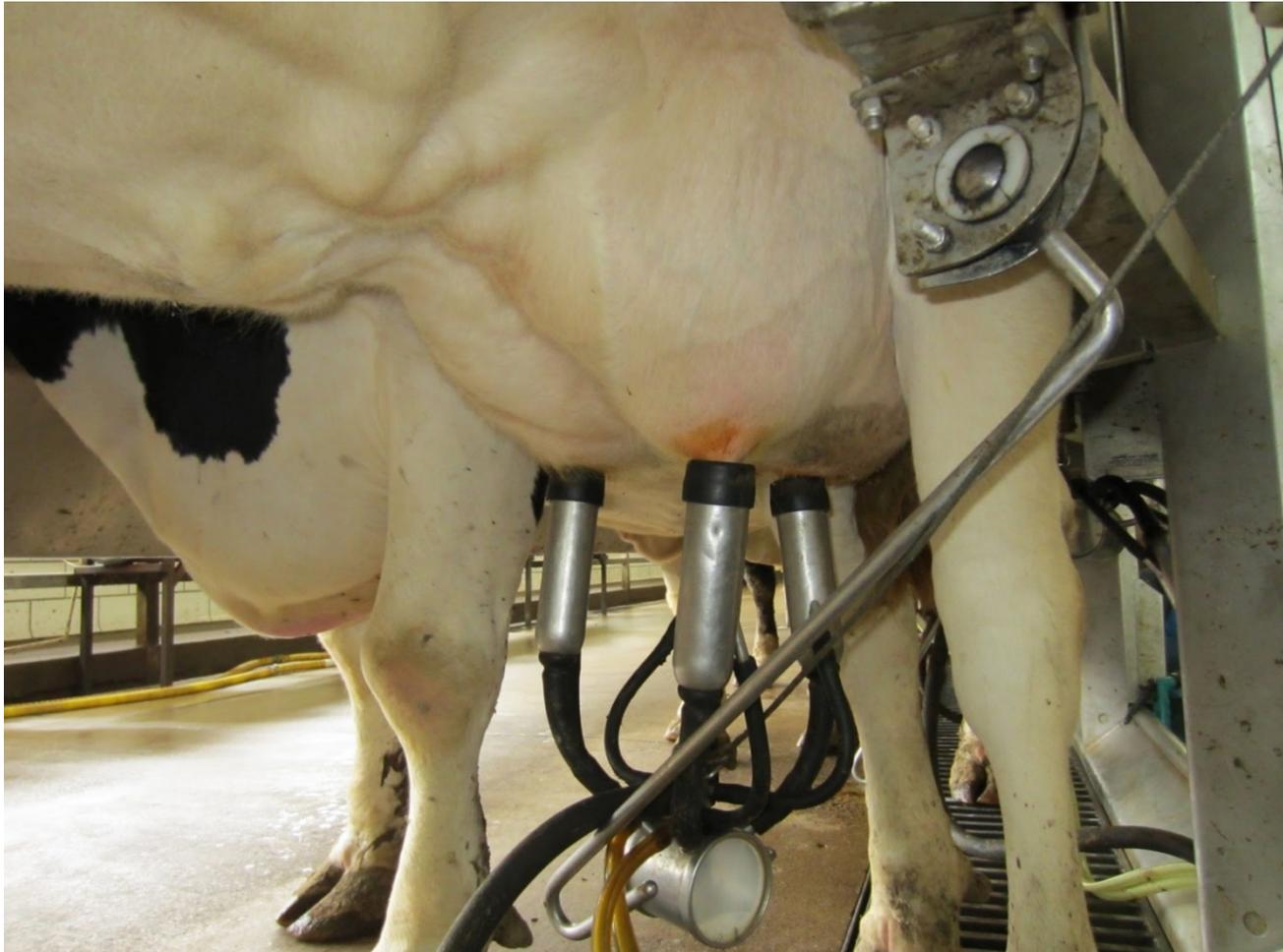
- A machine that heats up and cools down?

- How Economics Conceives of an Economy



- A vast agora for exchanges?

- How Do Most Economists Think About Tech and Innovation: A “Tweak”
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- How Do Most Economists Think About Tech and Innovation: A “Toy”
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- How Do Most Economists Think About Tech and Innovation: “Manna From Heaven”



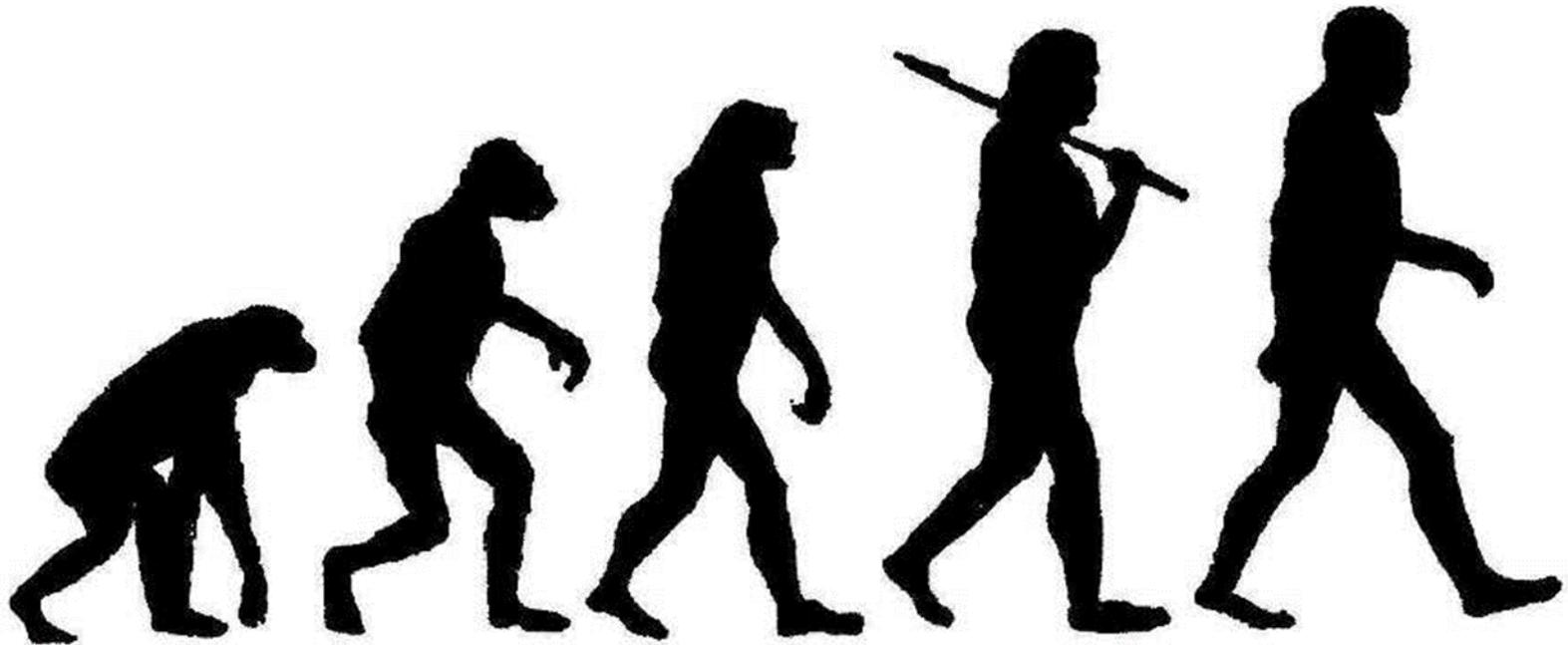
- How Do Most Economists Think About Tech and Innovation: “The Measure of Our Ignorance”
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- How Do Most Economists Think About Tech and Innovation: A “Black Box”
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- A More Accurate Frame is the Economy is an Evolutionary System
-



■ An Economy is an Evolutionary System

Today:

- 620 Patents Will be Issued
- 434 New Products Released
- 439 New Production Processes Adopted

- An Economy is an Evolutionary System

Today:

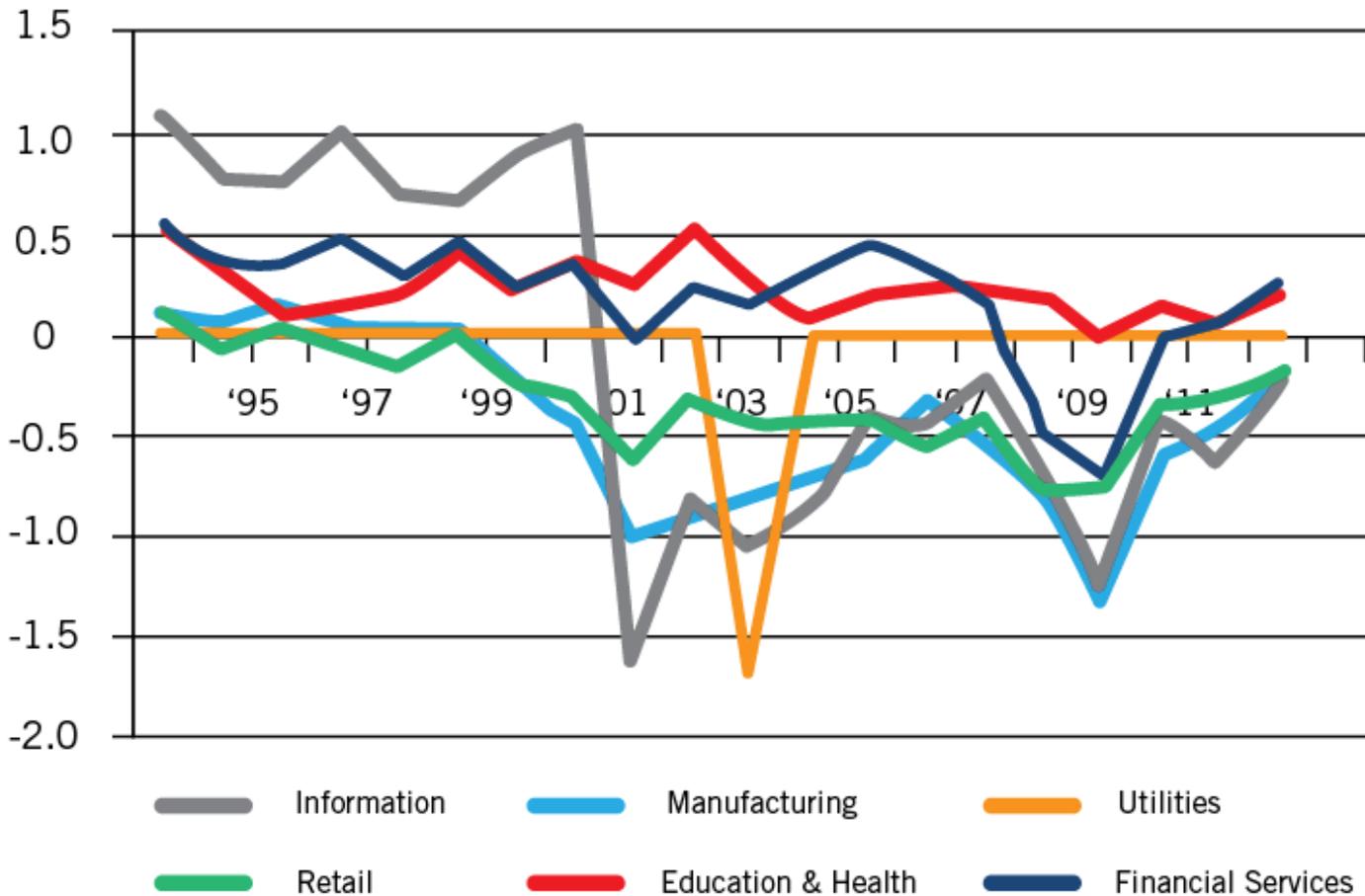
- 3,800 Firms Will Die
- 4,000 Will be Born

■ An Economy is an Evolutionary System

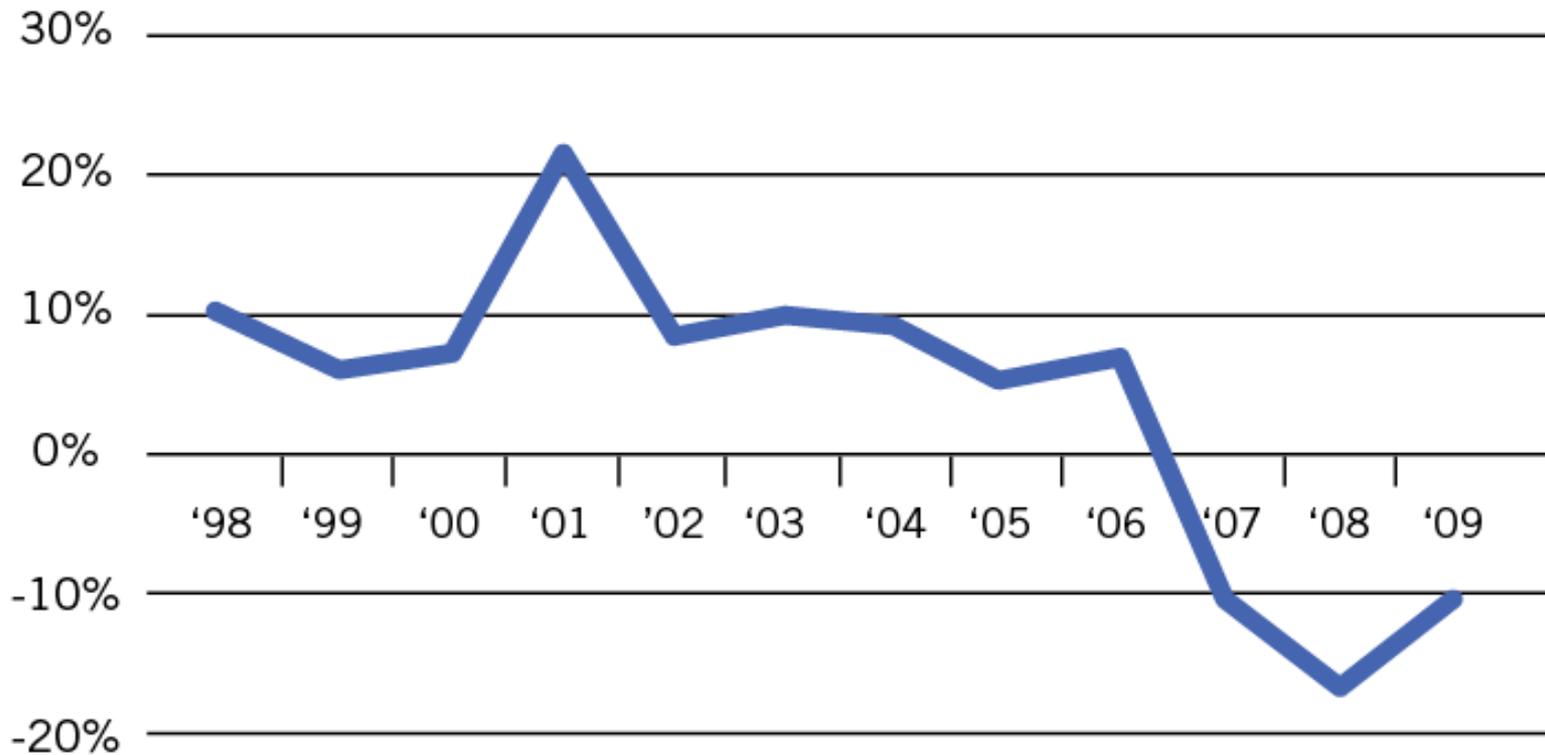
Today:

- Non-store retail firms get bigger by 0.03%
- Data processing, hosting and related services firms shrink 0.07%

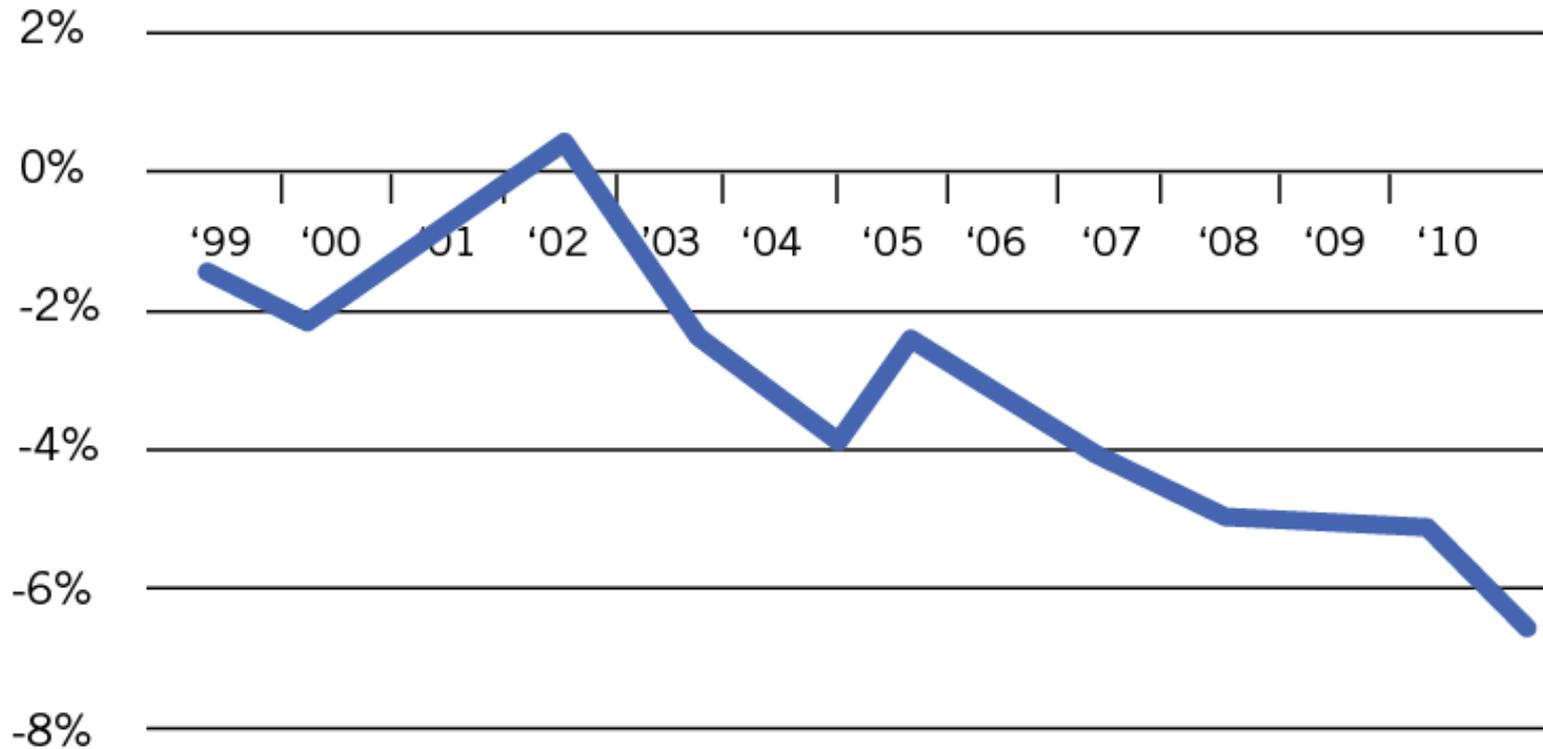
- Net Rates of Firm Birth and Death by Industry, 1993 to 2012



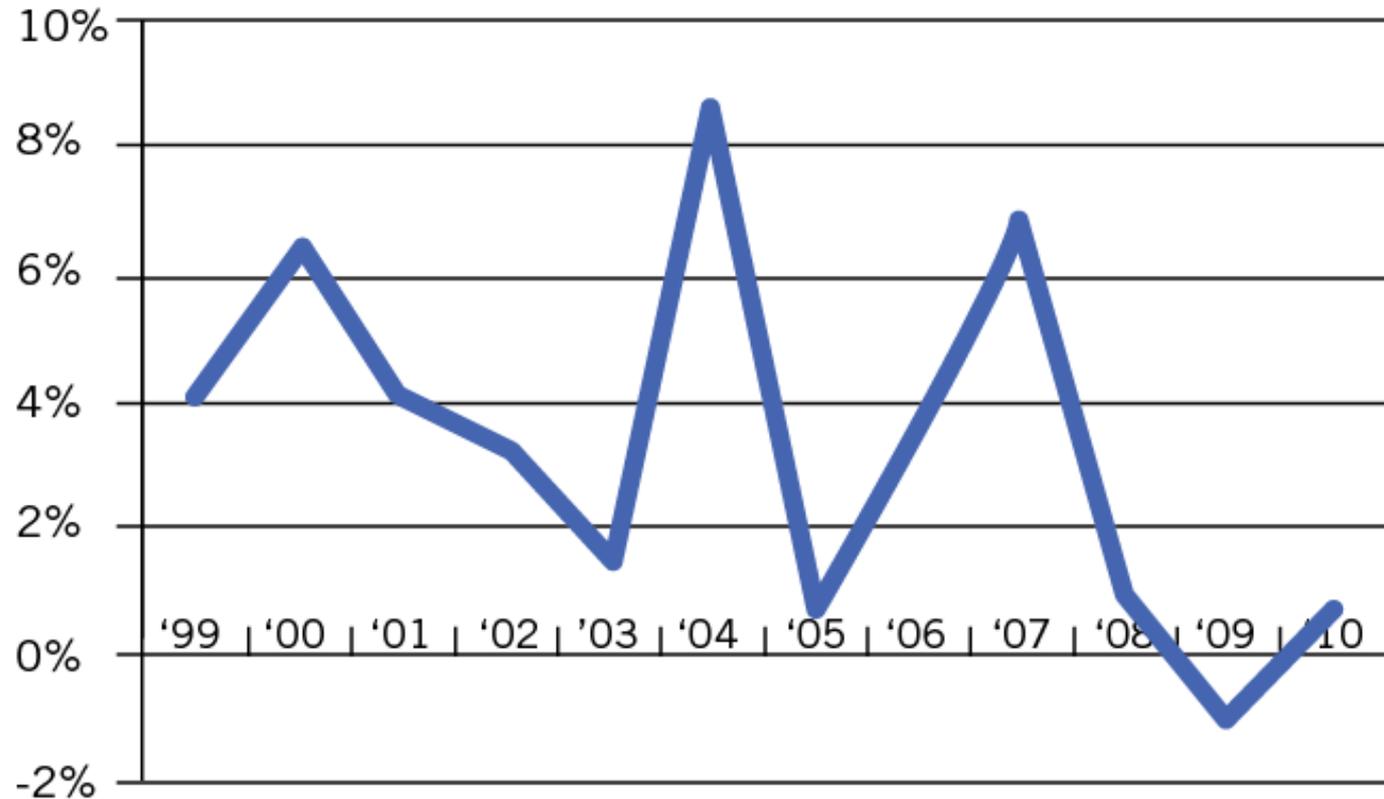
■ Credit Intermediation Firms



■ Books, Periodical and Music Stores



■ Specialty Food Stores



■ So What is Evolutionary Economics?

“The essential point to grasp is that in dealing with capitalism we are dealing with an evolutionary process...the fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates.”

-Joseph Schumpeter,
Capitalism, Socialism and
Democracy, 82-3.

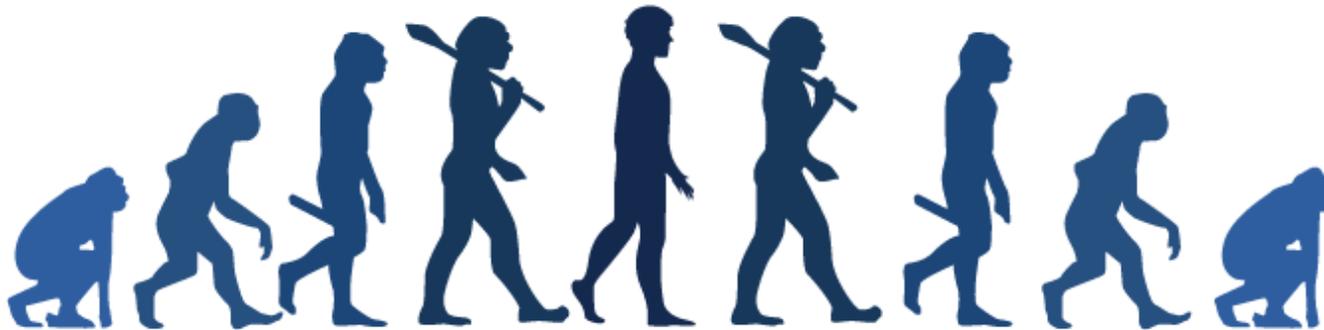


■ What is Evolution?

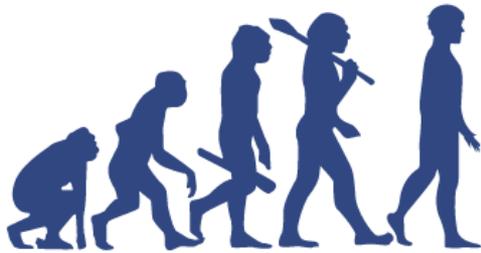
- Improvements in productivity
- Development of new welfare enhancing products, services, and business models
- Increases in global competitiveness

- But Devolution Can Also Occur

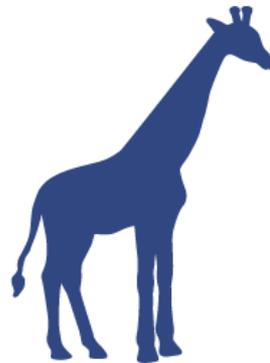
- Change that makes an economy less vibrant or adaptive



- Three Motive Forces for Economic Evolution



Darwinian



Lamarckism



Intelligent Design

■ Three Drivers of Economic Evolution

Geography

- Economies are entities that evolve over both time and space
- The U.S. used to generate new industries to replace the ones it lost to low wage nations
- Competition for leading-edge evolutionary “replacement species” is now much stiffer

Industry	Decline
Plastics	17%
Fabricated Metals	20%
Furniture	26%
Paper	27%
Nonmetallic Minerals	30%
Primary Metals	36%
Apparel	40%

Real output loss, 2000 to 2010 for selected U.S. manufacturing industries

Source: Bureau of Economic Analysis

■ Three Drivers of Economic Evolution

Technology

- Despite more resources being devoted to innovation (e.g., global R&D spending is at its peak), innovation in many areas is getting harder, not easier
- ICT, is enabling “genetic mutation” in virtually all industries, including the services
- Prime examples are the transformations in sectors like media, news, travel services, retail, banking, taxis, hotels, and others

■ Technology Driving of Economic Evolution

Industry	NAICS Code	Real Gross Output Change 1998-2012
Growth Due to Technology		
Internet publishing and broadcasting and Web search portals	519130	1094.2%
Wireless telecommunications carriers (except satellite)	517210	699.9%
Support activities for oil and gas operations	21311A	386.1%
Biological product (except diagnostic) manufacturing	325414	137.4%
Data processing, hosting, and related services	518200	132.7%
Software publishers	511200	116.2%
Environmental and other technical consulting services	5416A0	101.4%
Computer systems design services	541512	56.7%
Primary battery manufacturing	511200	111.2%

Industry	NAICS Code	Real Gross Output Change 1998-2012
Decline Due to Technology		
Electron tube manufacturing	33441A	-54.7%*
Software, audio, and video media reproducing	334611-2	-51.6%*
Magnetic and optical recording media manufacturing	334610	-42.4%
Video tape and disc rental	532A00	-39.0%*
Electronic and precision equipment repair and maintenance	811200	-33.9%
Postal service	491000	-30.2%
Directory, mailing list, and other publishers	5111A0	-26.0%
Couriers and messengers	492000	-19.6%

Changes in real industrial output by industry and cause.
*1998-2011 data

Source: Bureau of Economic Analysis

■ Three Drivers of Economic Evolution

Changes in Demand

- Changes in the types of goods and services demanded by consumers (whether these are businesses, governments or individuals) drive evolution
- Various factors can alter the composition of demand, including demographics, culture, and government



- Three Drivers of Economic Evolution:
Demand

Industry	NAICS Code	Real Gross Output Change 1998-2012
Growth Due to Societal Changes		
Military armored vehicle, tank, and tank component manufacturing	336992	294.9%
Tortilla manufacturing	311830	103.4%*
Wineries	312130	102.7%
Medical and diagnostic labs and outpatient and other ambulatory care services	6214-5, 6219	78.4%
Securities, commodity contracts, investments, and related activities	523A00	69.4%
Fitness and recreational sports centers	713940	62.8%*
Offices of physicians, dentists, and other health practitioners	6211-3	53.3%
Home health care services	621600	43.3%

Industry	NAICS Code	Real Gross Output Change 1998-2012
Decline Due to Societal Change		
Newspaper publishers	511110	-46.7%

Changes in real industrial output by industry and cause.

* 1998-2011 data

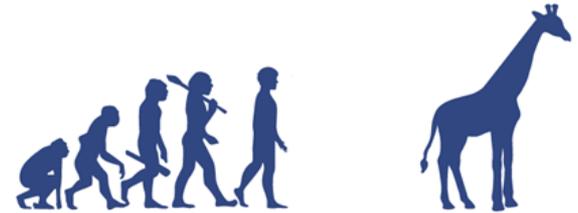
Source: Bureau of Economic Analysis

■ Policies to Maximize Evolutionary Growth

- We need to move beyond the neoclassical and neo-Keynesian playbooks
- Markets alone are not enough
- Resistance to evolution is neither effective nor welfare enhancing
- Using evolutionary economics as a guide, the principles of more effective economic policies become clearer. To maximize evolution, policymakers should:

■ Policies to Maximize Evolutionary Growth

Darwinian and Lamarckian Policies



- Support global integration;
- Get out of the way of natural evolutionary gain & loss;
- Foster a culture that embraces evolution, including natural evolutionary loss; and
- Limit government barriers to evolution.

■ Policies to Maximize Evolutionary Growth

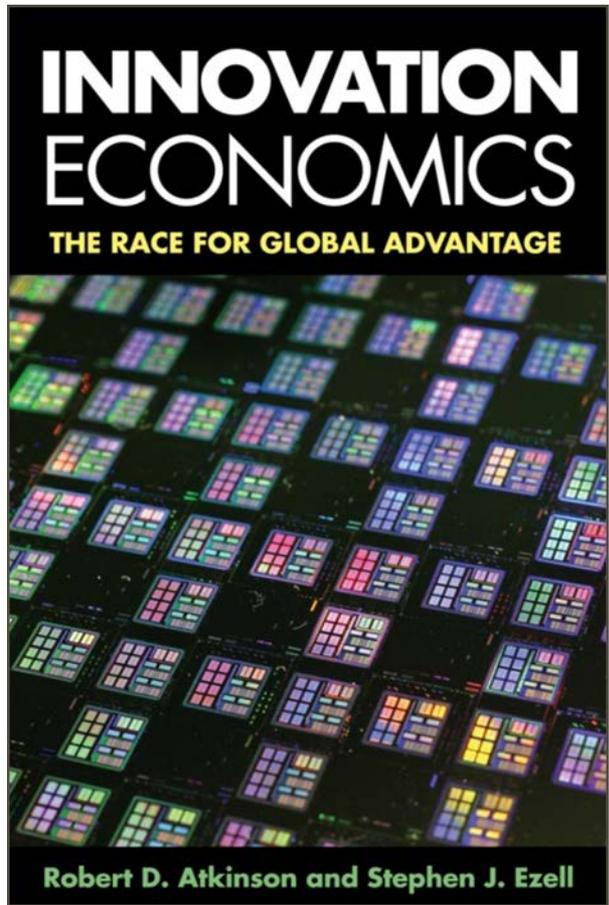
Intelligent Design Policies



- Slow down traded sector rate of loss;
- Enact policies to support organizations to support evolution;
- Support policies to accelerate economic evolution, especially from technological innovation; and
- Develop a deeper understanding of the evolution of the U.S. economy.

■ Small Business and Evolution

- Not all small businesses drive evolution.
- “Entrepreneurship” is not a synonym for “small business”
- SB entry can help drive evolution, in part by responding to changes in evolutionary conditions.
- SB entry disciplines evolution (“it disciplines before it attacks”: Schumpeter.)



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Thank You!

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