Introduction to Entrepreneurship

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Pietro Masci

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1. Definitions: Entrepreneurship and Insurance

Entrepreneurship

- According to Schumpeter (1934), the entrepreneur is the innovator who implements change and produces growth by initiating new combinations, which can take several forms:

(1) the introduction of a new good or quality thereof,
(2) the introduction of a new method of production,
(3) the opening of a new market,
(4) the conquest of a new source of supply of new materials or parts, or
(5) carrying out the new organization of any industry.

- The basic contention is that small firms, start-ups - places of the independent entrepreneur and the independent inventor- are the instruments for the "*creative destruction*" of the Schumpeterian entrepreneur, and therefore facilitating opportunities and economic growth.
- The entrepreneur constitutes the primary source of the technical ideas and innovations that serve as the foundation for the unprecedented growth performance of the world's industrial economies.

Baumol W., The Free-Market Innovation Machine: Analyzing the Growth Miracle of Capitalism, Princeton: Princeton University Press, 2002

Entrepreneurship

- There are various definitions of entrepreneur derived from Knight (1921), Schumpeter (1934), and the Austrian School.

- The main difference between Knight and Schumpeter is that the latter holds the view that the entrepreneur does not bear the risk – "*the entrepreneur is never the risk bearer*" (Schumpeter 1934, p.137), which is taken by the capitalist, the banker. Knight believes that the entrepreneur bears the uninsurable business risk, i.e., uncertainty associated with the business venture.

- A definition of entrepreneur is that of someone who has intuition and drive and in a given institutional setting undertakes the uncertainty of the business risk, and uses the insurance market to transfer s specific risks. He creates a new organization to exploit a new technology, or innovative process and generates value and economic growth.

- Profit is the reward of the entrepreneur.

- This definition is closer to the view of Knight in terms of "risk", but recognizing the crucial contribution of Schumpeter to identify the entrepreneur as an engine of growth.

- The definition can be applied to the environment of developed and emerging economies.

Theories, Definitions and Measures

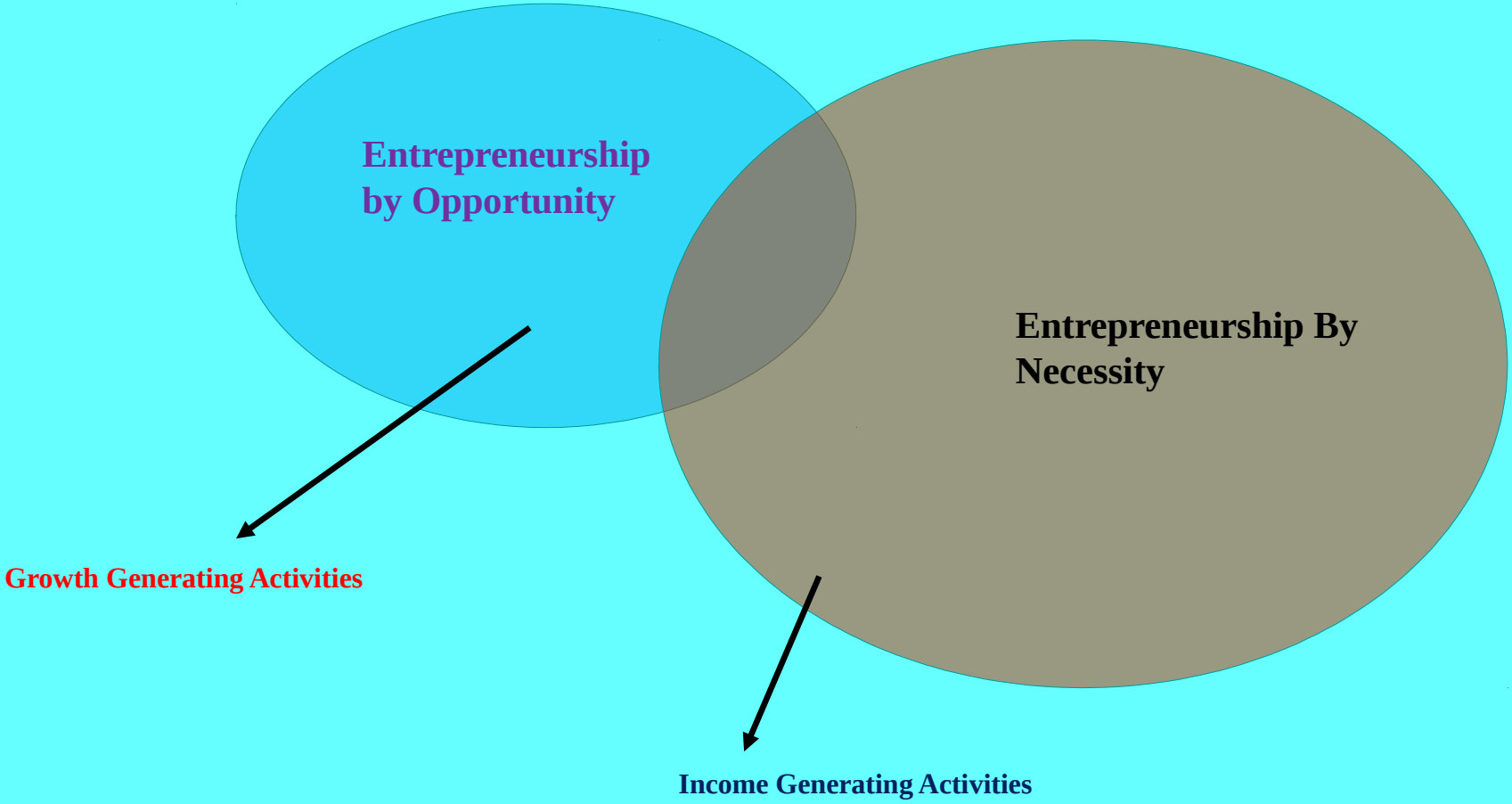
- A key challenge is understanding if, and how, social ‘returns’, impact, can be measured in any scientifically robust way.

- Management guru Peter Drucker famously said, “If you can't measure it, you can't manage it.”

- Theories, definitions and measures of entrepreneurship are strictly connected (i.e., different theories and definitions of entrepreneurship refer to different measures) and entail different implications for public policies (Iversen, Jorgensen, and Malchow-Moller 2007).

- Several researchers (Congregado 2010; Iversen, Jorgensen, and Malchow-Moller 2007) stress that the best measures of entrepreneurship are those of SMEs, **start-ups** and self-employment. In this respect, large firms and low-income people do not measure entrepreneurship, but play a role in the economy.

Types of Entrepreneurship



Definition of Insurance

- Insurance companies bear risk by creating pool risks; assess and cope with non-diversifiable risk; facilitate access to credit.

- Insurance companies are vehicles to mobilize and manage savings investing them in the capital markets, facilitating long-term investments and the growth of debt and equity markets.

- Insurance companies - as institutional investors - can require companies in the stock market to follow standards of corporate governance and transparency. Thus, institutional investors as shareholders play the role of monitoring and disciplining the markets.

- Insurance companies cover **risk**, but not **uncertainty**.

- Insurance companies perform a fundamental role for economic growth and must operate efficiently and effectively (e.g., charging fair price and making provisions) and with transparency.

Insurance

Insurance, the main independent variable, is measured using standardized measures.

The first measure that gauges the level of the demand of insurance and effective insurance markets is the penetration ratio defined as the ratio of total premiums (life and non–life) to GDP (i.e., premiums over GDP) for states and for various years.

A second measure is propensity to buy insurance. The propensity to buy insurance can be regarded as risk aversion. Various authors argue that education promotes an understanding of risk and hence an increased demand to buy insurance (Outreville 1990, 2011; Szpiro and Outreville 1988). In other words, the more people are educated, the less risk-averse they become; i.e., better education improves the capability of assessing risk, and increase the demand of insurance and hence the propensity to insurance. In addition, better education facilitates greater risk taking by individuals and less risk aversion and represents a proxy for risk aversion and propensity to buy insurance.

A third measure is density rate. The density rate is defined as the total volume of premiums (life and non–life) per capita (i.e., premiums over population for different states and countries for various years). *Density* is a measure that relates to the knowledge of insurance and influences the availability of insurance. The number of insurance companies (and also the number of brokers) in a given state (or country) could constitute a measure of knowledge of insurance. Olson (Olson 2007, 40) distinguishes between propensity and knowledge of insurance arguing that knowledge facilitates the introduction of rules and institutions that expand insurance products; i.e., cultural values influence the shape and institutions.

2. Natural and Human Events: The Known, The unknown and the Unknowable, KuU

The Known

- ***The Known*** consists of all of the things we have already Learned and know to be True and factual. Some examples of what we know are:

  - simple addition and subtraction, the sun rises in the east;
  - the law of gravity (if we drop something it wall fall to the ground);
  - how to walk and run, how to read and write,
  - plus all of the other things we have already learned, which competently serve us in our daily lives.

  However, it is important to understand that the Known *does not* consist of Beliefs, Opinions, Hopes, or blind Faith which either we, or someone else has planted into our consciousness.

- In economics, we know that normally if price of a good increases, demand declines.

The Unknown

The Unknown consists of all the experiences, knowledge and skills that are available to us in this physical realm which we have not yet come to Learn, understand and utilize.

For example:

We may not know how to speak Portuguese. However we can learn how to speak this, or any other language, by simply taking a course in that particular subject.

Similarly, we may not Know how to sing, paint, draw, drive a car, perform magic tricks, speak in public, throw a baseball, play a musical instrument, perform calculus or understand the movement of the stars and planets.

However, although these things may be currently Unknown to *us*, they are definitely *Knowable*. The acquisition of any Unknown knowledge simply requires that we take the time, and make the effort, to learn these new skills, concepts and attributes.

- In economics, we know that there is a known probability of car accident as well as other similar events (e.g., robbery). To protect against the risk of accidents and the damages derived from the accident we can buy an insurance.

The Unknowable

- *"Ah, but I may as well try and catch the wind."*: Donovan, singer and songwriter

The Unknowable consists of all of the cosmic concepts and Divine Truths, which can never be understood and explained by the rational and logical mind.

These are the concepts which tease, baffle and mesmerize us. The more we try to rationalize The Unknowable the dizzier and more awe-struck we become.

Within The Unknowable we find all of the metaphysical (beyond the physical) Truths and doctrines which can never be grasped by us through any of our Thought processes; no matter how hard we may try.

Ancient texts tell us of Deities, which existed before the beginning and which will remain long after the end. How can this concept be explained rationally and logically by the use of clumsy and limiting words?

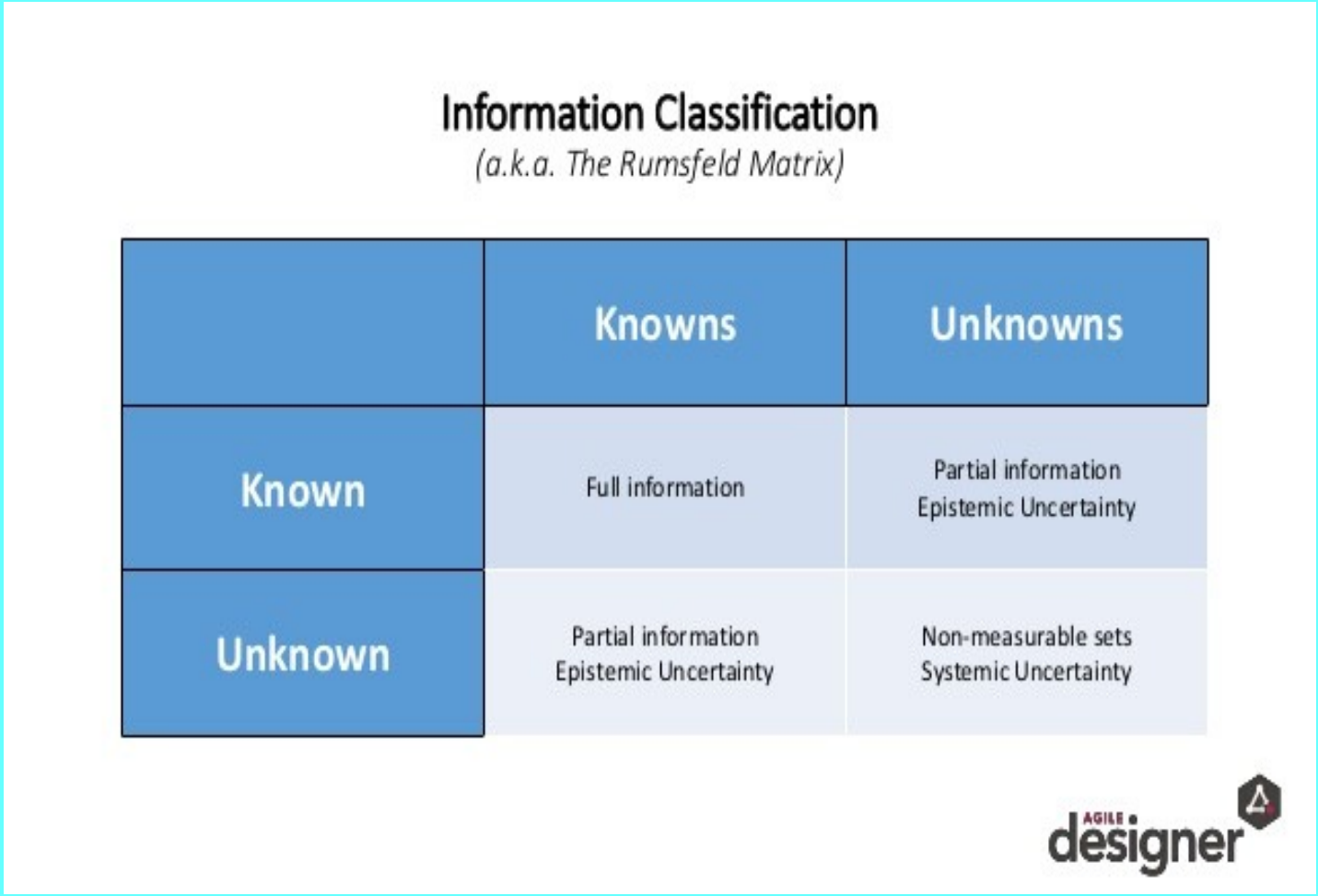
It cannot. For infinite Truths cannot be grasped and explained by the finite mind.

In Economics what is unknowable cannot be predicted and there is no way to avoid it. The entrepreneur does not know if his/her venture will be successful

There is no insurance against the Unknowable, i.e., the Knightian uncertainty, or risk that is immeasurable, not possible to calculate.

The Known, the Unknown, and the Unknowable

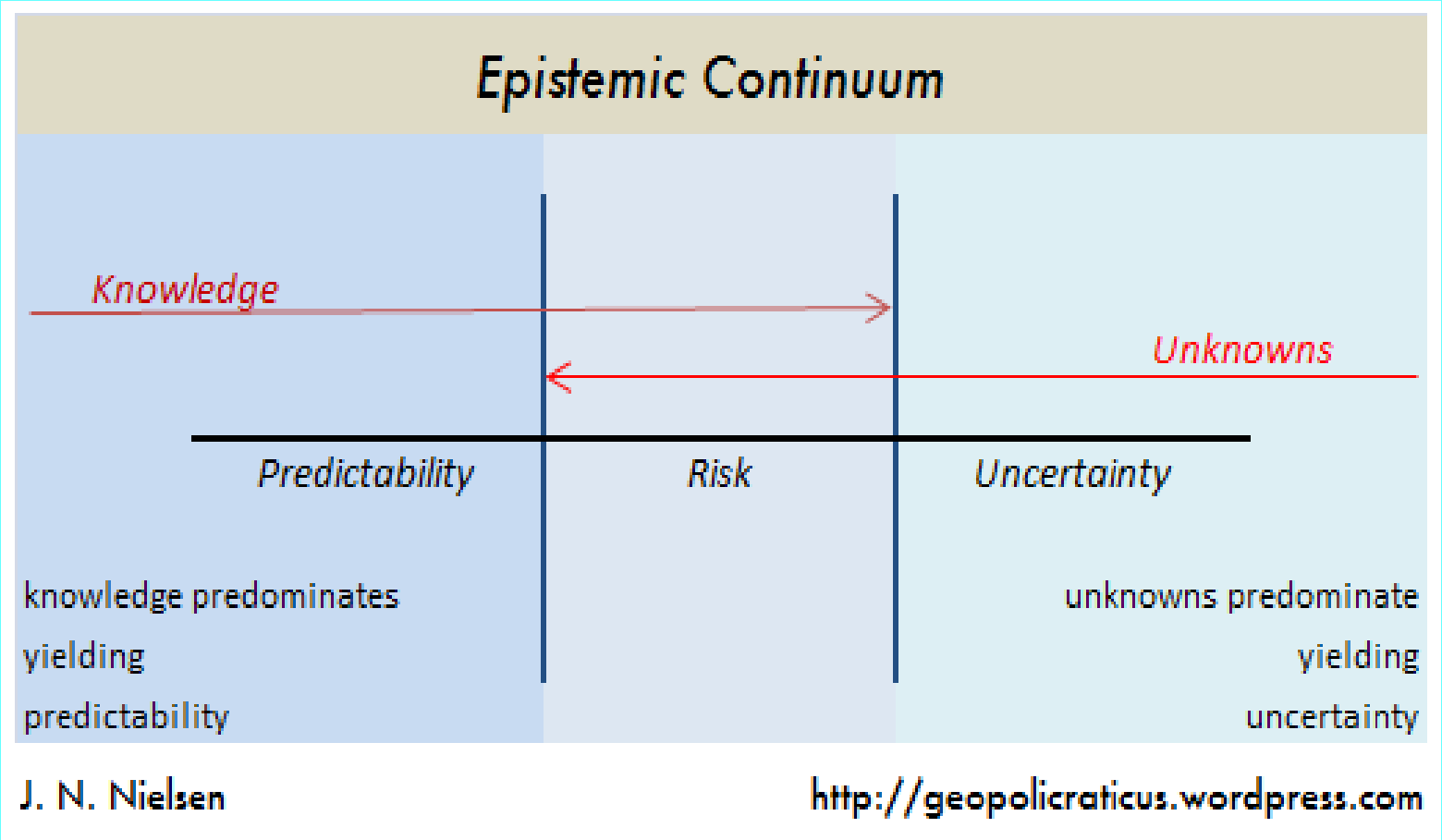
KuU – what (vertical) and when (horizontal)



KuU

- The debate between risk and uncertainty can be summarized using the framework of Ralph Gomory (1995). He classifies knowledge into the *K*nown, the *u*nknown and the *U*nknowable, i.e., the *KuU*. The framework includes three categories:
  - (1) known knowns, i.e., things we know that we know;
  - (2) known unknowns, i.e., things that we know we do not know; and
  - (3) unknown unknowns, i.e., things we do not know we do not know.
- In the context of financial risk management, Diebold, Doherty and Herring (2010) also refer to the issue of knowledge as a theory and as a measure. Their framework includes risk, which is measurable; uncertainty, which is not measurable; and unknown unknowns, the unknowable, which we do not even know it exists
  - Diebold, Doherty and Herring 2010, 2–5.
- This approach constitutes a sophisticated and modern way of expressing the view of Knight about risk and uncertainty adding the dimension of the unknown unknowns, i.e., what we do not even know and we are unable to conceive.

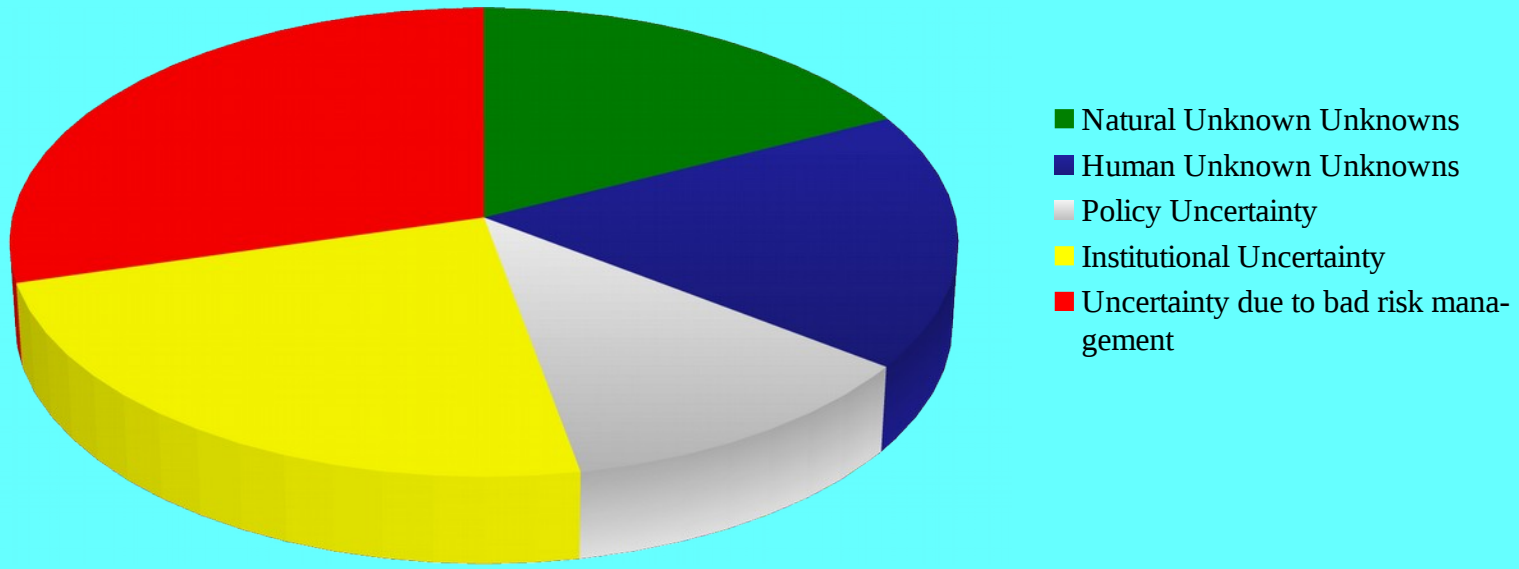
Epistemology: the study of knowledge and justified belief



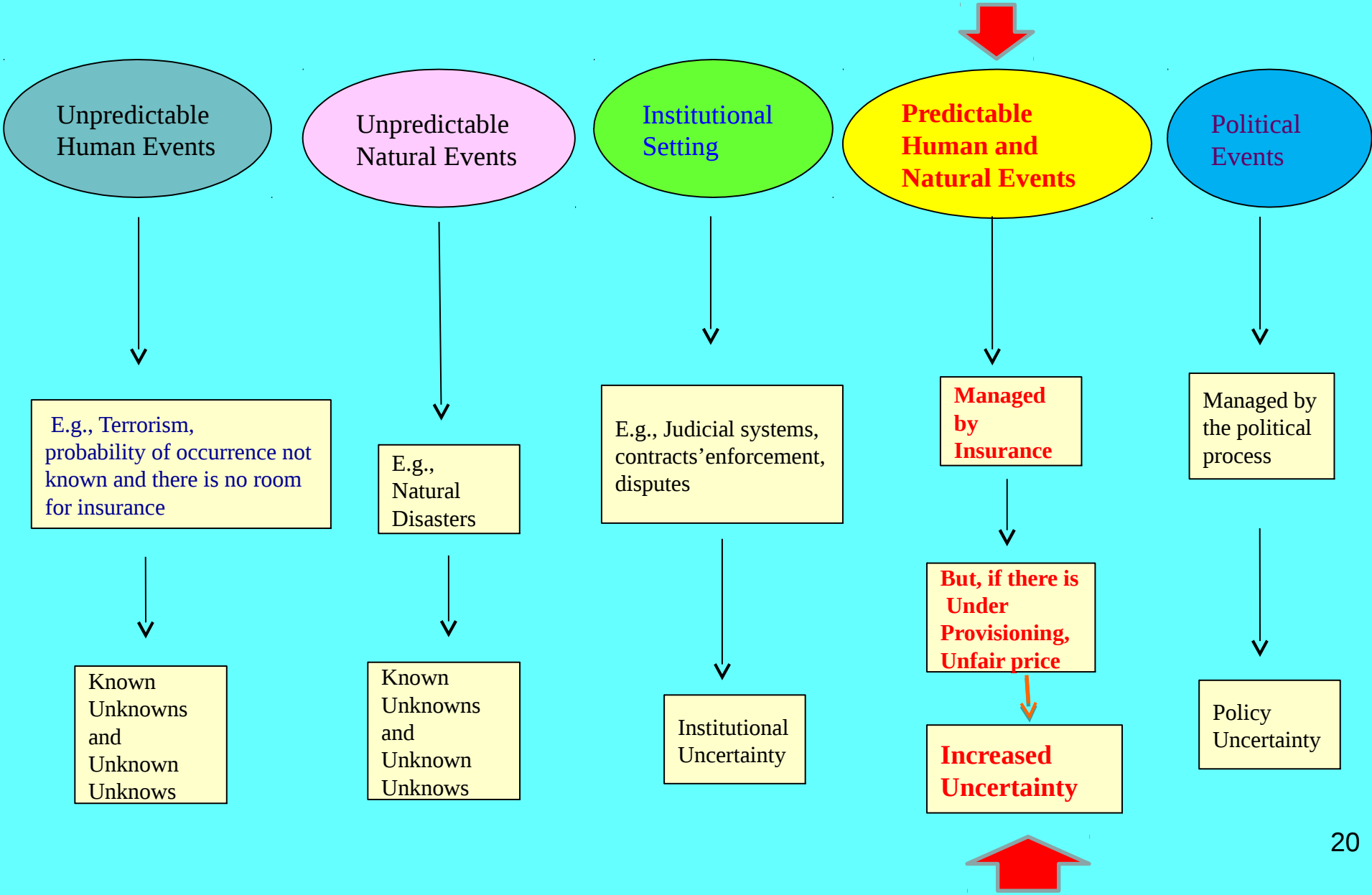
Risk and Uncertainty

Uncertainty due to bad risk management

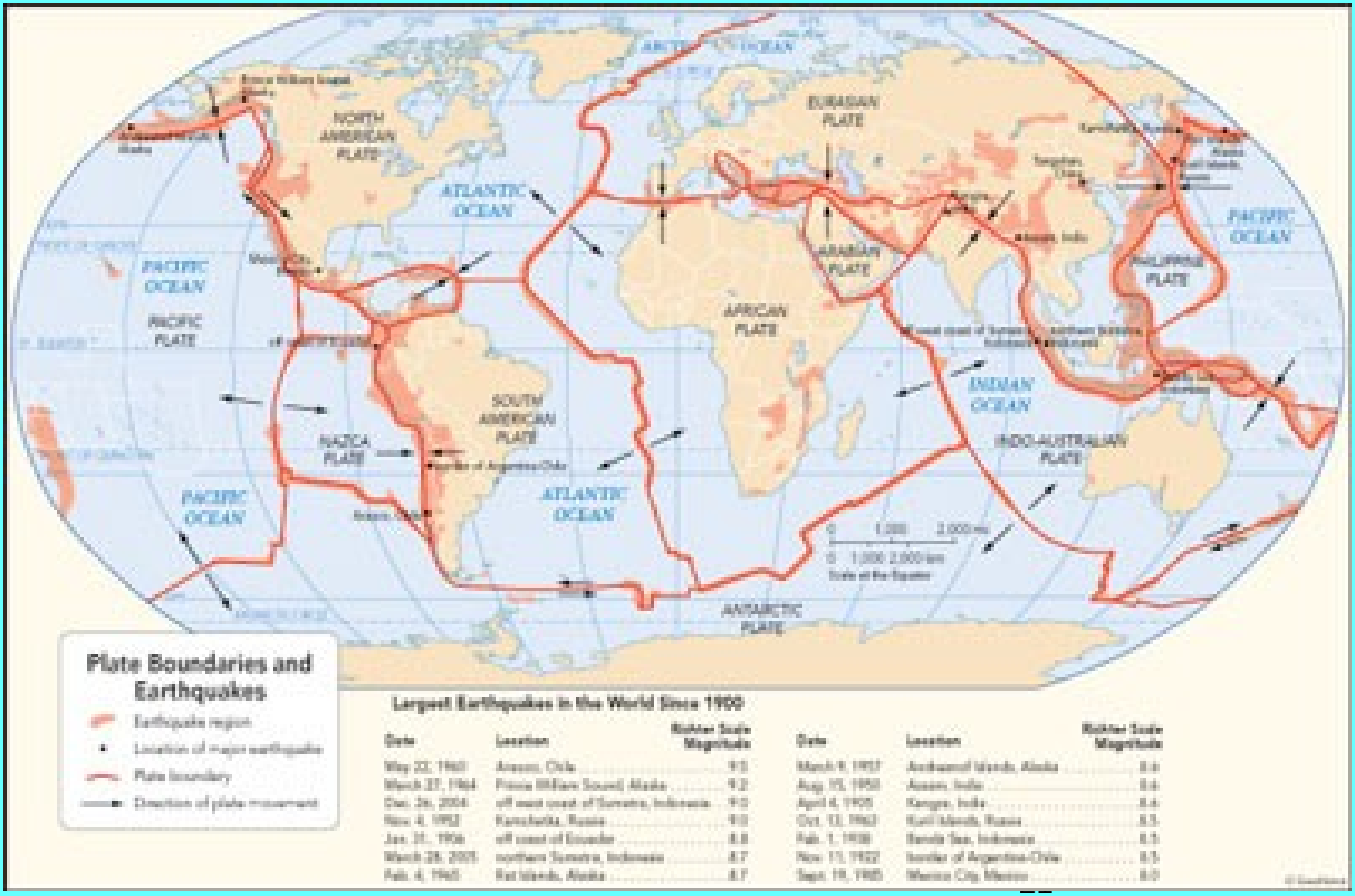
AREAS OF UNCERTAINTY



Uncertainty, Risk and Entrepreneurship



Uncontrollable Natural Events Earthquakes



California Earthquake Authority (CEA)

- http://www.californiarocks.com/premium-calculator

- Premium Calculator
- CEA earthquake insurance policies provide protection and choices for homeowners, mobile homeowners, condo owners and renters. Estimate your monthly/annual earthquake insurance premium by selecting coverage options below.

- Get a premium estimate now! Tell us about the home you want to insure:
  - *** Type of Home**
  - *** Address of the insured residence**
  - *** ZIP**
  - *** City**
  - *** State**

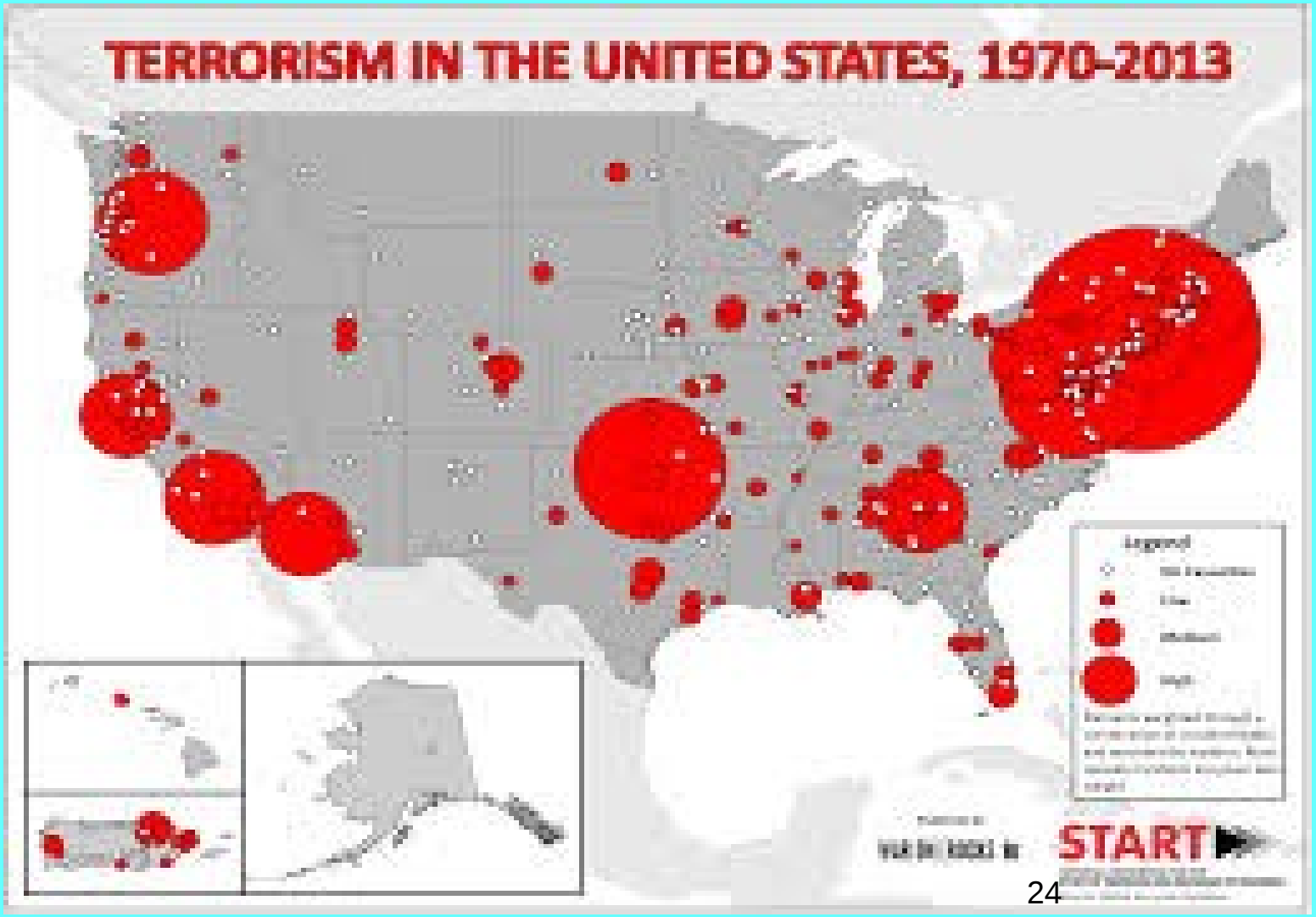
- CALCULATE MY ESTIMATED MONTHLY AND ANNUAL PREMIUM

Uncontrollable Events Terrorism

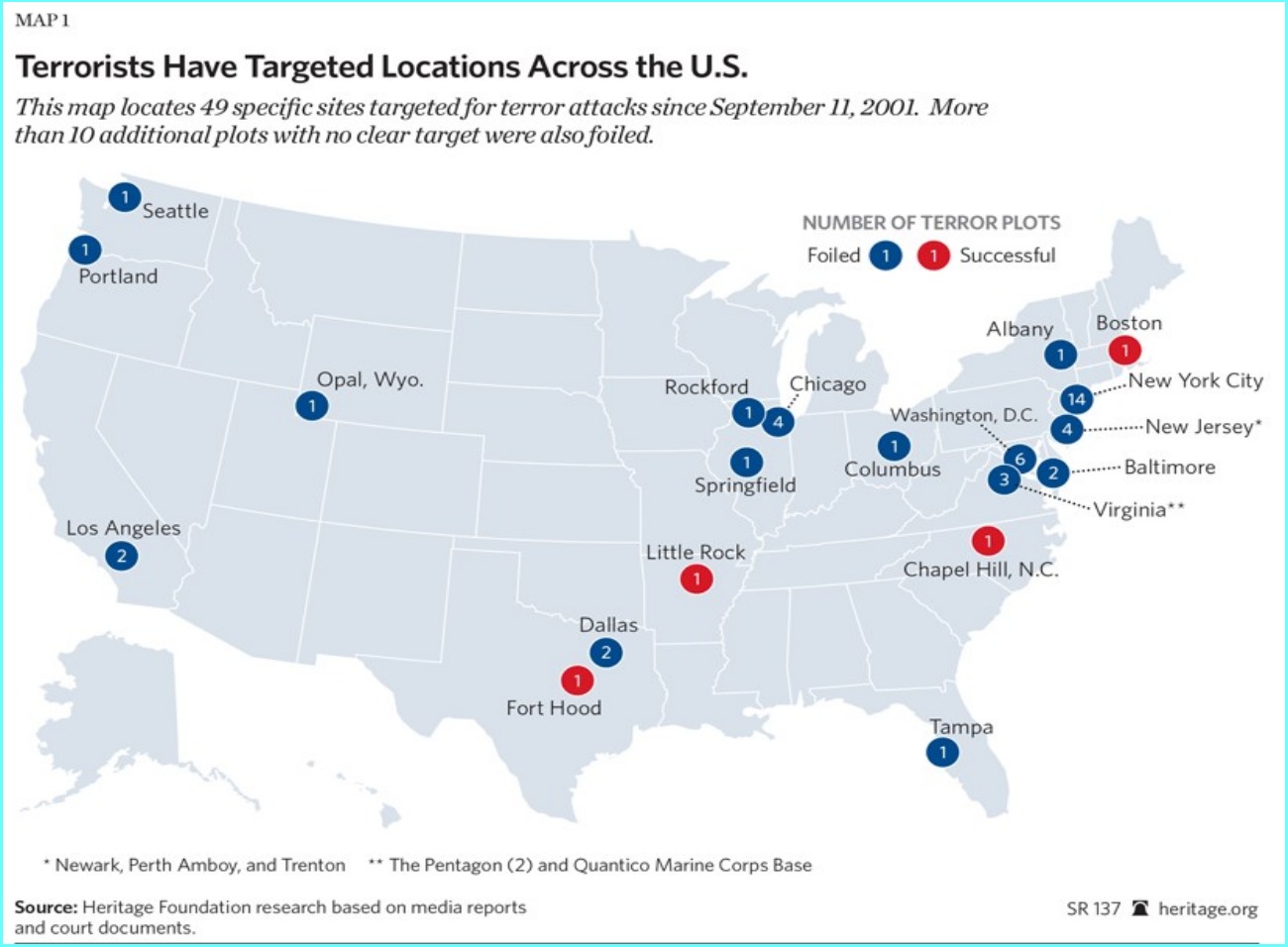
- Does terrorism fall into the category of uncertainty or in that or risk?
- The attack of September 11, 2001 was not predicted and arguably not predictable.
- New market dynamics & capacity.

- At least 19 publically known terrorist attacks against the US have been foiled since 9/11.
- While not of the scale of 9/11, the fear of home grown terrorists increases
- Motives can vary from revenge for war on Islam, to poverty, or governmental policy.
- Over 100 US citizens have been identified as ISIS recruits.
- New tactics: Cyber terrorism, electro- magnetic pulse, biological agents (e.g., Ebola).
- Attacks on the power grid in 2014 in California.

Uncontrollable Events Terrorism



Uncontrollable Events Terrorism



Uncontrollable Events Terrorism

- Terrorism was not a defined peril until 9/11. Now considered an "unmodelable" risk.
- Government intervention through TRIA – Terrorism Risk Insurance Act - expired in December of 2014 and renewed in January 2015.
- The stand alone property and casualty terrorism insurance market has an estimated capacity at $3.0 billion per risk written by US and UK markets.

- *Captives* have provided broadened access to otherwise uninsurable perils and limits.
- Percentage of companies purchasing terrorism insurance for either property or casualty exposures – either embedded or stand alone insurance: 60 -70%.
- Major Metro area insureds face greatest challenges in obtaining sufficient coverage, but all insureds will be covered by TRIA.

Umpredictable Human Events: Financial Crisis

- Financial markets are not available during crises
  - Difficult access to financing for Micro and SME Enterprise (MSMEs)
- Sharp decline in capital inflows
- Significant reduction in investment including infrastructure
- Reduction in remittances
- Policy uncertainty
- The category of Unknows unknowns emerge

Greater Uncertainty and Role of Government

3. Historical Review: Entrepreneurship, Risk and Uncertainty

Historical Review

- The historical review of insurance focuses on the evolution of entrepreneurship and insurance in advanced and emerging markets, with special attention to Latin America and Brazil.

- The historical review is instrumental to investigate whether or not insurance market development and availability of insurance imply a decline of uncertainty; provide support to and favor economic activity and entrepreneurship and ultimately to economic growth.

- The framework of the analysis follows the view that the emergence of market institutions such as insurance derives as an unintended consequence from human activity including entrepreneurship (High 2009, 5).

- Further, in line with Boettke and Coyne (2003), the proposition to test is whether insurance markets lead to productive entrepreneurship and economic growth.

- A related question has to do with the direction of causality, e.g., which comes first, insurance or entrepreneurship?

Historical Review

The historical review illustrates that

- people motivated by innovation and entrepreneurship have been fighting to overcome uncertainty and in that process rules and institutions for insurance and finance took shape. It is a battle of individuals to control uncertainty;

- research plays a role in the development of insurance even though many insurance activities are undertaken without prior knowledge of probabilities and statistics;

- the development of insurance is connected to that of financial market and linked to entrepreneurship;

- government has intervened at times heavily in the insurance sector often motivated by the need to reduce uncertainty.

4. Literature Review: Entrepreneurship, Risk and Uncertainty

Literature Review

- The analysis starts from the distinction between uncertainty and risk (Knight 1921), with risk including circumstances where an individual who has to take decisions faces unknown outcomes but known ex-ante probability distributions. Instead, uncertainty encompasses situations where the probability distribution of an outcome is unknown.

- Hence, *Knightian uncertainty* cannot be measured or calculated while risk can be. Risk unlike uncertainty can be covered by insurance.

- It also highlights that insurance can take place in formal insurance markets, or using self-insurance and risk avoidance (Mises 2007, 105–18; Rothbard 2011b, 552–57).

- **Uncertainty in the sense of business uncertainty is the source of reward and profit for the entrepreneur**.

Literature Review

There are various factors that shape the risk aversion and the occupational choices of individuals:

- Institutional setting;
- The functioning of insurance markets (e.g., fair actuarial price);
- The level of wealth.

Under the circumstances of emerging market economies these factors are particularly important and make individuals in those countries more risk averse.

Wealth Utility and Risk Aversion

In an emerging economy individuals are more risk averse because:

i) uncertain institutional environment; and

ii) the low level of wealth, i.e., lower part of the utility function.

The uncertainty of the institutional environment and the inefficiencies of the market institutions including insurance determine the shape of the utility function, i.e., more concavity in emerging economies. More concave curves of utility imply more risk aversion, i.e., individuals in emerging economies face steeper curves and therefore they resort to be more risk averse.

In addition, emerging market economies are less wealthy, which makes individuals more risk averse. Example: a fire destroys home/business with a loss of almost 100% of capital and wealth. There is no safety net and the individual is reduced to poverty for the remainder of his/her life.

Adverse Events and Insurance in Emerging Markets

Stochastic and black swan adverse events: death of breadwinner/illness/injury/ loss of property/natural disasters like droughts and floods, earthquakes can overwhelm scarce capital.

Lack of regulation and supervision and mispricing lead to mistrust for insurance policies and to under provision of insurance products in the market.

Poor people are subject to many risks, which are much the same as those faced by the non-poor. However, poor people are highly vulnerable and their ability to cope with these risks is lower. Homemade and self-insurance and forms of risk management are common place among micro entrepreneurs, but are insufficient and inefficient, i.e., micro entrepreneurs do not necessarily misunderstand risks, but they utilize inefficient risk mitigation strategies.

The lack of formal insurance and risk management services, of appropriate products and effective distribution channels increases uncertainty and undermines entrepreneurship, economic growth and wealth distribution.

Risk Aversion and Occupational Choices

- In this framework, different situations of uncertainty and risk motivate individuals and their initiatives differently, including with respect to undertaking business initiatives and operating as entrepreneur.

- Kihlstrom and Laffont (1979) state that individuals differ in "risk aversion"; i.e., "more risk-averse individuals become workers while the less risk-averse become entrepreneurs."

- Iyigun and Owen (1998) identify a model of occupational choice with "inherently risky entrepreneurial ventures" and relatively "safe" alternatives, such as professional activities.

- McGrath, MacMillan and Scheinberg (1992) compare attitudes toward risk and failure among entrepreneurs (i.e., founder-managers of businesses at least two years old and with at least one other person) and non-entrepreneurs in eight countries and find that entrepreneurs view a start-up as risk but also excitement, while non-entrepreneurs believe that "failure means losing face and respect."

- Also policies to favor **social insurance** provided by Government will likely have a negative impact on entrepreneurship (Ilmakunnas and Kanniainen 2001).

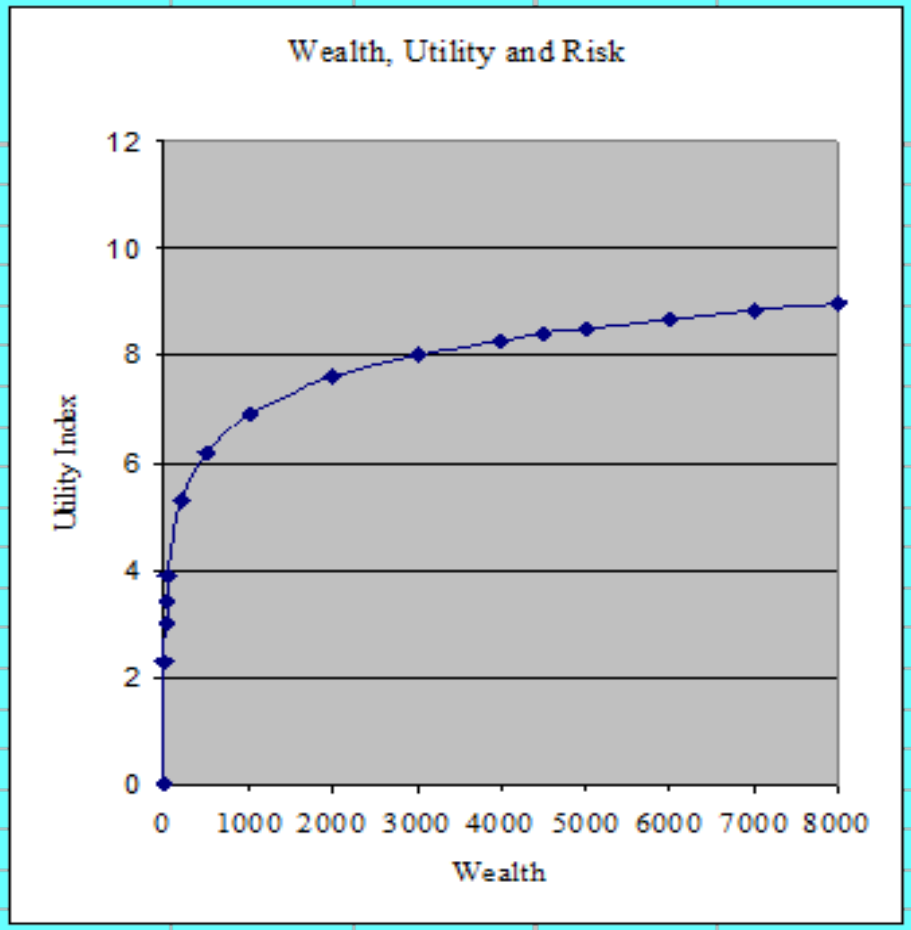
Risk Aversion and Occupational Choices

- Wennekers (2005) introduces a model of choice of occupation to clarify ways in which the avoidance of uncertainty influence the choice of becoming business owner, and the choice between self-employment and wage-employment. Those choices depend on individual's assessment and valuation of the utility of rewards, the alternatives available, taking into account uncertainty (Wennekers et al. 2005, 2007). Wennekers and other authors (2007) also state that due to economic factors and cultural differences, entrepreneurship (measured as the percentage of business owners) differs greatly among countries (Hofstede and Minkov 2010).

- Diversity across individuals in the composition of the portfolio mirror risk preferences in the sense that less risk-averse individuals are more inclined to start uncertain enterprises. Individuals who happen to be more risk-averse will have less fluctuating earnings; however, they would find themselves, on average, poorer than less risk-averse people. Guiso and Paiella (2005) ascertain that "risk preferences have considerable explanatory power for individual decisions (e.g., occupation, job, disposition to risks and to become an entrepreneur)".

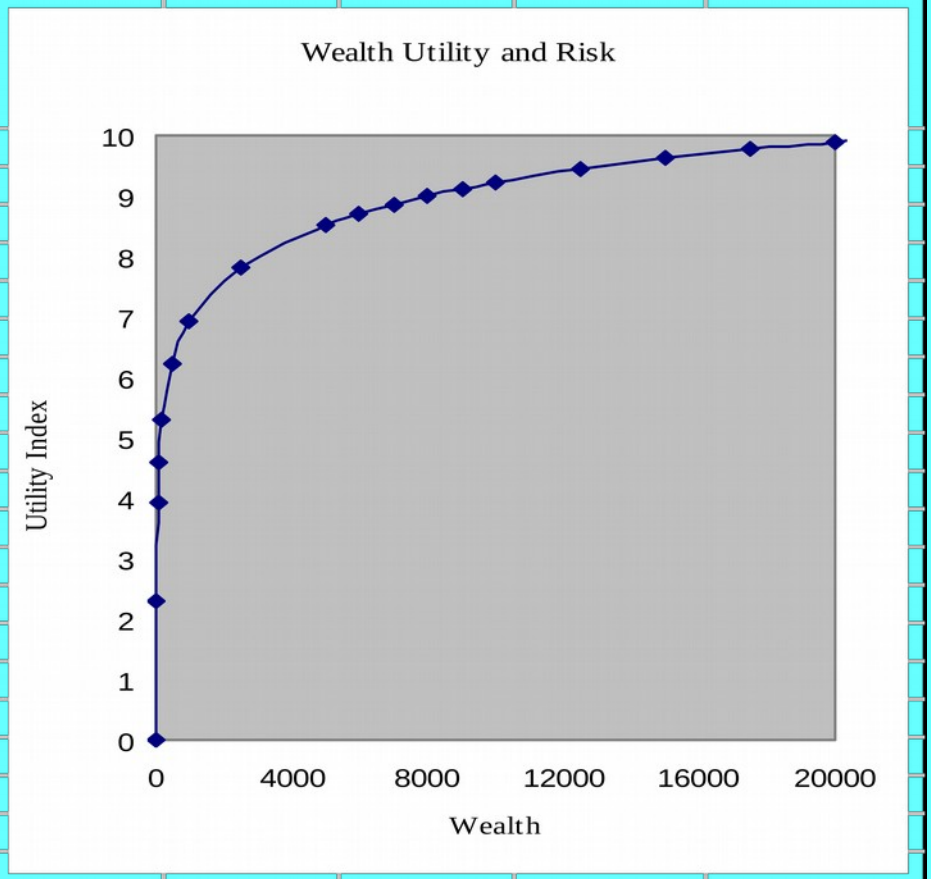
Wealth Utility and Risk Aversion

Steeper Curve	Emerging Country	
Wealth	Utility U(W)=ln(W)	Risk Aversion= (U"(W)/U'(W)
1	0	
10	2.3026	0.1000000
20	2.9957	0.0500000
30	3.4012	0.0333333
50	3.9120	0.0200000
200	5.2983	0.0050000
500	6.2146	0.0020000
1000	6.9078	0.0010000
2000	7.6009	0.0005000
3000	8.0064	0.0003333
4000	8.2940	0.0002500
4500	8.4118	0.0002222
5000	8.5172	0.0002000
6000	8.6995	0.0001667
7000	8.8537	0.0001429
8000	8.9872	0.0001250
8250	9.0180	0.0001212
8500	9.0478	0.0001176
9500	9.1590	0.0001053
10000	9.2103	0.0001000

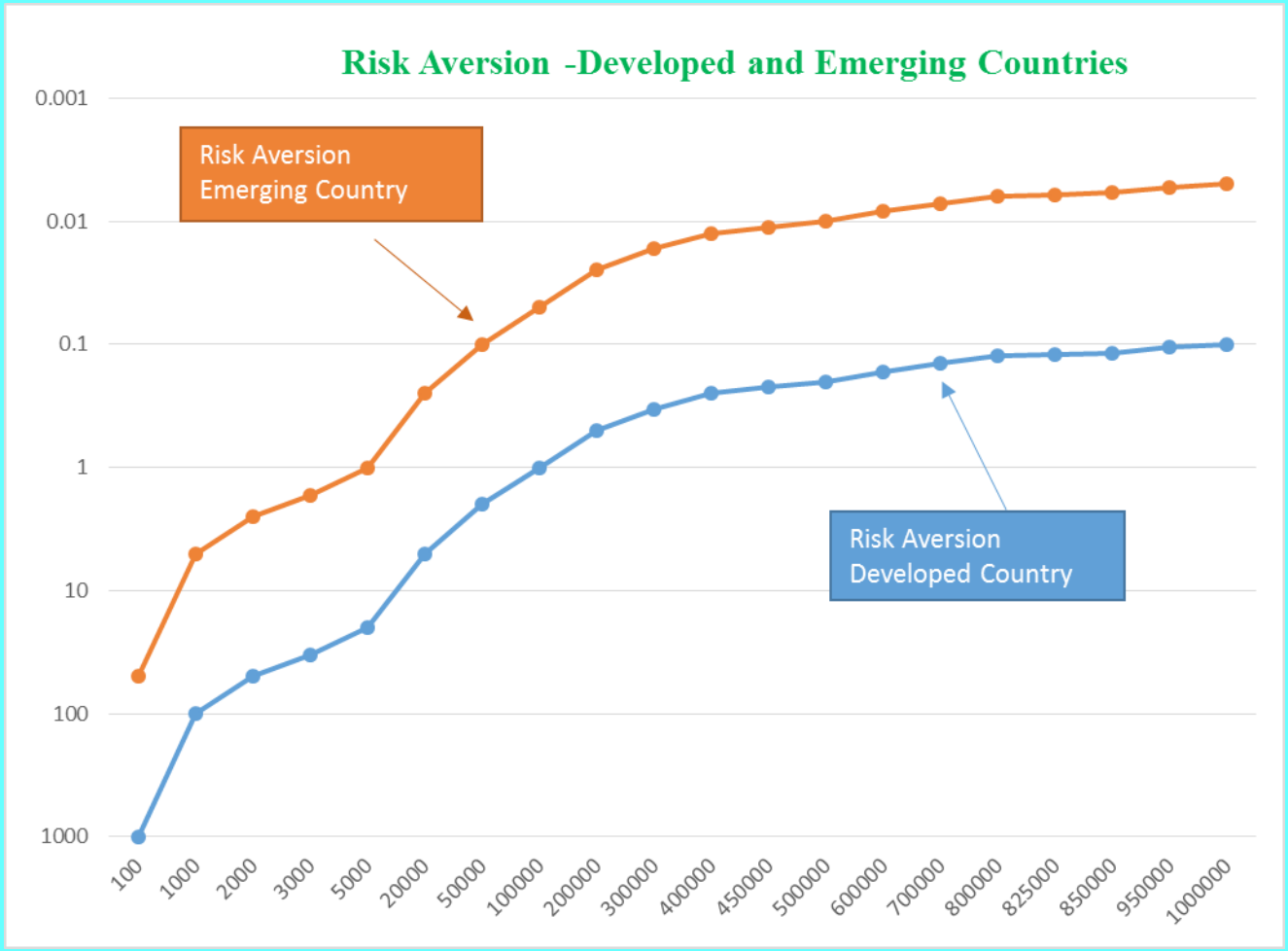


Wealth Utility and Risk Aversion

Smoother Curve	Developed Country	
Wealth	Utility $U(W)=(W)^{1/2}$	Risk Aversion= (U"(W)/U'(W)
1	1	
10	3.16227766	0.0500
20	4.472135955	0.0250
30	5.477225575	0.0167
50	7.071067812	0.0100
200	14.14213562	0.0025
250	15.8113883	0.0020
300	17.32050808	0.0017
1000	31.6227766	0.0005
5000	70.71067812	0.0001
10000	100	0.0001
20000	141.4213562	0.0000
28900	170	0.0000
29000	170.2938637	0.0000
30000	173.2050808	0.0000
50000	223.6067977	0.0000
66834	258.5227263	0.0000
85000	291.5475947	0.0000
98900	314.4837039	0.0000
100000	316.227766	0.0000



Risk Aversion in Developed and Emerging Countries



Impact of Events

Normally, if a poor household loses a source of income, or is subject to an adverse event (e.g., fire), the result is devastating, e.g., a child might be withdrawn from school; valuable assets might be sold.

- This makes the household falls deep into poverty.

Protecting against Vulnerabilities

- Financial services like saving, bank deposits, credits and insurance provide sustainable and low cost coping strategies to deal with disruptive events.

- Individuals can re-build their assets or alternate source of income without falling into poverty.

- **Role of Insurance**

5. Entrepreneurship and Insurance as Market Institutions

Insurance as a Market Institution

- The background is that of institutions that favor the deployment of entrepreneurship; and insurance markets prompt productive actions and economic growth, i.e., “the adoption of certain institutions … channel and encourage entrepreneurial aspect of human activity in a direction that spurs economic growth” (Boettke and Coyne 2003, 3; also see High 2009, 5).

- The historical and literature reviews confirm that entrepreneurship is a human activity aimed at improving and increasing knowledge and well-being; insurance represents a market institution that attempts to reduce uncertainty and facilitate human activities such as entrepreneurship.

- Thus, insurance can be seen as a market institution.

6. Entrepreneurship and Insurance in the Process of Economic Development

The Process of Development

- According to Schumpeter (1934), the entrepreneur is the innovator who implements change and produces growth by initiating new combinations, which can take several forms:

  (1) the introduction of a new good or quality thereof,
  (2) the introduction of a new method of production,
  (3) the opening of a new market,
  (4) the conquest of a new source of supply of new materials or parts, or
  (5) carrying out the new organization of any industry.

- The basic contention is that small firms, start-ups - places of the independent entrepreneur and the independent inventor- constitute the primary source of the technical ideas and innovations that serve as the foundation for the unprecedented growth performance of the world's industrial economies.

  (•) Baumol W., The Free-Market Innovation Machine: Analyzing the Growth Miracle of Capitalism, Princeton: Princeton University Press, 2002

The Process of Development

Role of Financial Markets (including insurance)

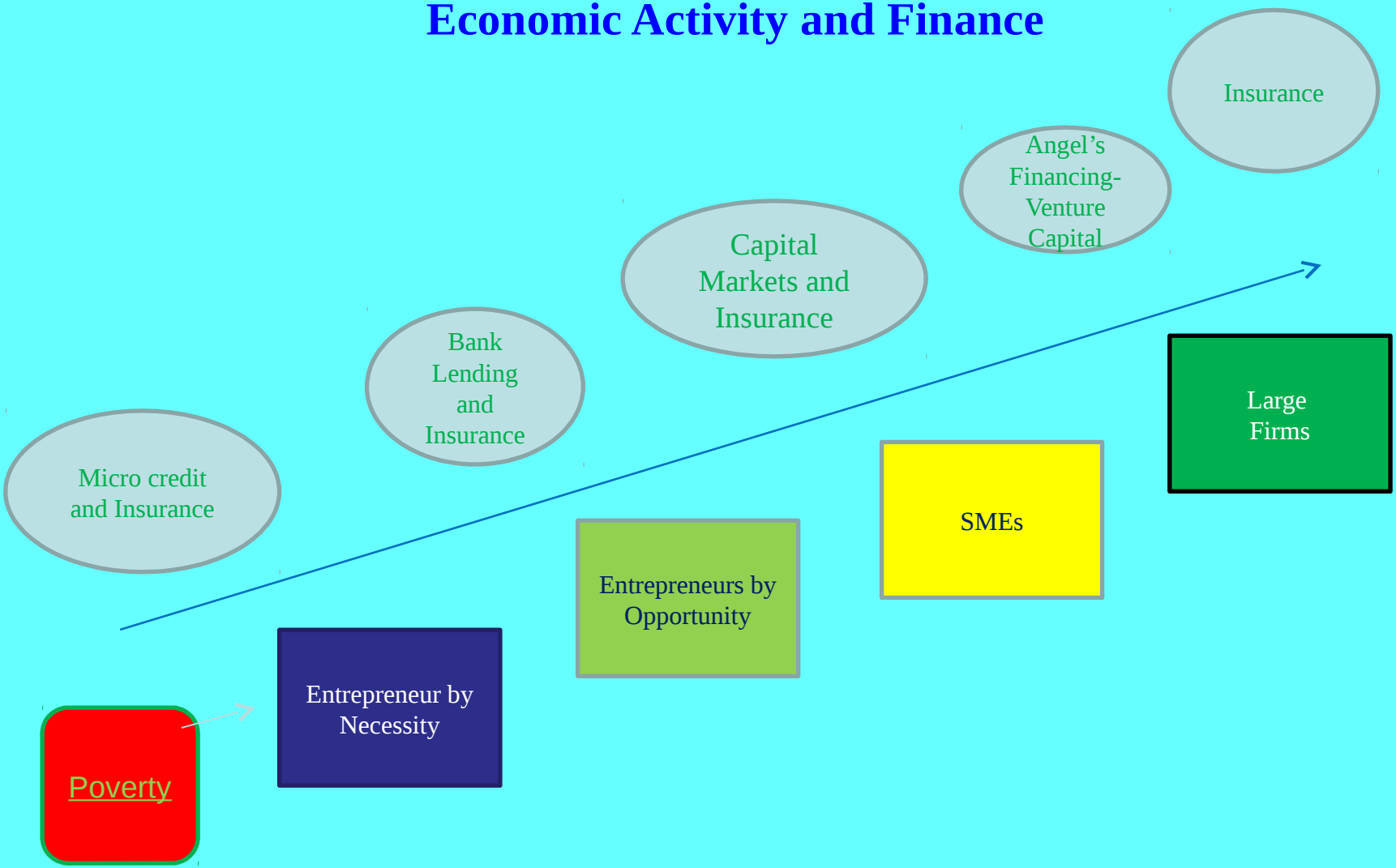
- Allocation of credit according to efficiency criteria, rewarding the "*creative destruction*" of the Schumpeterian entrepreneur, and therefore facilitating opportunities and economic growth.

Measures of Financial Sector Development

- Domestic Bank Credit/GDP is the main indicator of Financial Sector development (2011)

Geographic Area	M_2/GDP(%)	Domestic Bank Credit/GDP (%)
Latin America	0.49	0.67
Middle East	0.72	0.48
OECD Countries	1.32	**2.3**
Egypt	0.79	0.47
Brazil	0.66	**0.97**

Economic Activity and Finance



Availability and Access to Financial Services

A World Bank- Cgap Publication, Access to Finance 2010 has developed a set of financial access indicators for 139 countries across the globe.

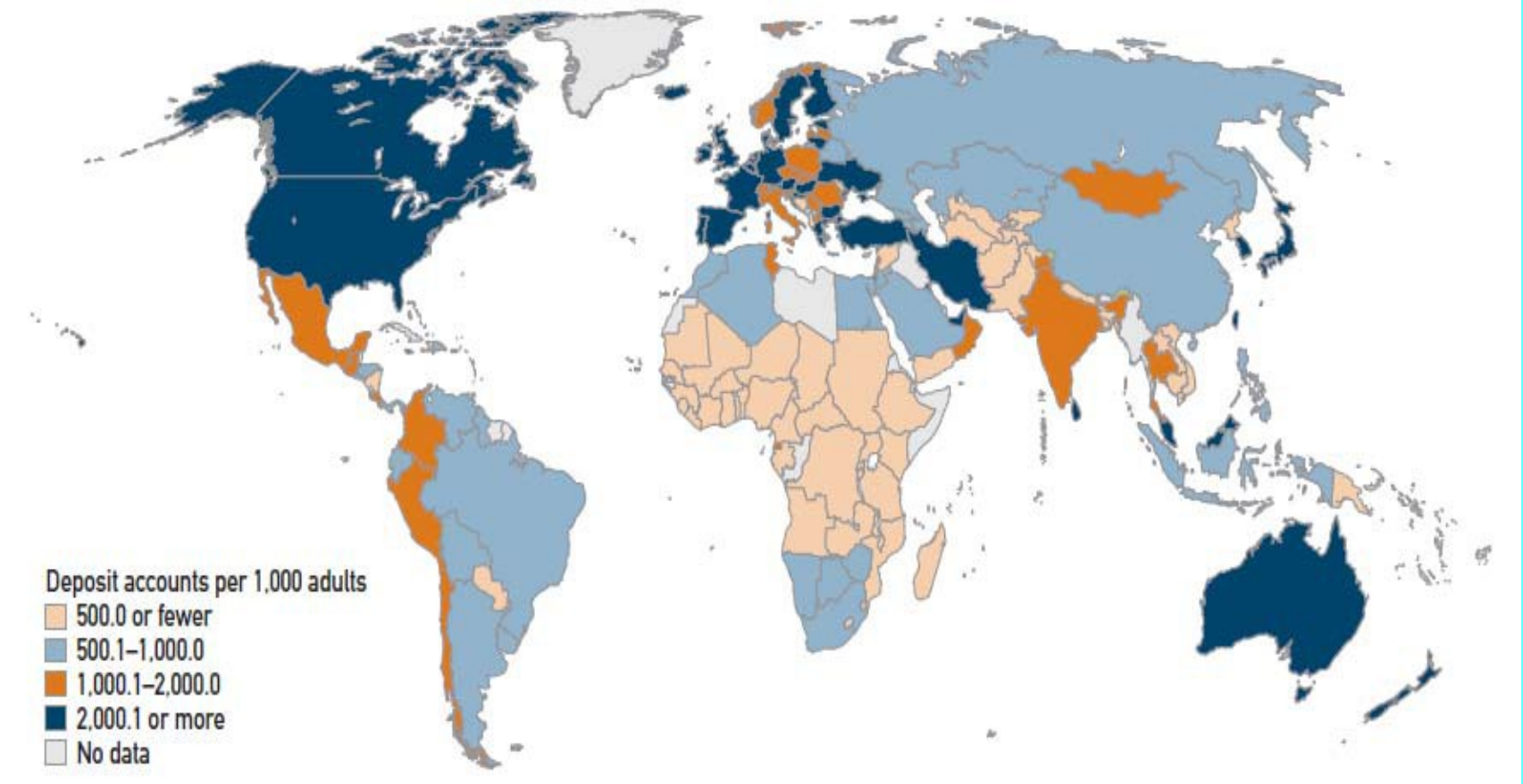
Despite the apparent overabundance of approximately 6.2 billion bank accounts in the world - more than one per adult - a disproportionate amount of the accounts - 3.2 per adult – are located in the developed world economies, while the equivalent figure in the developing world reaches is only approximately 0.9 per adult, inclusive of accounts which are not owned by individuals, such as those owned by government and business entities.

It is estimated that roughly 19% of developed world adults do not have bank accounts (though many may live in households where other members have accounts), **whereas nearer to 72% of adults in the developing world do not have accounts.**

These numbers indicate **a major gap that has not yet even begun to be addressed** by the many policy initiatives currently underway or by the microfinance movement.

Access to Financial Services:
Number of deposit accounts in banks and regulated non-bank financial institutions per thousand adults

World Bank 2011-Measuring Financial Inclusion- The Global Findex Database Asli Demirguc-Kunt Leora Klapper (2012)



The Challenge of Financial Inclusion

2.7 billion (72% of adults) in developing countries do not use formal financial services

160 million (19% of adults) in developed countries as of 2009 [CGAP, Financial Access, 2009]

The MIX reports 90 millions Microfinance borrowers worldwide as of 2009.

- **Financial Management is a Basic Human Need**

"Money management is, for the poor, a fundamental and well-understood part of everyday life. It is a key factor in determining the level of success that poor households enjoy in improving their own lives" [Collins, Daryl et al., Portfolios of the Poor: How the World's Poor live on $2 a Day]

- **Financial Inclusion is widely associated with economic security and development**
  - Income generation (credit)
  - Increases investment capital (savings)
  - Increases economic security (savings, insurance)

- **Financial Inclusion is now an integral part of the regulatory agenda in developed as well as developing countries.**

Informal Economy

- The level of informality has important implications for two related aspects.
- First, from the point of view of entrepreneurship, high level of informality is related to entrepreneurship with **lower content of innovation**. At the same time, high level of informality implies greater difficulty in measuring entrepreneurship (see Acs and Virgill 2009).
- Second, from the point of view of insurance, Bebster and others (2010) stress not only that the incomes of those in the informal sector are less certain than of those in the formal sector, but they are also **more difficult to reach, presenting distribution challenges**, e.g., formal sector employees can be reached via their unions and employers, the informal sector is more fragmented.
- **In Brazil,** informality is lower than in similar countries**, but at 38%** it remains substantial (compared to the 27.5% informal employment in Mexico as measured by Cardero and Espinosa, 2009; Argentina, with 20% informal employment; and Chile, where 24.4% of those employed are in the informal sector according to the ILO).
- Though 62% of the labor force is “formally employed”, not all of them are in effect formal if considered from **financial services distribution** point of view. In other words, not all of them can be reached via employee groups. If domestic workers and unremunerated employees are taken out of the formal equation, the share of formal employment in the total employed market reduces to just 44%, placing 56% of the population in the informal market that cannot readily be targeted for insurance via their employers.

Access to and Availability of Financial Services

- For entrepreneurs and businessmen, access to finance and availability of financial services, and particularly insurance, is crucial.

- However, insurance and other financial services have to be available and provide an effective service: the greater the effectiveness, the more uncertainty will be reduced.

- **What is the role of entrepreneurship and insurance in the development process?**

Market Failures

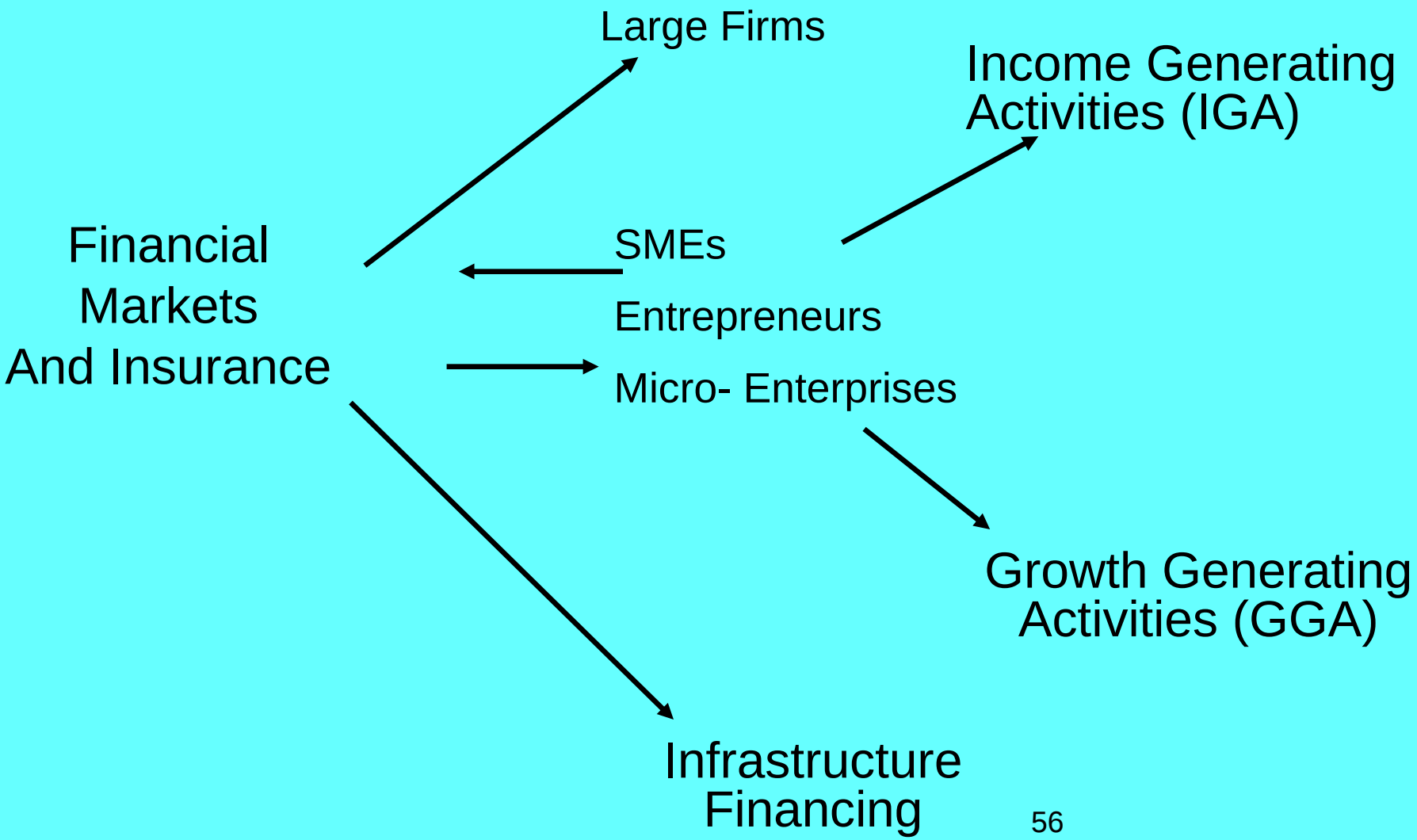
- Financial intermediation is a market function, but

  does not guarantee financing of MSMEs and Infrastructure and does not allow access to finance

- There is a Market Failure
  - Overcome Uncertainty
  - Limited domestic savings
  - Need of foreign exchange

- Nationalistic attitudes in emerging countries

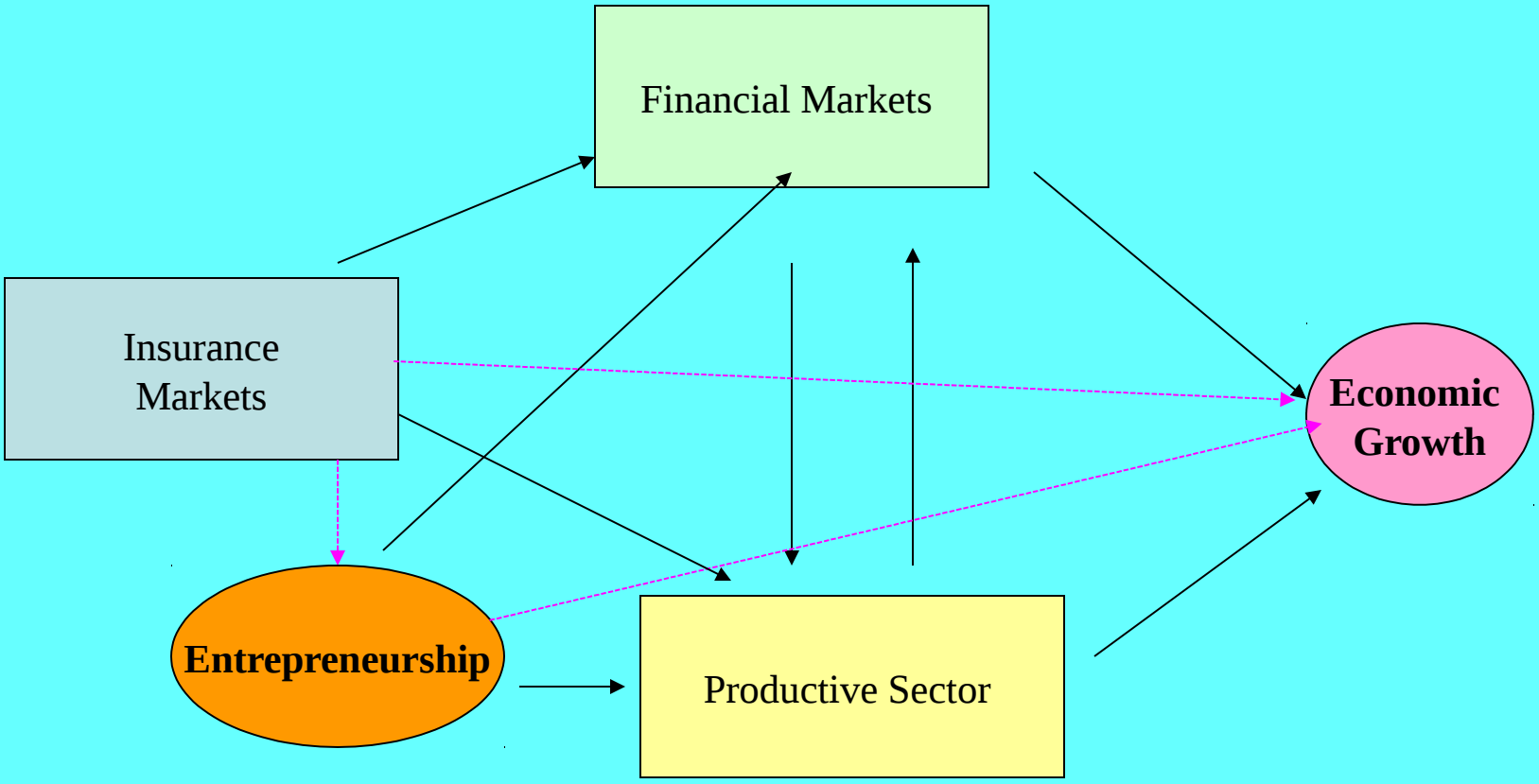
Activities in Need of Financing



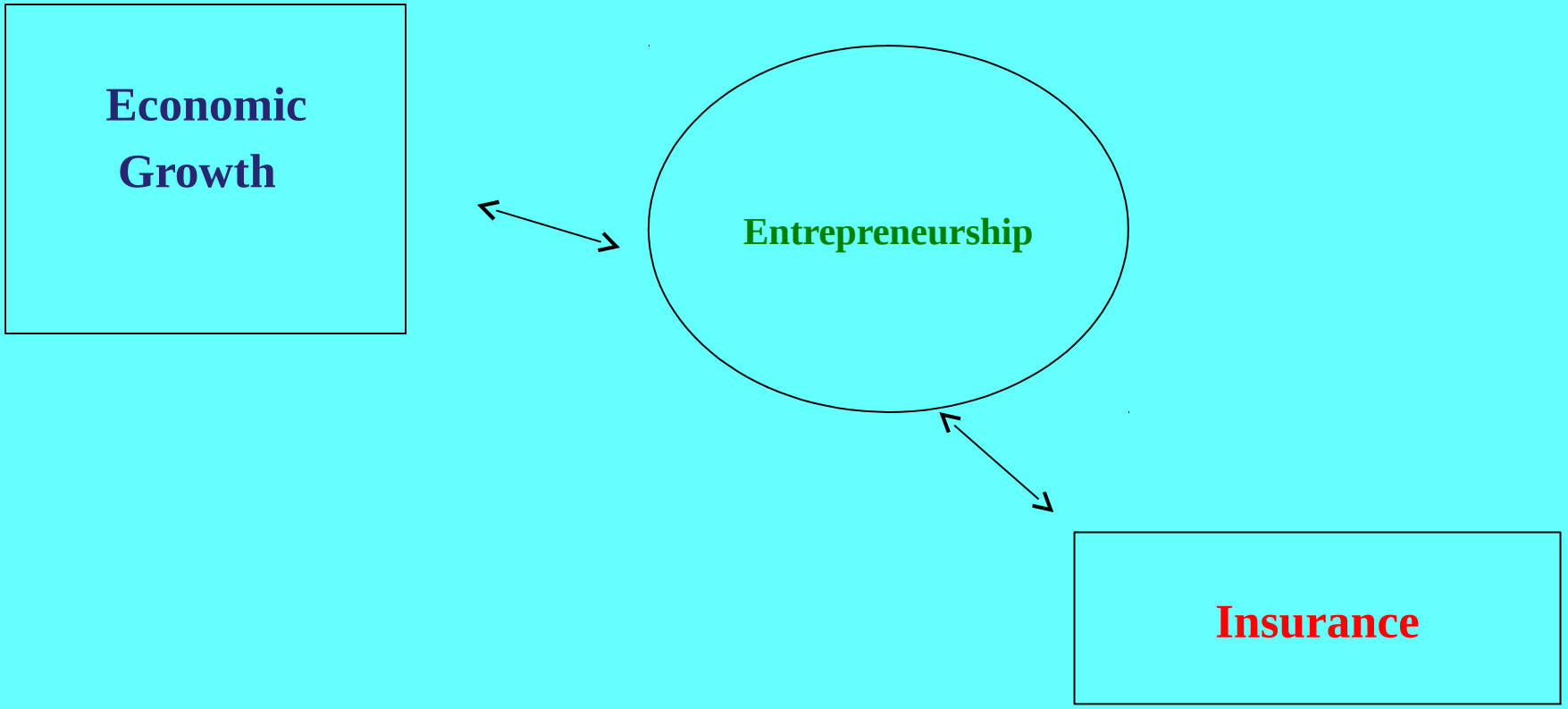
Insurance and Entrepreneurship

Table 1. Availability of Financial Services and Particularly Insurance to Various Forms of Economic Activity in the United States and in Emerging Markets		
Type of Activity	**United States**	**Emerging Markets - Latin America and the Caribbean**
Large Firm	Easily available	Available
Small and Medium-Sized Enterprises	Easily available	Scarcely available
Entrepreneurs	Easily available	Scarcely available
Micro entrepreneurs	Available	Scarcely available
Poor people	Incipient	Rarely available

Framework for Entrepreneurship and Insurance



Insurance Entrepreneurship and Economic Growth



Role of Insurance

To review the role of insurance in the development process and formulate the basis for empirical test:

- Historical review
- Literature review
- Review of the status of developed and emerging countries
- Review of recent events

7. Entrepreneurship and Economic Growth

Total Factor Productivity (TPF)

- *"TPF measures the residual growth that cannot be explained by the rate of change in the services of labor, capital and intermediate outputs, and is often interpreted as the contribution to economic growth made by factors such as technical and organizational innovation."*

  OECD. 2008. Compendium of Productivity Indicators, OECD Paris.

- TFP (or Multi Factor Productivity for the OECD) accounts for innovation and entrepreneurship.

Total Factor Productivity

- Robert Solow (1957) formally introduces TFP in indirect way as a residual component of GDP that is not explained by the variations of inputs.

- The starting point for this method is an aggregate production function, which expresses the relationship between inputs and product aggregate. Among the different specifications, the most widespread production function is the homogeneous of first grade Cobb-Douglas:

$$Y = A\, K^{\alpha}\, L^{(1-\alpha)}$$

  - Where Y is the aggregate product (output),
  - **A** is the Total Factor Productivity or Solow residual and the efficiency factor,
  - K the physical capital stock,
  - L the number of workers and
  - α the relative share of physical capital to production.

Total Factor Productivity

- TFP growth = Growth in output quantity – Growth in input quantity

- TFP growth is typically measured using indexing methods, but can also be measured/projected using econometrics

- Indexing methods compute measures of comprehensive output quantities (Y) and input quantities (X)

- Change in TFP (ΔTFP) is then computed as

  $\Delta TFP = \Delta Y - \Delta X$

Total Factor Productivity

- Gross Domestic Production (GDP) and GDP per capita – basically Income per person – is a key indicator of economic well-being.

- GDP per capita increases by growth of inputs (e.g., more capital or labor) or higher Total Factor Productivity (TFP).

GDP = Inputs + Total Factor Productivity (TFP)

e.g., Labour, Capital

Residual

How to Measure Total Factor Productivity

- Productivity is a measure of the transformation of inputs into outputs.
- “Total” factor productivity measures the transformation of all inputs into comprehensive output.
- “Partial” factor productivity measures the transformation of a subset of inputs into comprehensive output.
- Productivity can be measured as a level or rate of change.

Total Factor Productivity

- Factor Productivity

- The amount of output relative to amount of a specific input (e.g., units per labor hour).
- Example:
  - Year 1 : 10 units of output per labor hour (10 hours of work); same capital
  - Year 2 : 12 units of output per 11 hours of work; same capital
  - Year 3 : 14 units of output per labor hour (11 hours of work); same capital

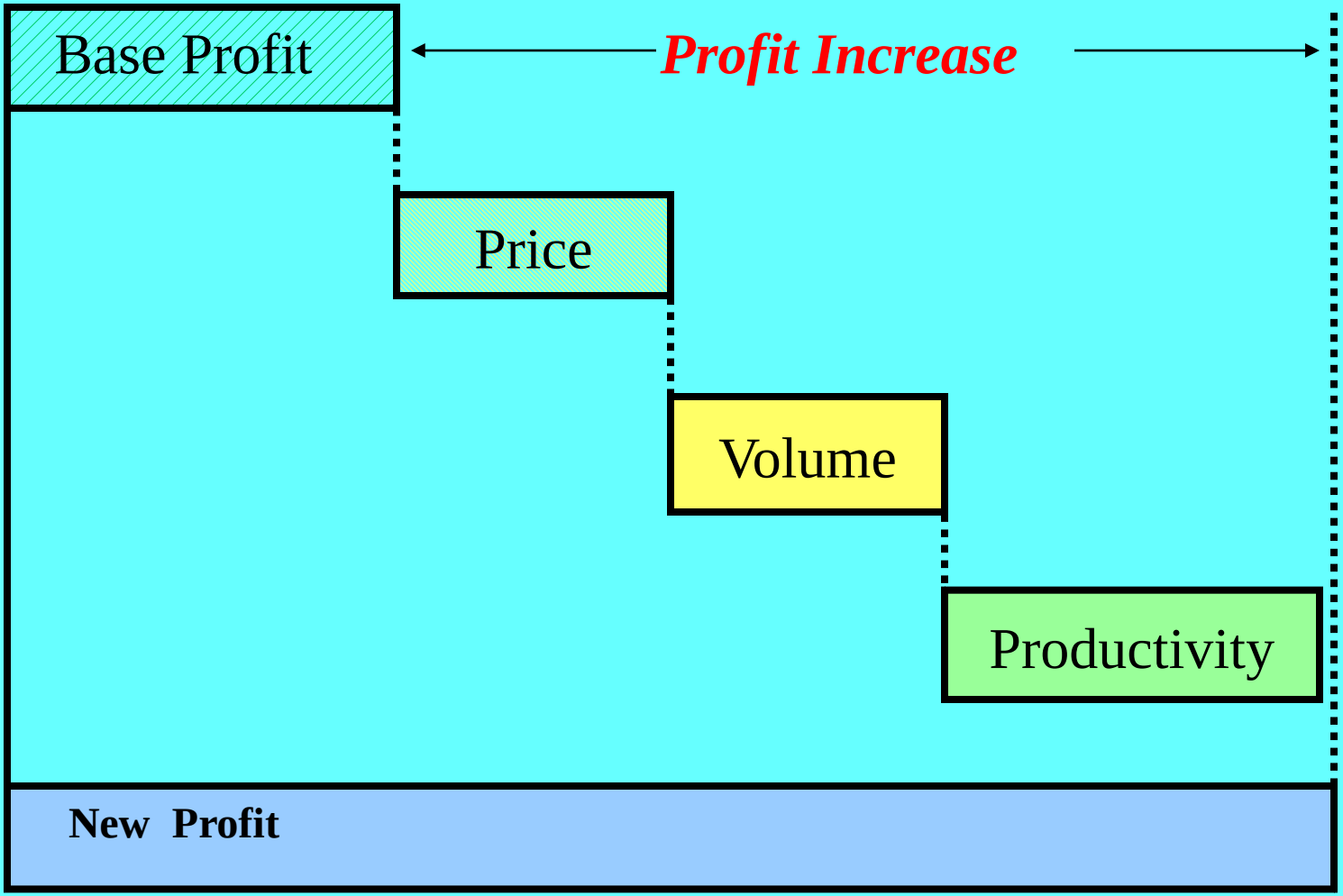
In Year 2 labor productivity increased by 0.09% (from 10/10 to 12/11).

- Total Factor Productivity (TFP)

A combined measurement of the amount of output (of a product) relative to the sum of all resource inputs (the factors). A means of measuring the overall performance of an operation.

In Year 3 the increased output is due to the increase of TFP (increased from 12/11 to 14/11).

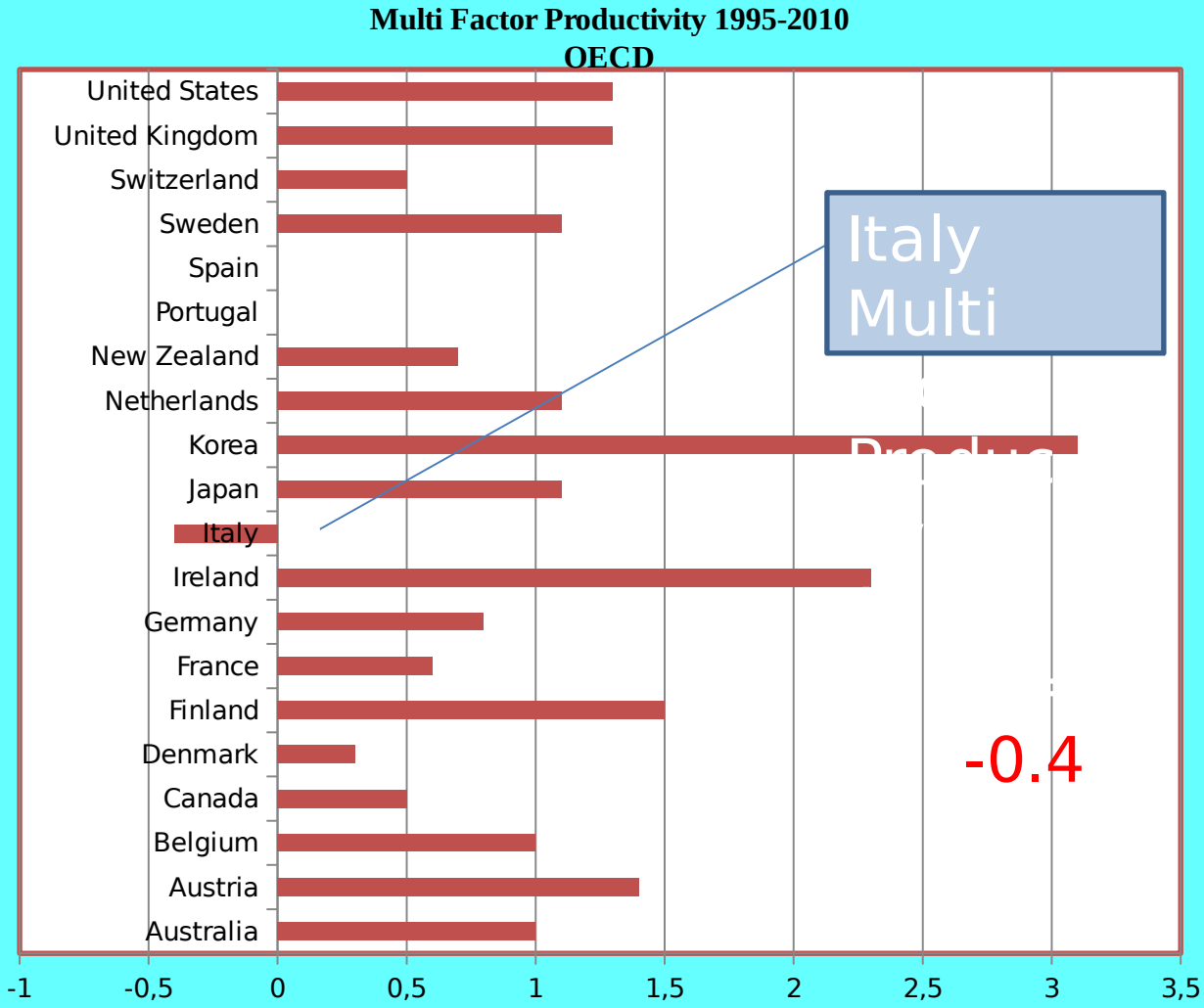
Total Factor Productivity



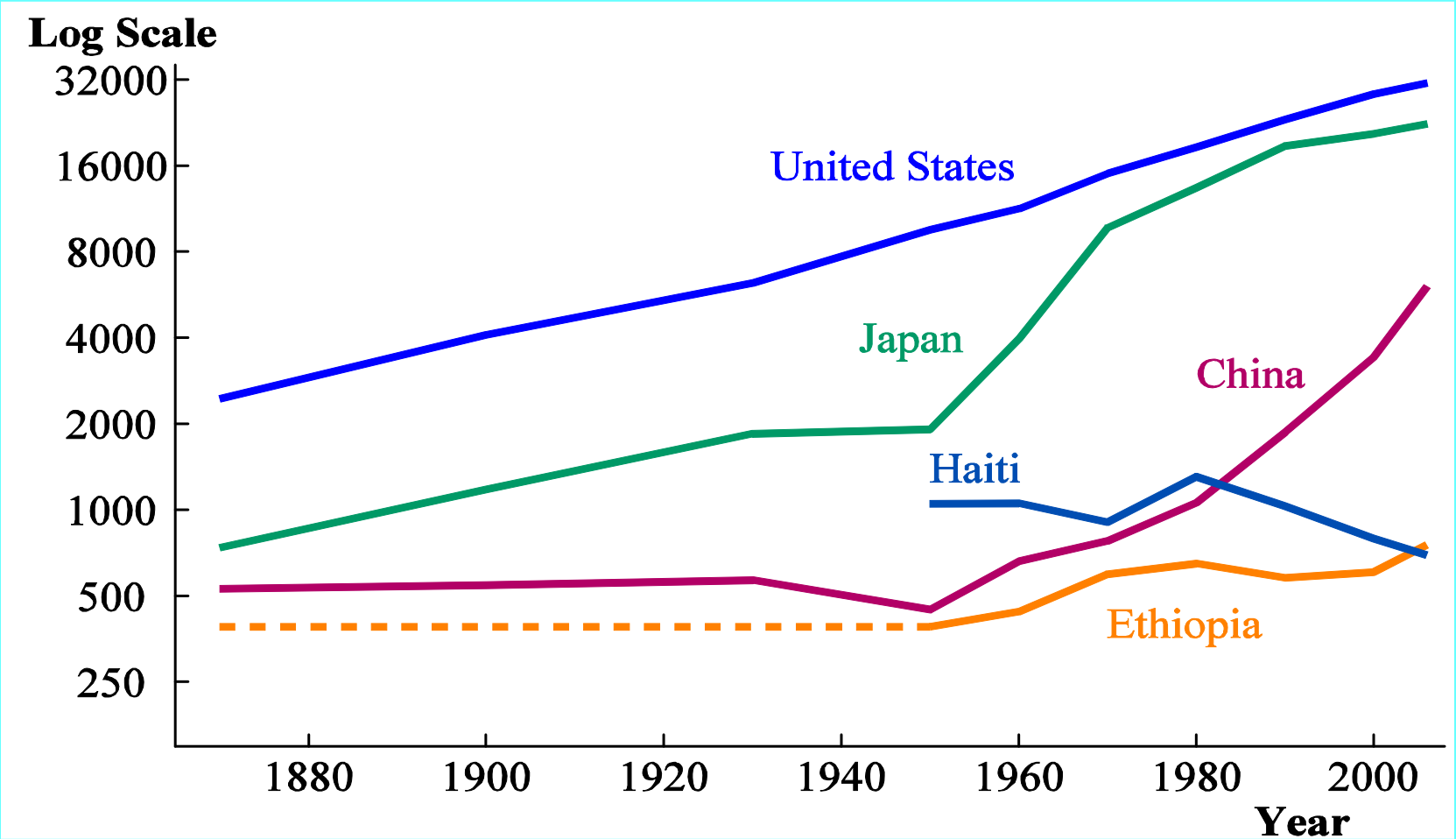
Productivity “Facts”

- **Macro**: Productivity varies across nations and over time
  - Robert Solow: TFP growth at least as important as growth of inputs in explaining economic growth
  - Cross country: GDP/capita differences largely due to TFP differences
  - US Productivity slowdown 1973-1995 and broad-based “productivity miracle” post 1995
- **Micro**: Productivity varies hugely across firms

Total Factor Productivity



Catch up Growth



Source: Maddison (2008) Data is smoothed by decade

Productivity matters for Policy

- Increasing productivity (TFP) means that the economic pie is bigger so more room for:
  - *Consumption increases*
  - *Tax cuts*
  - *Increases in public goods (e.g., environmental quality)*
- Harder to achieve if productivity stagnant
- But what can be done to increase productivity?

Factors increasing Productivity

- Proximate factors:
  - Human Capital
  - “Hard” technology (e.g., Research & Development)
  - Skills (e.g., Expansion of college education)
  - Management (technology & skill)

- Some deeper factors “driving” the above
  - Competition
  - Globalization
  - Regulations & government policies
  - Culture

- Entrepreneurship is the human activity that encompasses all these factors.

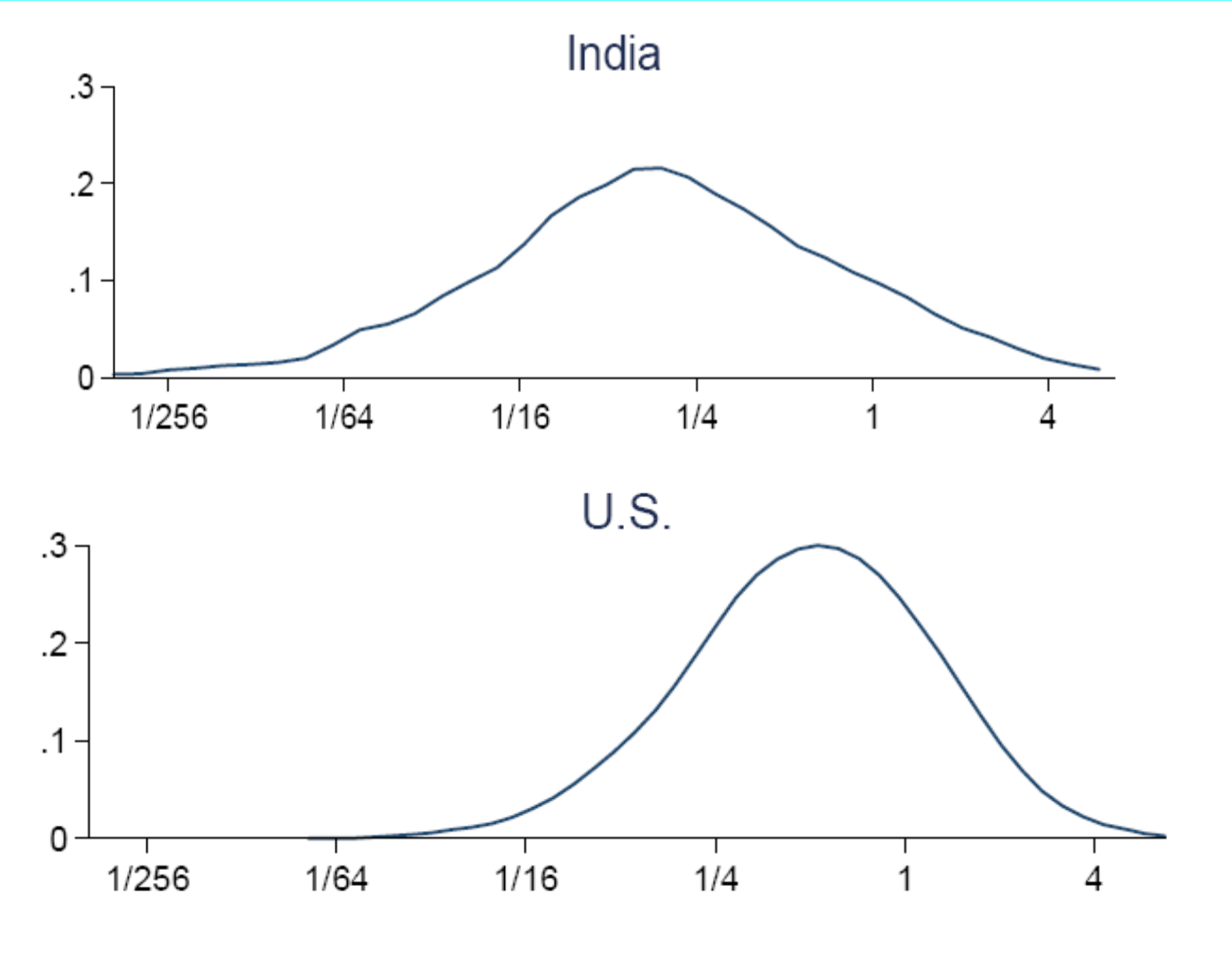
Productivity Differences across Firms within Countries is huge

- US Census data on population of plants
  - Plant at 90th percentile productivity 2x plant at the 10th percentile (Syverson, 2004)

- Not just mismeasured prices: in detailed industries (e.g., boxes, bread, block ice, concrete, plywood, etc.)

- These firm-level productivity differences could account for large part of cross country differences.....

Distribution of plant TFP differences: US-Indian productivity gap related to US having far fewer low productivity plants



Source: Hsieh and Klenow (2008)

How TFP Increases

- **<u>Within</u> Firms (Traditional view)**
  - The same firms become more productive (e.g., new technology spreads quickly to all firms, like Internet)

- **<u>Between</u> Firms ("Schumpeterian" view)**
  - Low TFP firms exit and resources are reallocated to high TFP firms
    - High TFP firms expand (e.g., more jobs) & low TFP firms contract (e.g., less jobs)
    - Exit/Entry

Example of How Total Factor Productivity increases – Firm A twice as productive as firm B

	Period 1		
	A	**B**	**Total**
Productivity -output/jobs	2	1	
Jobs	10	10	20
Output	20	10	30
Aggregate productivity			1.5 (=30/20)

Aggregate (weighted) productivity is 1.5

How Total Factor Productivity increases: both firms increase TFP by 0.5

	Period 1			Period 2		
	A	**B**	**Total**	**A**	**B**	**Total**
Productivity	2	1		2.5	1.5	
Jobs	10	10	20	10	10	20
Output	20	10	30	25	15	40
Aggregate productivity			1.5 (=30/20)			2 (=40/20)

Aggregate productivity increases from 1.5 to 2 (one third)

How Total Factor Productivity increases: both firms increase TFP by 0.5

	Period 1			Period 2		
	A	**B**	**Total**	**A**	**B**	**Total**
Productivity	2	1		2.5	1.5	
Jobs	10	10	20	10	10	20
Output	20	10	30	25	15	40
Aggregate Productivity			1.5 (=30/20)			2 (=40/20)

Aggregate productivity increases from 1.5 to 2 (one third)

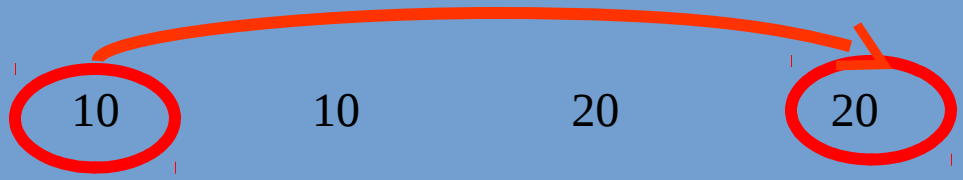
How Total Factor Productivity increases - reallocate all jobs & output to firm A

	Period 1			Period 2		
	A	**B**	**Total**	**A**	**B**	**Total**
Productivity	2	1		2	1	
Jobs	10	10	20	20	0	20
Output	20	10	30	40	0	40
Aggregate Productivity			1.5 (=30/20)			2 (=40/20)

Aggregate productivity increases from 1.5 to 2 (one third)!

How Total Factor Productivity increases - reallocate all jobs & output to firm A

	Period 1			Period 2		
	A	**B**	**Total**	**A**	**B**	**Total**
Productivity	2	1		2	1	
Jobs	10	10	20	20	0	20
Output	20	10	30	40	0	40
Aggregate Productivity			1.5 (=30/20)			2 (=40/20)



Aggregate productivity increases from 1.5 to 2 (one third) just by reallocation and with productivity remaining the same (at level 2)!

Some Empirical Evidence on Reallocation

- Reallocation appears to be an important factor:
  - In aggregate US productivity growth: ~half of aggregate TFP growth in a 5 year period in typical industry is due to reallocation
  - For certain sectors: in retail trade, almost *all* of labor productivity growth is due to exit/entry of stores (Foster et al. 2006).
  - Reallocation improves TFP as the inputs, e.g., labour as used in a more efficient environment, e.g. organization, management, institutions more conducive to efficiency.

Human Capital

The focus on human capital as a driver of economic growth for developing countries has led to undue attention on school attainment.

Developing countries have made considerable progress in closing the gap with developed countries in terms of school attainment, but recent research has underscored the importance of cognitive skills for economic growth.

This result shifts attention to issues of school quality, and there developing countries have been much less successful in closing the gaps with developed countries. Without improving school quality, developing countries will find it difficult to improve their long run economic performance.

- Eric A. Hanushek. 2013. Economic Growth in Developing Countries: The Role of Human Capital. Economics of Education Review December

Human Capital

- Empirical papers, such as Benhabib and Speigel (1994), have argued that the relationship between human capital and income growth is best viewed in the context of the positive effect that human capital has on TFP, rather than its direct effect as an accumulable factor in the production function.

- Bils and Klenow (2000) argue that microeconomic evidence on returns to schooling is inconsistent with the large and positive coefficients on human capital found in growth regressions by Barro (1991); this, too, suggests that human capital impacts income through the separate channel of TFP.

- Borensztein, De Gregorio and Lee (1998) regress GDP growth rates on both foreign direct investment (FDI) and a term that interacts FDI with human capital. They find that while the coefficient on FDI by itself is negative, the coefficient on the interactive term is positive and significant, suggesting that human capital is essential to the process of technological diffusion through FDI.

Human Capital

- *The truth is, young people are not searching for the American Dream and are most definitely not flying out on the wings of freedom; they're fleeing tyranny,*
  - *Yara al-Wazir,* a humanitarian activist, founder of The Green Initiative ME and a developing partner of Sharek Stories.

- However, one of the biggest downsides is that young people would not go back in what they perceive to be dead-end countries.

- Ultimately, this means that when the poor region does decide to grow, if ever, it will have face extra challenges: filling the labor gap without relying on international labor, and the challenge of convincing their own people to come back to their own countries.

- **Diaspora** refers to a scattered population with a common origin. Diaspora also refers to the movement of the population from its original homeland. Many diasporas, e.g., Jew, Turkish, Italian, Arab.

Human Capital in the Middle East

- Young people under the age of 25 make up over 60% of the Middle East's population. The wave of young people temporarily moving abroad to further their education is not a new phenomenon.

- However, despite tough international visa restrictions, more and more young people are choosing migrate permanently. A study by Silatech for Middle East countries shows that a staggering 26% of young people across the region want to migrate and leave their countries in search of better opportunities. http://www.silatech.com/home/publications

- The loss of local and regional human capital means that the regions brightest minds are being lost to the international arena, i.e., growth potential, ideas, and possible discoveries made by these young Arabs who migrate from their homeland are lost by their respective countries.

- The revolutions have created a culture of entrepreneurialism, but it is the employed, educated, and entrepreneurial who are most likely to want to migrate abroad, according to the study.

Human Capital in Latin America

Brain drain in numbers

- Figures on college-educated professionals in Latin America vary by country, ranging from 5% in Costa Rica to 14% in Argentina. In Canada, the United States and Spain, rates exceed 15%. According to the World Bank, 30 million Latin Americans live abroad, representing 5.2% of the total population, whereas some 70% of college-educated professionals from the Caribbean emigrate in search of better opportunities.

- Argentina, Venezuela, Mexico, Brazil, Costa Rica, the Dominican Republic, Ecuador, Chile, Paraguay and Bolivia have the largest number of professionals who emigrate. Most of these migrants – nearly 90% – go to the wealthier OECD countries because they offer the best opportunities for rewarding employment.
- http://www.worldbank.org/en/news/feature/2012/08/08/latinoamerica-proteger-talento-impulsar-desarrollo

Human Capital in Europe

Brain Drain in Italy: anecdotal evidence; empirical and statistical evidence; OECD 2010 and Ministero Interno http://oriundi.net/site/oriundi.php?menu=noticiasdet&id=17058.

- Brain drain in Italy è significant and permanent, and there is a low propensity to come back (Monteleone and Torrisi, 2010).

- The highly skilled exchange rate, that is the ratio between inflows and outflows of highly educated people, is –1.2% in Italy, 2.8% in France; 2.2% in Germany; 0.,9% in Spain; 1.1% in UK; and almost 20% in US (Beltrame, L. 2007).

- Italy is not an exception in Europe, but only regarding flows towards other countries, i.e., the Italian exception is the inability to attract highly skilled migrants. Brain drain in Italy is not compensated by "brain inflows".
  - Balduzzi Paolo. 2012. Brain Drain: Again or In Vain? Research Project

  - Since 2007 the situation is even worse: the steep decline of the number of young people (under 30) who become entrepreneurs slide from 278 thousands (2002) to 212 thousands (2011).

  - A young MBA in USA finds a job at a NGO with an entry salary 20-30% greater than that of a middle manager in Italy at the end of his/her carrier.!!!!

8. Advanced and Emerging Countries: Wealth; Institutions; Insurance Markets

Advanced and Emerging Countries: Wealth; Institutions; Insurance Markets

- With a long-term perspective, the IMF (IMF 2011, 2012a, 2012b) argues that emerging market populations are growing and maturing; becoming richer and more financially knowledgeable; banks and insurers are reasonably well-funded, well-capitalized and profitable, with loans, deposits, premiums and assets under management growing at significant rates compared to developed countries where deleveraging is under way, profits are low and growth is sluggish.

- Under these conditions, two key growth drivers for the insurance industry particularly in emerging countries are identified:

  - demographics and financial market development.

- These two factors are expected to facilitate the penetration of financial products including insurance.

The Specificities of Latin American Countries

- The slow economic growth is due to the unsatisfactory development of rules, norms and institutions that allows the so-called extractive political and economic elites to retain power (Acemoglu and Robinson 2012, 400–403). The transition to democracy has taken place in almost all the Latin American countries. However, democratic systems are still young and forms of authoritarian regimes or extreme-left government fueled by inequality can emerge.

- The low level of trust that still exists in Latin American countries prompts insecurity and limited confidence and asymmetrical information; favors the influence of political factors; and makes difficult to build effective institutions. The institutional environment has to consolidate and significant is present. Notable exception is Chile. Brazil is on the road of establishing a reliable and sustainable institutional environment. However, these days a great displeasure of how the system works in Brazil is on display.

- The lack of determination and persistence in the pursuit of changes and innovations. In fact, Latin American countries have layers of bureaucracy that exasperate entrepreneurs.

- "High-impact entrepreneurs" are those who launch and lead companies with an above-average impact in terms of jobs and wealth creation and the development of entrepreneurial role models (Endeavor 2012; Ernst & Young 2011a). These are opportunity entrepreneurs in contrast to the necessity entrepreneurs. Latin American countries have a significant number of necessity entrepreneurs, with a small number of high-impact entrepreneurs who are mainly concentrated in the region's more advanced countries, and also with no great impact and global orientation.

The Specificities of Latin American Countries

- With respect **to insurance**, the dependence of insurance from colonial countries has limited and delayed the emergence and development of local capabilities.

- The intrusive intervention of the government in the business with the argument of reducing foreign influence has hindered the establishment of a competitive system and the development of solid private insurance markets.

- In Latin America's emerging market countries, business insurance is often unavailable and/or mispriced. The insurance industry in Latin America, including Brazil, still has to deal with low efficiency, low penetration, limited competition and measured pace towards deregulation and liberalization.

- While no one single Latin American country can be included in the category of developed economies, prospects of low inflation and high economic growth provide opportunities to the emerging entrepreneurs. At the same time, the insurance industry is more able to respond to a growing and latent demand.

Brazil

- Brazil is a leader in entrepreneurship, with one in eight adults being an “entrepreneur.”

- With respect to insurance, the history of insurance in Brazil confirms the relationship between economic activity, economic growth and insurance. Since the success of stabilization in 1994, the country’s economy has been growing steadily, and the performance of the Premiums/GDP ratio over time indicates the strong relationship between insurance and economic growth.

- The intervention of the government that limits the role of markets while trying to reduce uncertainty.

- The relationship between insurance and economic activity occurs in the context of a strong and complementary relationship between the insurance market and the financial market and the interconnection between banking and insurance, i.e. , major banks own the main insurers in Brazil.

- The review of the development of insurance in Brazil shows that the improvement of the institutional context, including that for insurance, is crucial in making insurance companies responsive to economic needs. Further institutional improvements would be able to put to work the potential entrepreneurship related to the existence of a large informal sector.

- Reinsurance and micro insurance constitute the favorable factors for insurance development in the coming years. A liberated reinsurance market is growing and establishing itself following decades of state monopoly. Coupled with the stabilization of the economy and a favorable risk climate in Brazil, the reinsurance available improves the prospects of growth for the insurance industry. The expectation is that capacity, competition and sophistication will boost the development of the insurance market in Brazil and prompt economic activity.

9. Conclusions: Policy and Research Implications

Policy Implications

- From the point of view of policy implications, insurance plays in supporting start-ups and entrepreneurship in emerging market countries.

- Consequently, policymakers should stimulate policies to improve the supply of insurance and its delivery as part of the goal of creating a favorable environment for entrepreneurs and spurring economic growth.

- Given the role that wealth plays to spur entrepreneurship (i.e., wealthier people are more likely to undertake entrepreneurial activities) and insurance (wealthier people are less risk averse and thus more prone to demand insurance), one of the objectives of public policy would be to realize **the enunciation of De Soto (Soto 2003) to recognize the value of property** (and property rights in general) in Latin America that will rise wealth and have positive effects on entrepreneurship and insurance.

Policy Implications

- The significant role that the institutional setting reinforces the need of policies tailored to specific situations. This follows the perspective of Acs and Szerb (2010) among others of differentiated situations, which implies that countries should apply policies to address specific situations.

- Along these lines, the Kauffman Report (Atkinson and Correa 2007) suggests that in advanced economies like the United States, policy should accelerate the transition to an entrepreneurial economy. In emerging market countries, policies need to focus on enabling the institutional setting - including insurance markets - to function more effectively, i.e., emerging market countries, especially in Latin America, should improve efficiency and effectiveness.

- *Doing Business Publication* of the World Bank starts to give attention to insurance as an important factor for economic actors undertaking and continuing business activities. In that vein, international financial institutions (e.g., the World Bank, Inter-American Development Bank) are implementing programs that will make insurance markets more responsive.

Research Implications - (1)

From a general research point of view, the study prompts a series of theoretical and empirical investigations concerning the role of insurance.

- The study should lead to the expansion of research on the themes of insurance and entrepreneurship and their relationship, which in turn prompts policy implications consistent with the framework of Boettke and Coyne (2003) that insurance market can help promote entrepreneurship and achieve economic growth (High 2009a, 5).

- The study expands knowledge in the field of entrepreneurship as part of the research agenda on entrepreneurship, as spelled out by Shane and Venkataraman (2000), which is related to the conditions under which entrepreneurs operate. In this respect, this study covers the "why, when and how different modes of action are used to exploit entrepreneurial opportunities" (Shane and Venkataraman 2000, 218). Once and opportunity is discovered, the entrepreneur must have the possibility to exploit it. The individual preference, the nature of the opportunity, and the institutional context—including the availability of insurance—all influence the extent to which the opportunities can be pursued.

Research Implications - (2)

More specific research should focus on the following:

- Empirical analysis of the relationship between insurance and entrepreneurship at the global level. This study has given some indication of how to construct an appropriate database taking advantage of the resources (e.g., World Bank, IMF, OECD, ASSAL and Swiss.re).

- The analysis requires some additional work to find an appropriate measure of institutional setting at the state level. In this respect, the two proxies used, *logTaxtrabinf_2* and *logMortHomicpermilhab*, are alternatives for more direct measures of institutional quality.

- The analysis of the relationship between insurance and entrepreneurship could be extended to other countries with high heterogeneity, e.g., the Middle East countries and particular areas, such as rural areas, looking at entrepreneurship, insurance and credit.

- Future researches should look into the relationship between insurance and entrepreneurship at a the level of municipalities, e.g., of Brazil and allow a more meaningful spatial analysis.

- Substitution more than complementarity between insurance and financial sector. It is worth to further explore, for entrepreneurs and micro entrepreneurs, to what extent the only availability of insurance can support businesses independently from financing. This could be the case with entrepreneurs with a certain level of wealth would undertake a business initiative out of self – financing, but still in need of insurance.

Research Implications – (3)

- As the link between insurance and entrepreneurship becomes more evident, new methodologies based on surveys and micro-level data and focusing on attitudes and behavior can be applied, e.g., factor analysis, path analysis and structural equations. This type of analysis relies on latent and not-defined variables, such as regulation and competition, and thus needs measures of the judgment the actors in the market provide rather than hard, macro-level data.

- The analysis should be extended to various specifications of entrepreneurship beyond that of start-ups. In fact, future research at the local level within a country (e.g., Brazil), or at the global level, could test to what extent the availability of insurance affects the various specifications of entrepreneurship and economic activity, e.g., large firms, SMEs, entrepreneurs, micro entrepreneurs, start-ups, limited liability companies (LLCs) as well as on Total Factor Productivity (TFP).

Research Implications – (4)

- Conversely, future research could also look into the various types of insurance policies.

- With respect to the types of insurance policies of interest, life insurance is relevant for the entrepreneur who wants to protect the continuation and continuity of his or her business (e.g., partnership) after his or her death. Life insurance is also relevant for lenders to entrepreneurs. Non–life insurance is critical to protect specific assets or activities. In the non–life categories, business insurance is the first type of insurance policy that an entrepreneur seeks. For example, entrepreneurs are concerned about punitive damages related to product liabilities, and insurance policies are crucial to eliminate the risk that a business could be wiped out because of a liability lawsuit. In this category, one can include casualty insurance to cover the cost of defense and judgment against a company resulting from bodily injuries or property damage that can also be extended to product liability; e.g., automobile insurance. It also includes professional liabilities (e.g., medical), and environmental liability. A relevant form of business insurance for the entrepreneur has to do with fidelity, protection and financial guarantees, such as fidelity bonds to assure against acts of employees. Bonding, for example, protects the company if an employee or subcontractor fails to complete a job within an agreed-on period of time; financial guarantees reduce the liability due to the failure of repayment. Household and property insurance (e.g., fire insurance, robbery and burglar insurance, and business interruption insurance) constitutes a type of protection that is relevant for entrepreneurs. Each of these types of insurance can be measured by the penetration ratio, i.e., the ratio of the volume of the premium for a particular risk covered to GDP; and by the density ratio, i.e., the ratio of the volume of the premium for a particular risk covered to the population.

- The role of social insurance warrants more research. There is conflicting evidence about social insurance: some evidence indicates that social insurance favors entrepreneurship and start-ups; but there is also evidence that social insurance has a negative or no impact on start-ups.

10. Policy and Politics

Policy and Politics

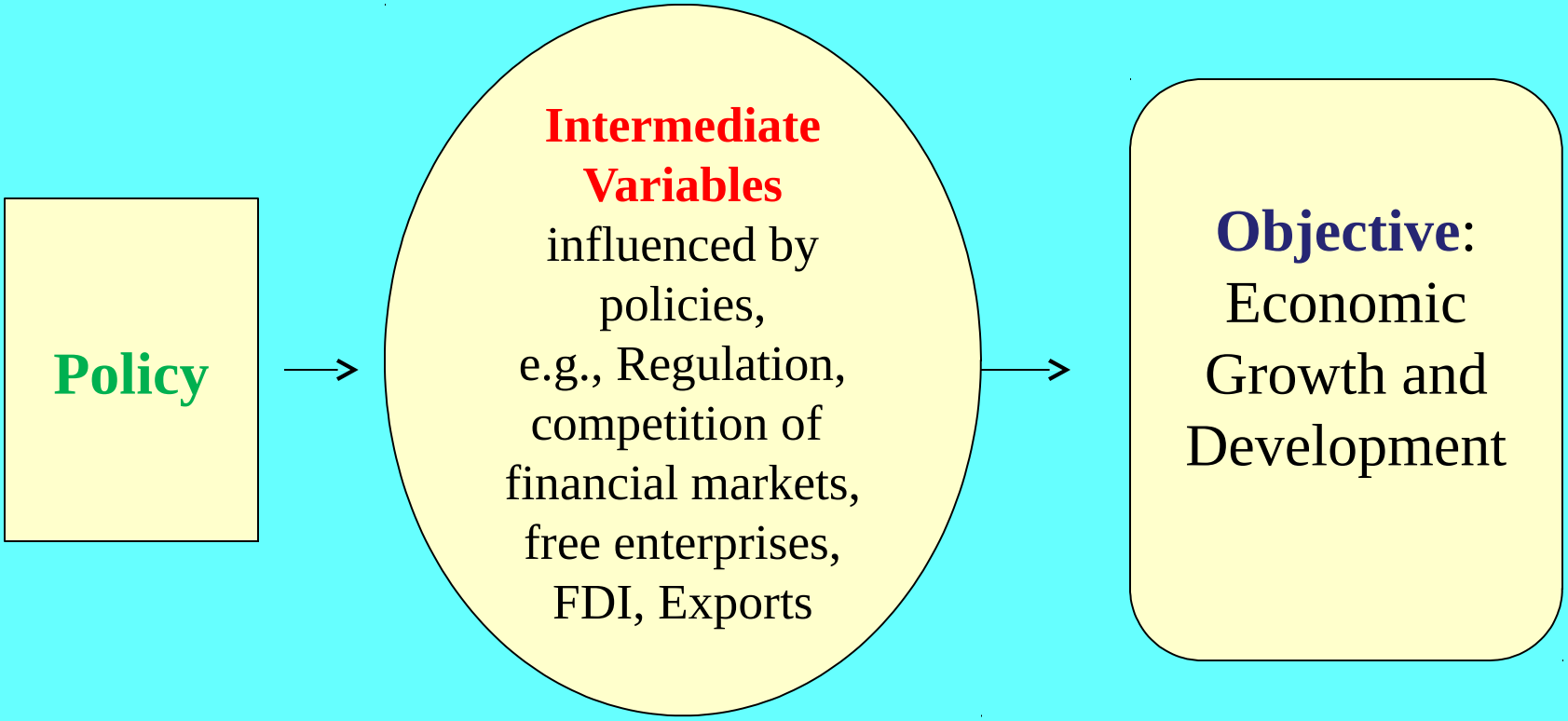
Policy and any public sector intervention and activity given a certain institutional environment:

A definite course of action selected (by government, institution) - based on evidence- from among alternatives and given conditions to meet an objective and to determine present and future decisions.

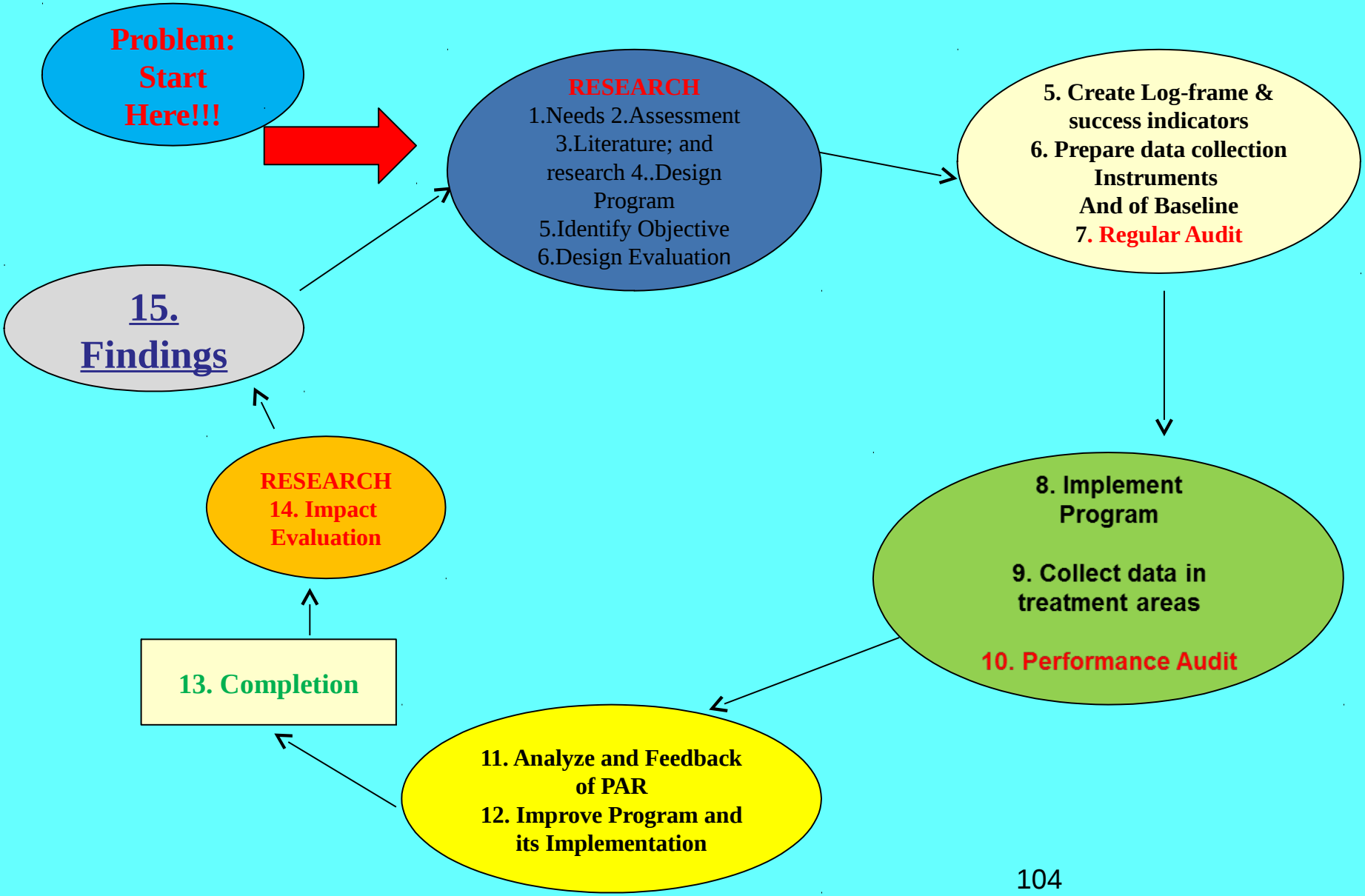
Political economy and Politics:

The art or science concerned with guiding or influencing governmental policy and winning and holding control over a government to promote given interests.

Policy, Variables, Objectives



The Sequence of Policy Intervention

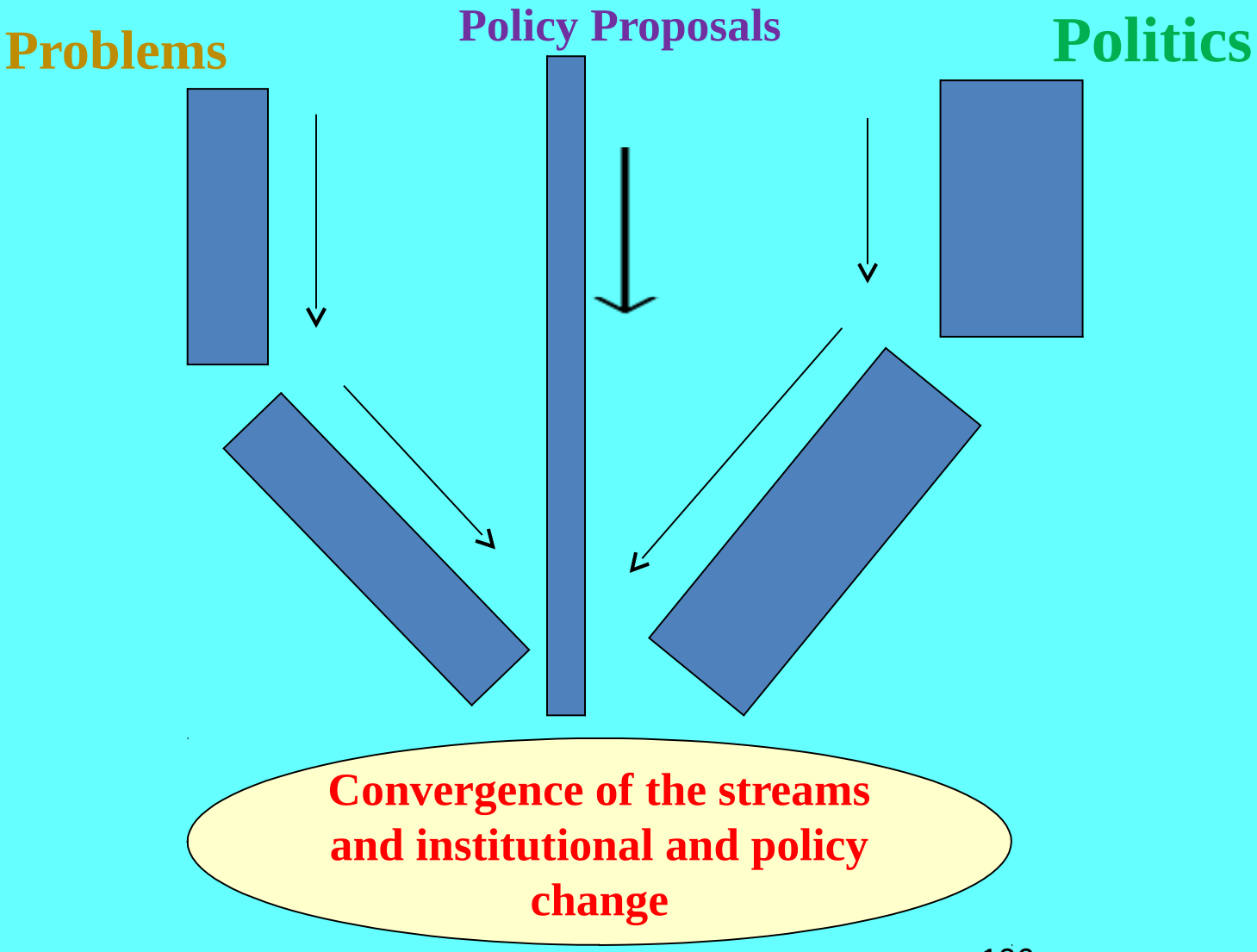


Policy Change: Political Decisions

Agreement is reached by bargaining

- Trading provisions for support "*pork barrel*"
- Adding elected officials to coalitions by giving concessions
- Compromising from ideal positions to those that will gain wider acceptance
- **Corruption**
- **National mood and elected officials more important than interest groups for political decisions**
- **Coalition Governments expand the role of the public sector in the economy**

The Kingdon Model of Policy Change: the Streams



Strategies and Policies

Strategy is constituted by a set of policies to obtain a certain objective over a period of time; it should be not only comprehensive but also adapted to the particular needs, circumstances, and potential of each country.

11. Evaluation

Evaluation: Outcome and Impact

- **Impact evaluation** assesses the changes that can be attributed to a particular intervention, such as a project, program or policy, both the intended ones, as well as ideally the unintended ones.

- In contrast to **outcome evaluation or monitoring**, **impact evaluation** examines whether targets have been achieved.

- **Impact evaluation** is structured to answer the question: how would outcomes such as participants' well-being have changed if the intervention had not been undertaken?
- This involves counterfactual analysis, that is "a comparison between what actually happened and what would have happened in the absence of the intervention."
- Impact evaluations seek to answer cause-and-effect questions. In other words, they look for the changes in outcome that are directly attributable to a program.

Causal Questions

- Example A: Is affirmative action in favor of minorities a policy educationally beneficial to students?

- Example B: Did the war in Iraq help or harm world peace in the long run?

- A causal question involves the relationship between two theoretical concepts: a cause and an effect.
  - Cause => Effect?
  - Or, X => Y?

Centrality of Causality in Social Science

- The primary aim of all sciences (from Aristotle to modern genetics).
- Understanding of causal relationships leads to accurate predictions of the future.
- It provides the scientific basis for policy intervention.
- It advances our theoretical knowledge of the world.

Evaluation Research

- Definition:

  Evaluation research, policy or program evaluation, refers to the kind of applied social research that attempts to evaluate the effectiveness of Government interventions, social programs or policies.

- Key to all evaluation research is causal inference: evaluating effectiveness of programs and policies

- In high demand by policy makers.

Motivation of Evaluation

- Empirical questions are difficult to answer in the social sciences and in public policy.

- Involve **cause-effect relationships** like:

  - Does school decentralization result in improved education quality?

  - Does a year of training result in higher incomes? And, more importantly, what type of training results in higher increases in income?

  - Do conditional cash transfers result in improved health and education among children?

Motivation of Evaluation

Answering the questions of cause-effect is important because:

- They help answer policy concerns

  Do the programs reduce poverty? Can they reduce poverty more rapidly with the same resources?

- They deal with the problems faced by decision-makers

- They highlight the theoretical considerations in the social sciences

How can we answer these questions?: Impact Evaluation

A policy or program's impact is the **difference** between:

1. Results that policy or program participants obtain after some time in the program;

and

2. The results that **those same participants** would have obtained at the same time had they not participated in the program.

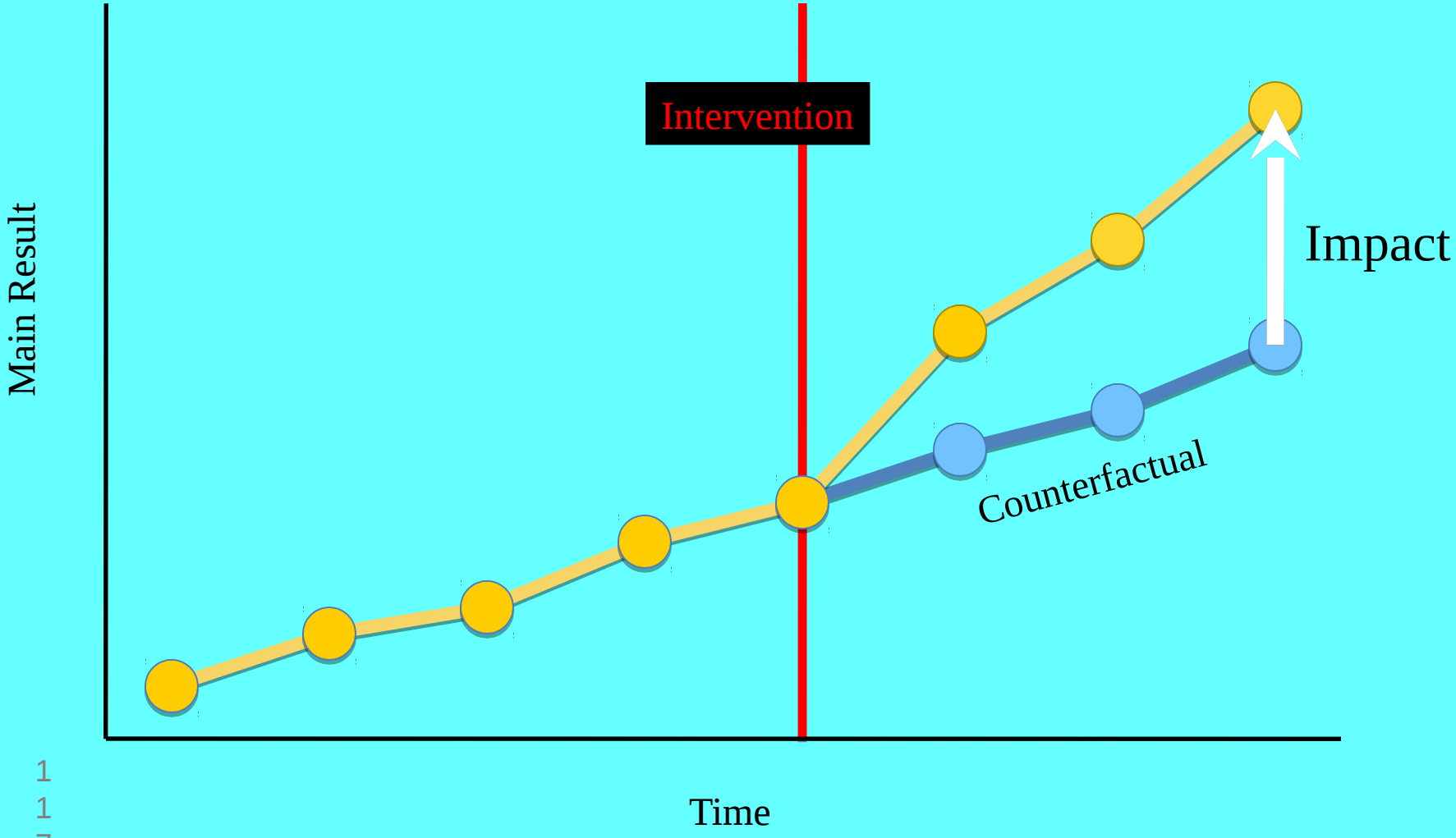
Impact Evaluation

- We take the difference between

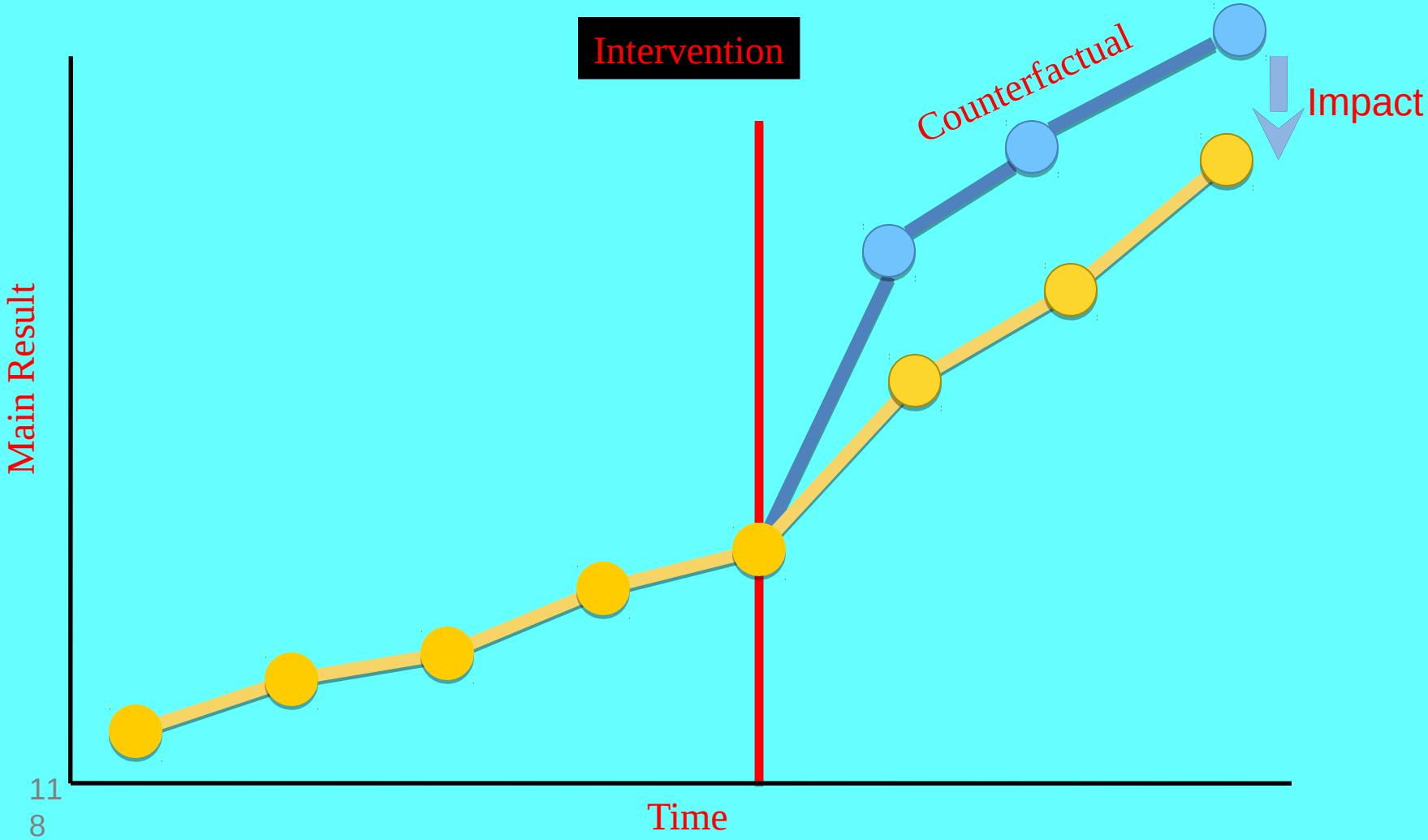
What happened (with the program) and
- *What would have happened (without the program)*
= Program's IMPACT

- This last scenario is called the **counterfactual.**

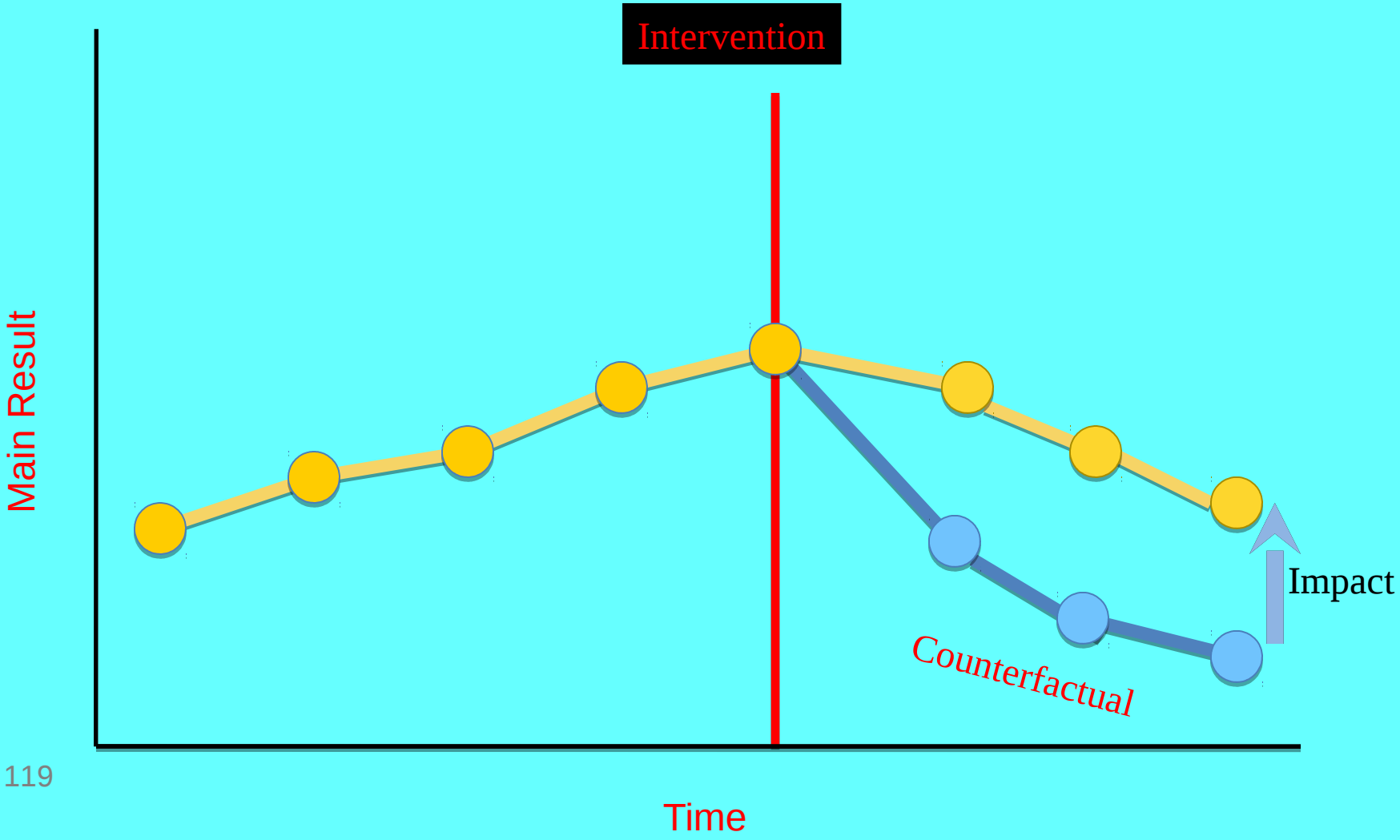
Impact: What is it?



How to Evaluate Impact?



How to Evaluate Impact?



Counterfactual

- The ***counterfactual*** represents the state of the world that program/policy participants would have experienced in the absence of the program/policy

- ***Problem***: The counterfactual cannot be observed

- ***Solution***: We have to “replicate” or “build” the counterfactual.

How to Study the Counterfactual?

Random Experiments

Advantage of Random Experiments

Because members of the groups (treatment and control) do not differ systematically at the outset of the experiment, any difference that subsequently arises between them can be attributed to the program/policy/intervention rather than to other factors.

Example:

The effect of multimedia education for children with asthma. A control group of pediatric patients with asthma was given standard asthma educational resources, while the experimental group of pediatric patients with asthma was given standard resources plus multimedia resources. The study found a reduction in daily symptoms, in emergency room visits, in school days missed, and in days of limited activity in the group given multimedia education resources.

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Steps in Conducting a Random Experiment

1. Design the study carefully

2. Randomly assign people to treatment or control

3. Collect baseline data

4. Verify that assignment looks random

5. Monitor process so that integrity of experiment is not compromised

Randomization: Start with simple case

- Take a sample of program applicants
- ***Randomly*** assign them to either:
  - **Treatment Group** –is offered treatment
  - **Control Group** -not allowed to receive treatment

Randomization

- Steps to generate random numbers:

To generate random numbers, enter your choices below (using integer values):

- How many sets of numbers do you want to generate?
- How many numbers per set?
- Number range (e.g., 1-50): From: To:
- Do you wish each number in a set to remain unique?
- Do you wish to sort the numbers that are generated?
- How do you wish to view your random numbers?

http://www.randomizer.org/form.htm

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