

On Productivity & Efficiency

A. Aim: Increase GDP-Income

B. Aim: Increase Production

via

1) Productivity

2) Efficiency

A. Aim:

Increase GDP - Income

Factors to Increase GDP

What Determines Income Growth & WEALTH

EIGHT DETERMINANTS OF WEALTH AND POWER

- 1) Education
- 2) Competitiveness
- 3) Innovation and Technology
- 4) Economic Output
- 5) Share of World trade
- 6) Military Strength
- 7) Financial Center Strength
- 8) Reserve Currency Status

...because HISTORY... shows us that... GDP growth takes place ...

- There is
 - wide and almost equal access to education and
 - merit-based placements in jobs.
- Because this draws on the widest possible range of the population to access talent and yields a system that most people believe is fair.
- Also, Successful entrepreneurs, inventors, and adventurers produce new ideas and take their societies to new places and become the heroes whom others aspire to be like because of how they produce revolutionary new ideas, make people's lives better, and are rewarded for it.

One very important factor for GDP growth is: **TALENT**

Economies and Societies based on Talent

Those societies that draw on

- ❑ **The widest range of people** and
- ❑ **Give them responsibilities based on their merits rather than privileges**

are the most sustainably successful because:

- 1) They find the best talent to do their jobs well,
- 2) They have a diversity of perspectives, and
- 3) They are perceived as the fairest, which fosters social stability.

Therefore, BEST GOVERNMENT POLICY

Formula of Success

Throughout time, the formula for success has been a system in which.

- ❑ Well-educated people,
- ❑ Operating civilly with each other,
- ❑ Come up with innovation,
- ❑ Receive funding through capital markets, and
 - ❖ *own the means by which their innovations,*
 - ❖ *are turned into the production and allocation of resources,*
 - ❖ *allowing them to be rewarded by profit-making.*

When these economies and societies

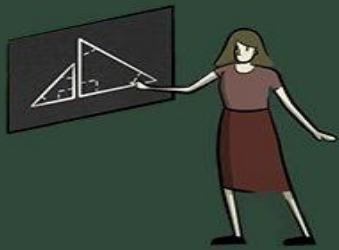
Manage to gather more wealth and power than any other group,

they became the world's leading power,

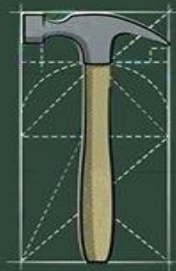
which allowed them to determine the world order.

Factors that every Government should focus

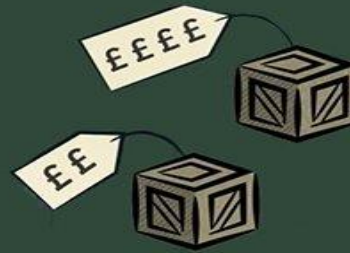
The 8 Key Measurements of Countries' Strengths



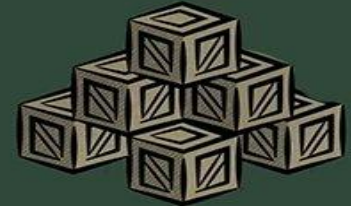
Education



Technology



Competitiveness



Economic Output



World Trade



Military Strength



Financial Centers



Reserve Currency

There are many prerequisites for GDP growth ..

Having **Great Leaders** is a very important one

Inspirational Visionary Leaders ... at the Government

1. **Imagine and convey** an exciting picture of a future that never existed before.
2. **Actually, build** that future out.
3. **Use the prosperity** earned to broaden the inclusiveness of it and
4. **Invest in the future.**

They do this while

1. **Maintaining** sound finances
2. **Pursuing** excellent international relations, so that
3. **Protecting or expanding** their empires without any financially or socially debilitating wars.

Two basic criteria for successful Leaders ...

WELL-BEING for all people ...

Well-being measures

- 1) GDP per person
- 2) Life expectancy

Example for Corporations – The CEO of every Company should look to

- | | |
|---|-----------------------|
| 1) Increase Income Salaries for employees | (Productivity Driven) |
| 2) Retain employees in the company | (Efficiently Driven) |
| 3) Xxx | |
| 4) Xxx | |
| 5) Xxx | |

... along Economic CYCLES ...

History rhymes:

- It rhymes because its most important events repeat, though never in exactly the same way.

This is because,

- While the cause/effect relationships influence each other in different ways.
- ❑ By studying many analogous events in different times and places, their underlying causes and effects become clearer.

ECONOMIC CYCLES

Economy Cycles:

- ❑ Cycles on the other hand move back and forth, producing excesses in one direction that lead to reversals and excesses in the other, like the swinging of a pendulum.

Three Big Cycles:

- 1) The long-term Debt and Capital Markets Cycle
- 2) The Internal Order and Disorder Cycle
- 3) The External Order and Disorder Cycle

- ❑ This archetypical Big Cycle governs the rising and declining of empires and influences everything about them, including currencies and markets.

- ❖ Almost everyone talks about what is happening now and nobody talks about these big cycles, even though they are the biggest drivers of what is happening now.

Great Leaders are needed along the ECONOMIC CYCLE

Together with other factors-variables like...

Life Cycle and Factors for Greatness ...



1 Strong leadership

2 Inventiveness

3 Education

4 Strong culture

5 Good resource allocation

6 Good competitiveness

7 Strong income growth

8 Strong markets and financial centers

9 Less productive

10 Overextended

11 Losing competitiveness

12 Wealth gaps

13 Large debts

14 Printing money

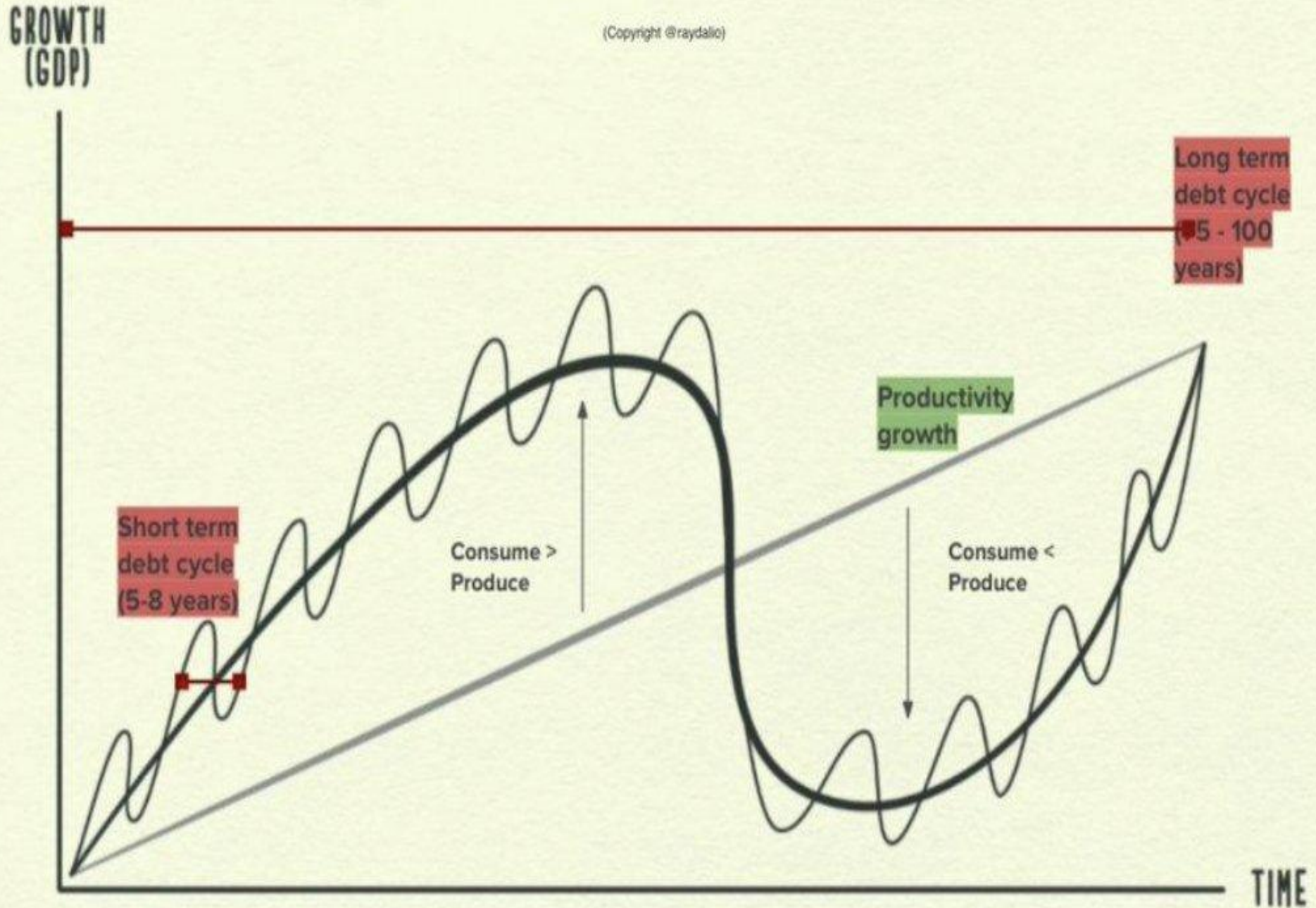
15 Internal conflict

16 Loss of reserve currency

17 Weak leadership

18 Civil war/revolution

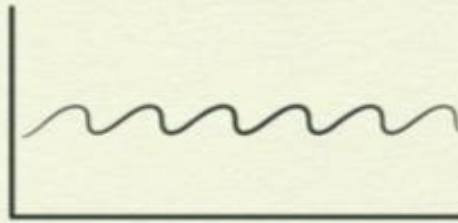
GDP - Short Term (SR) & Long Term (LR) cycles ...



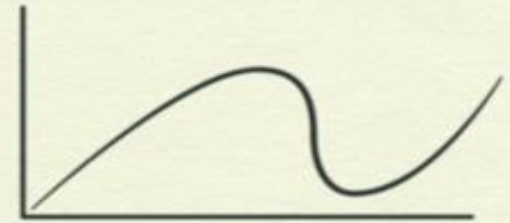
Production & Productivity cycles



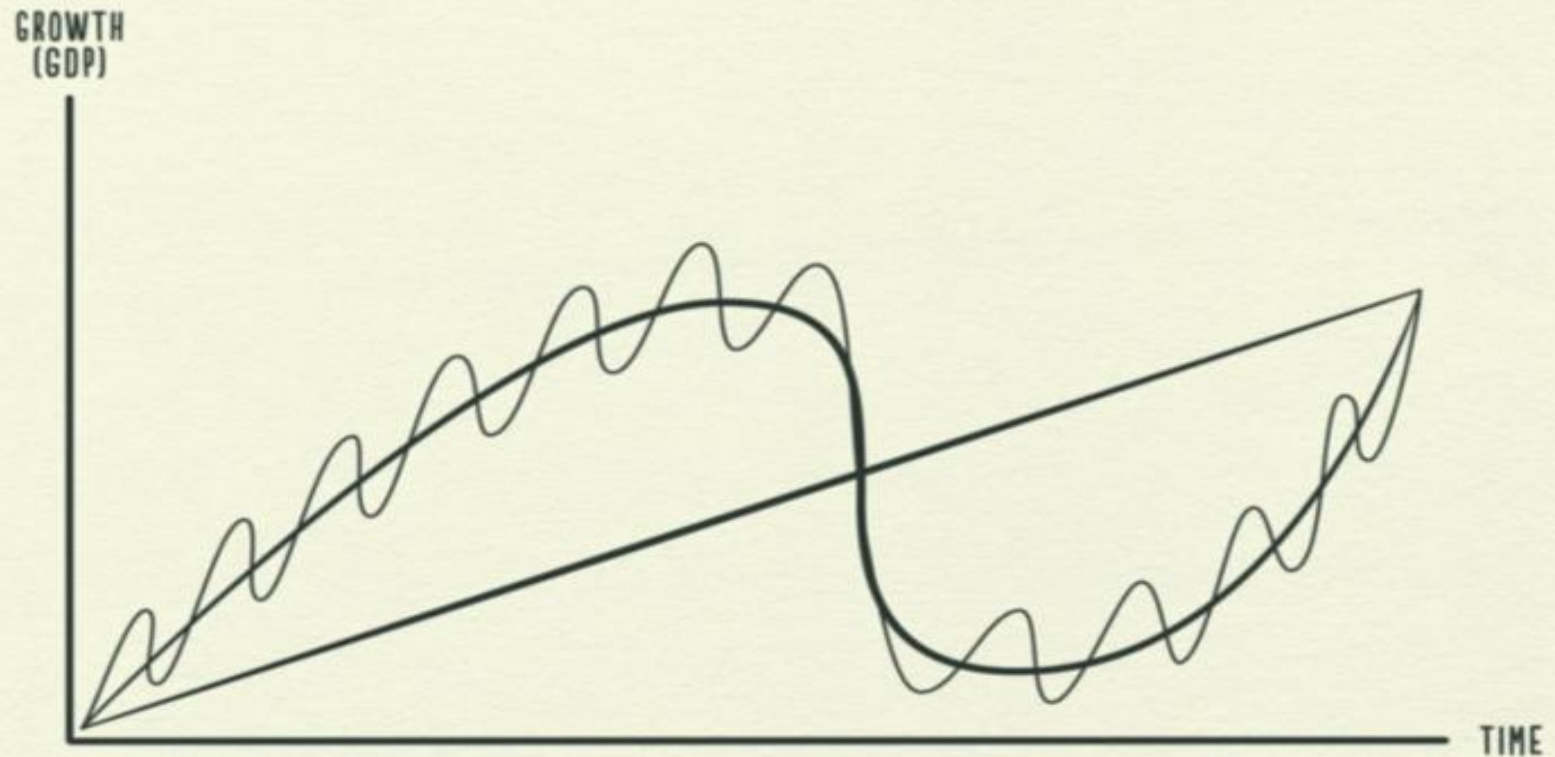
PRODUCTIVITY GROWTH



SHORT TERM DEBT CYCLE

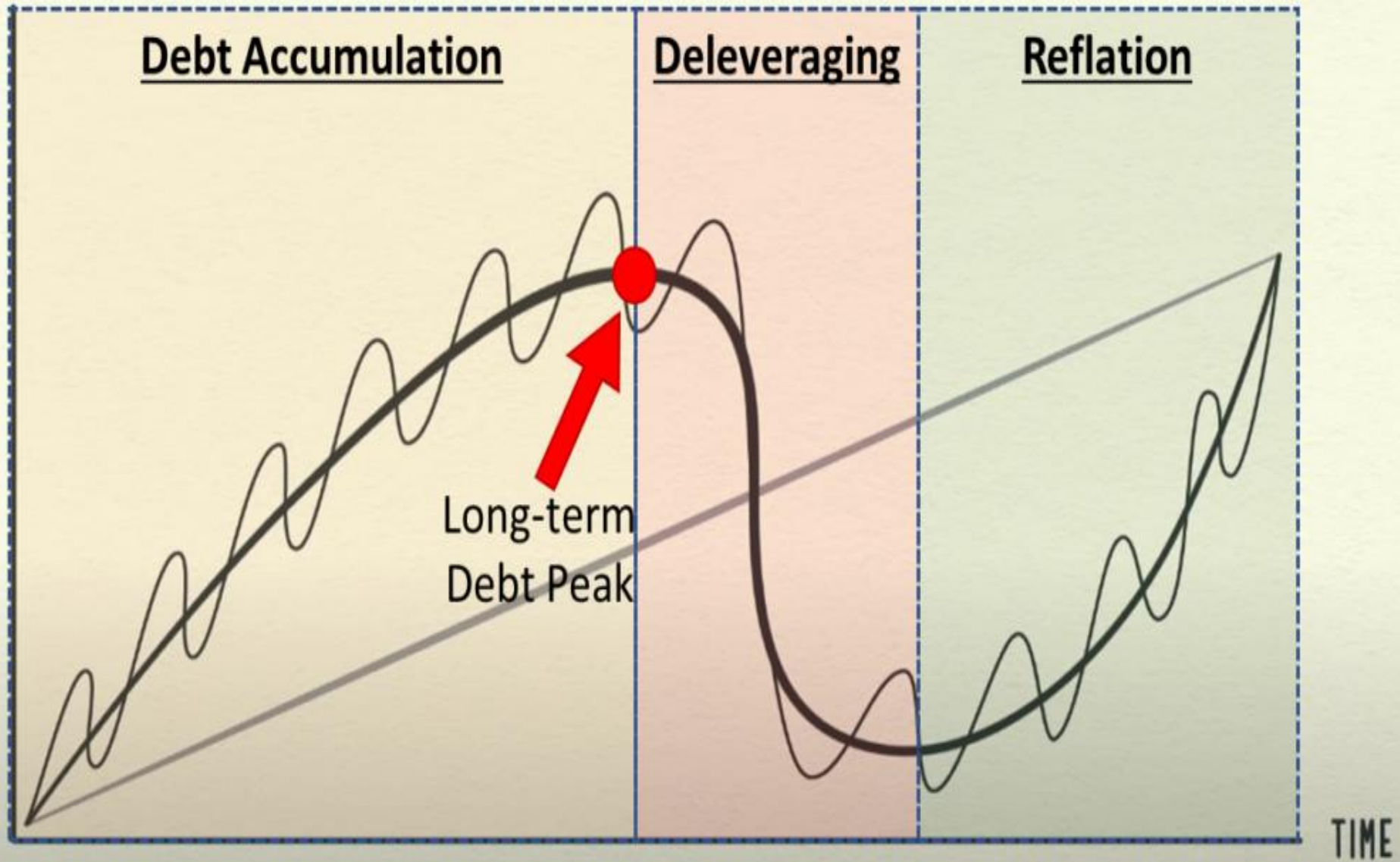


LONG TERM DEBT CYCLE

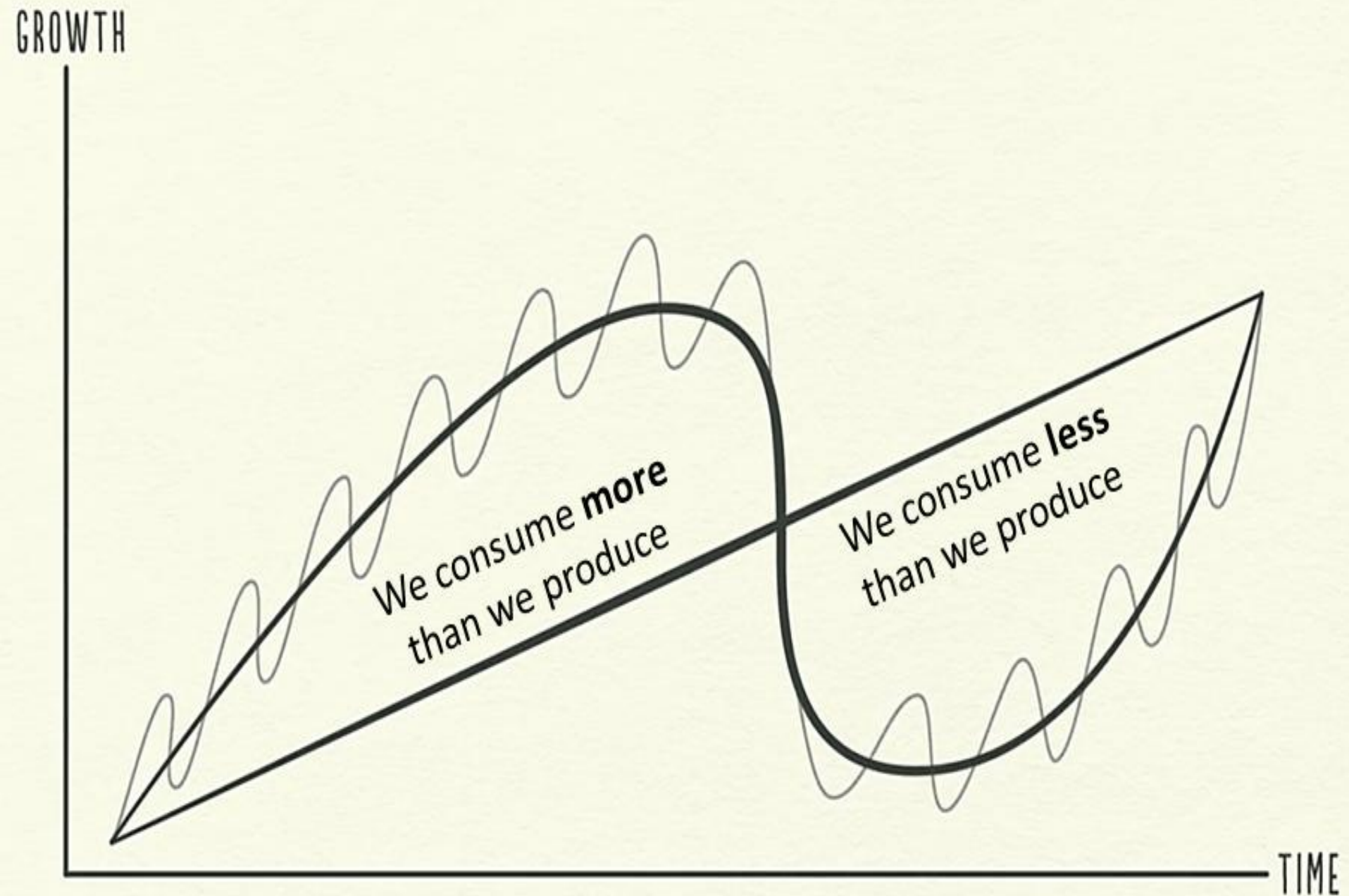


DEBT driven Growth ... cycles

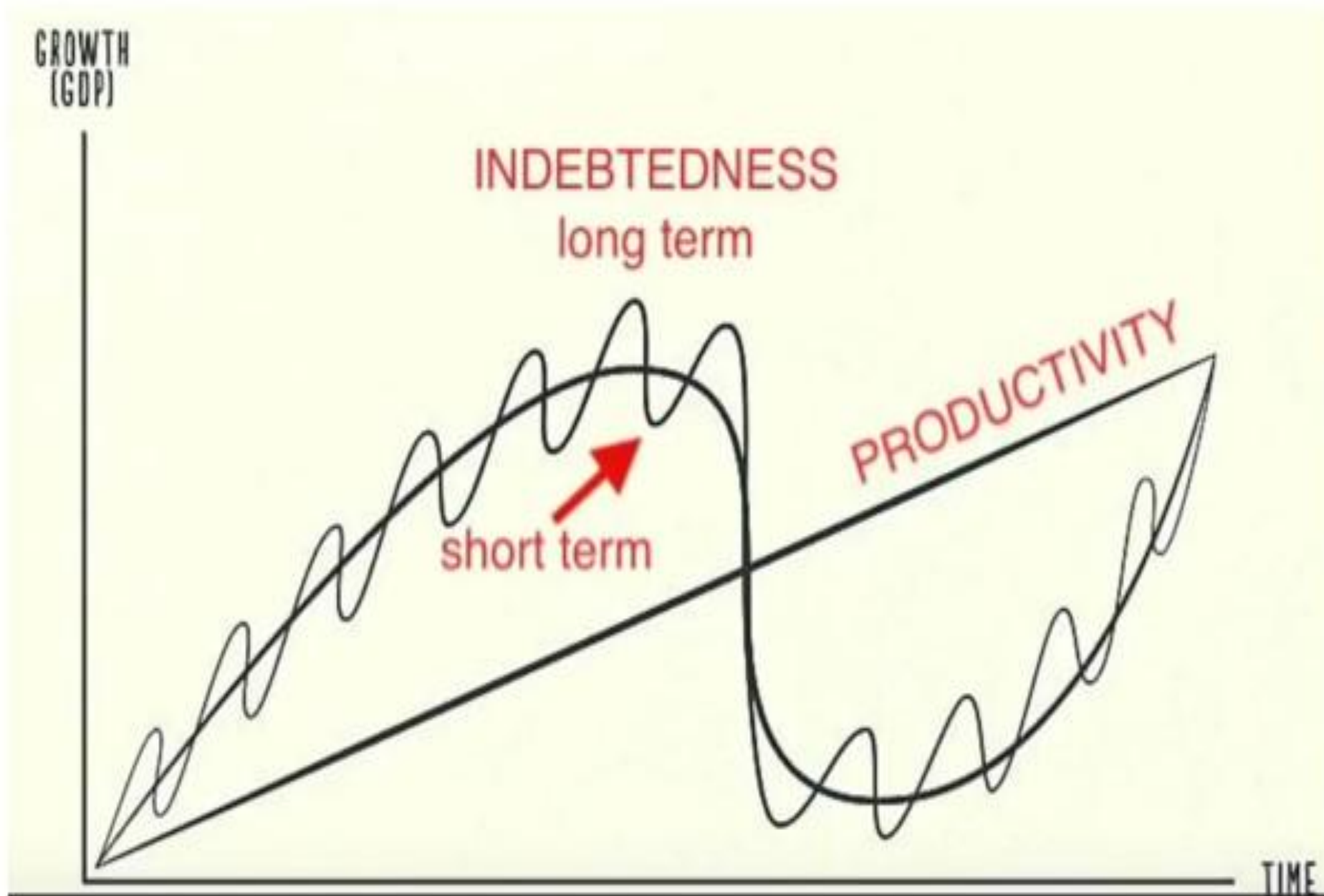
GROWTH
(GDP)



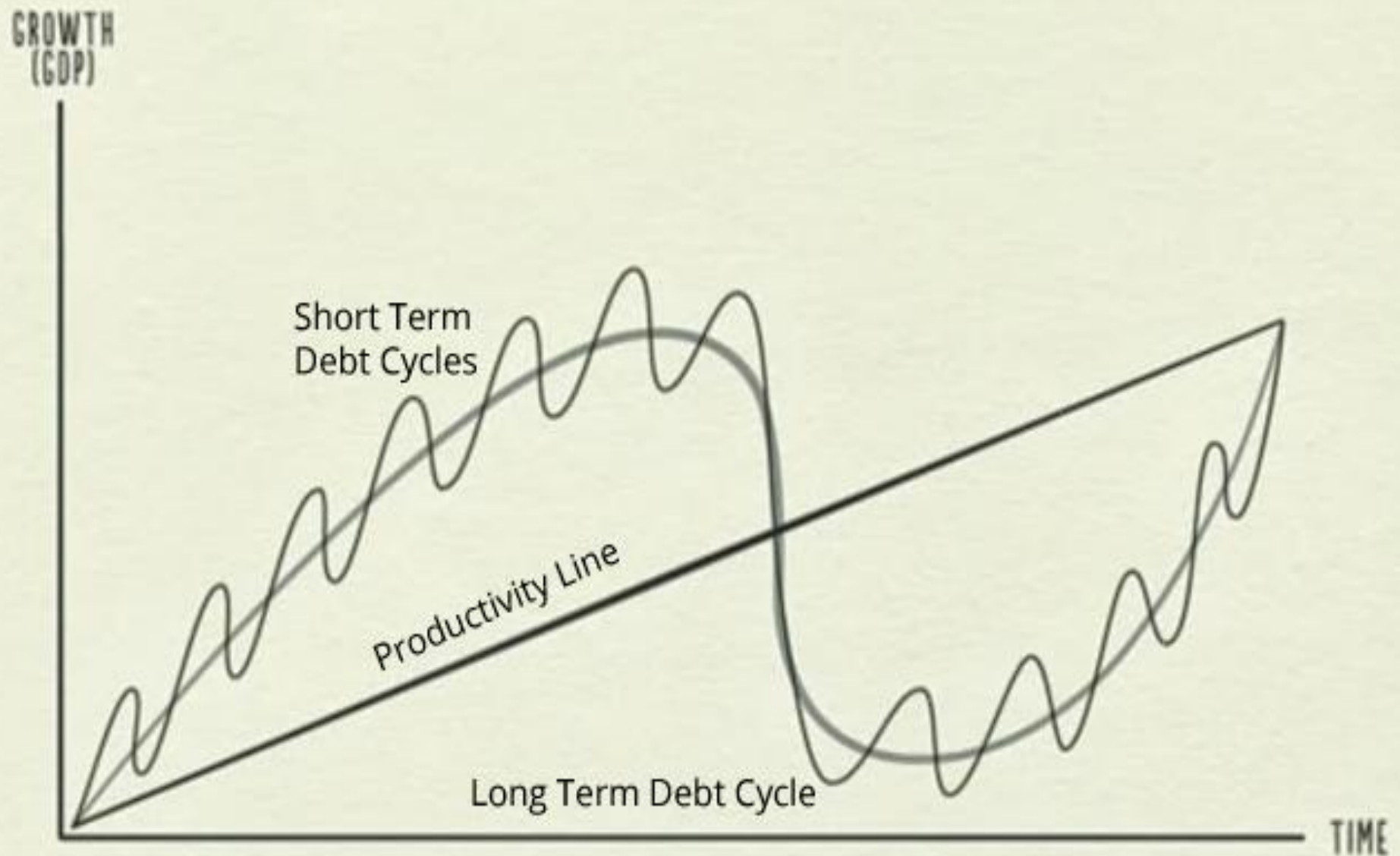
Production & Debt ... cycles



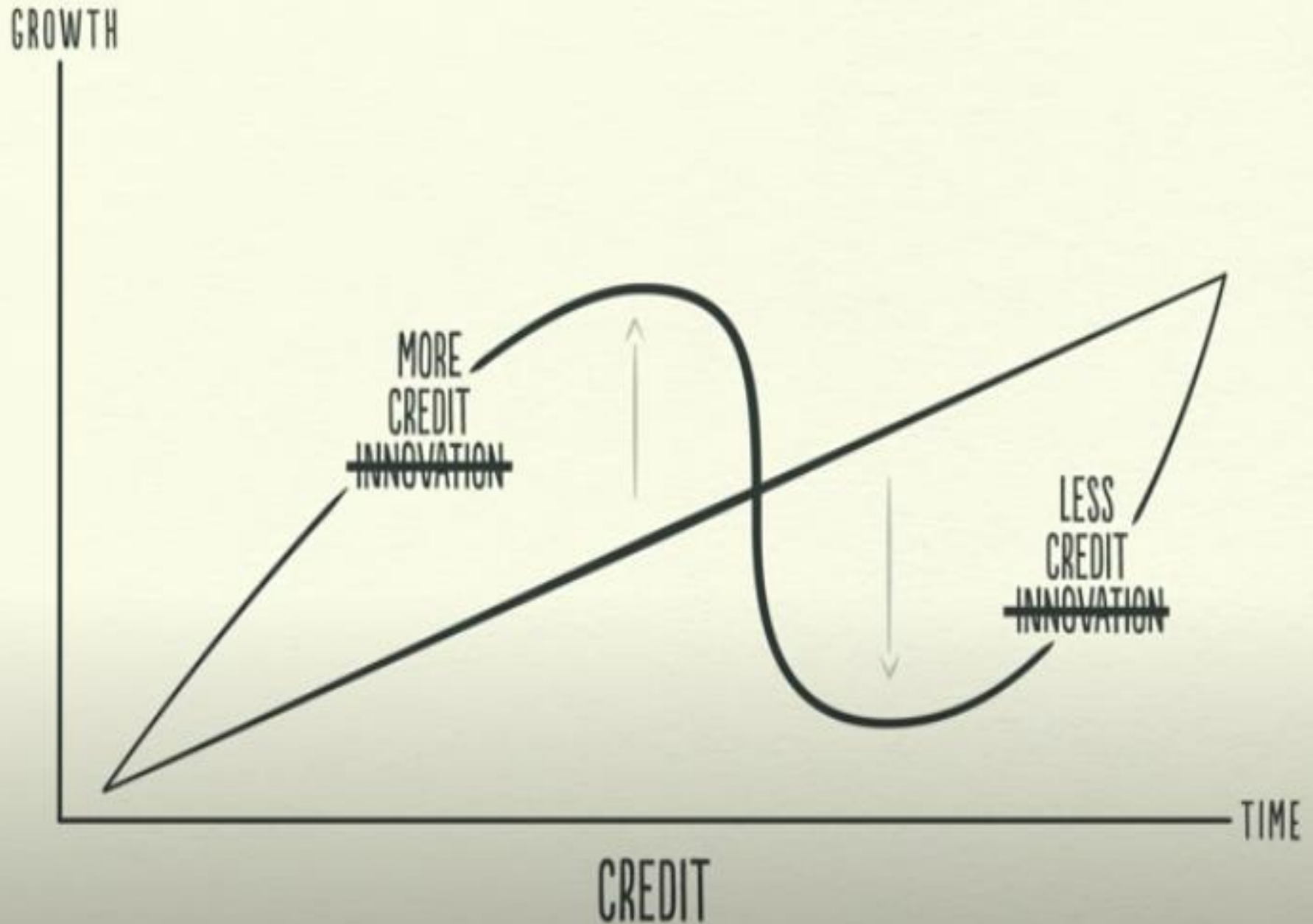
Productivity & Debt ... cycles



Productivity & Debt ... cycles



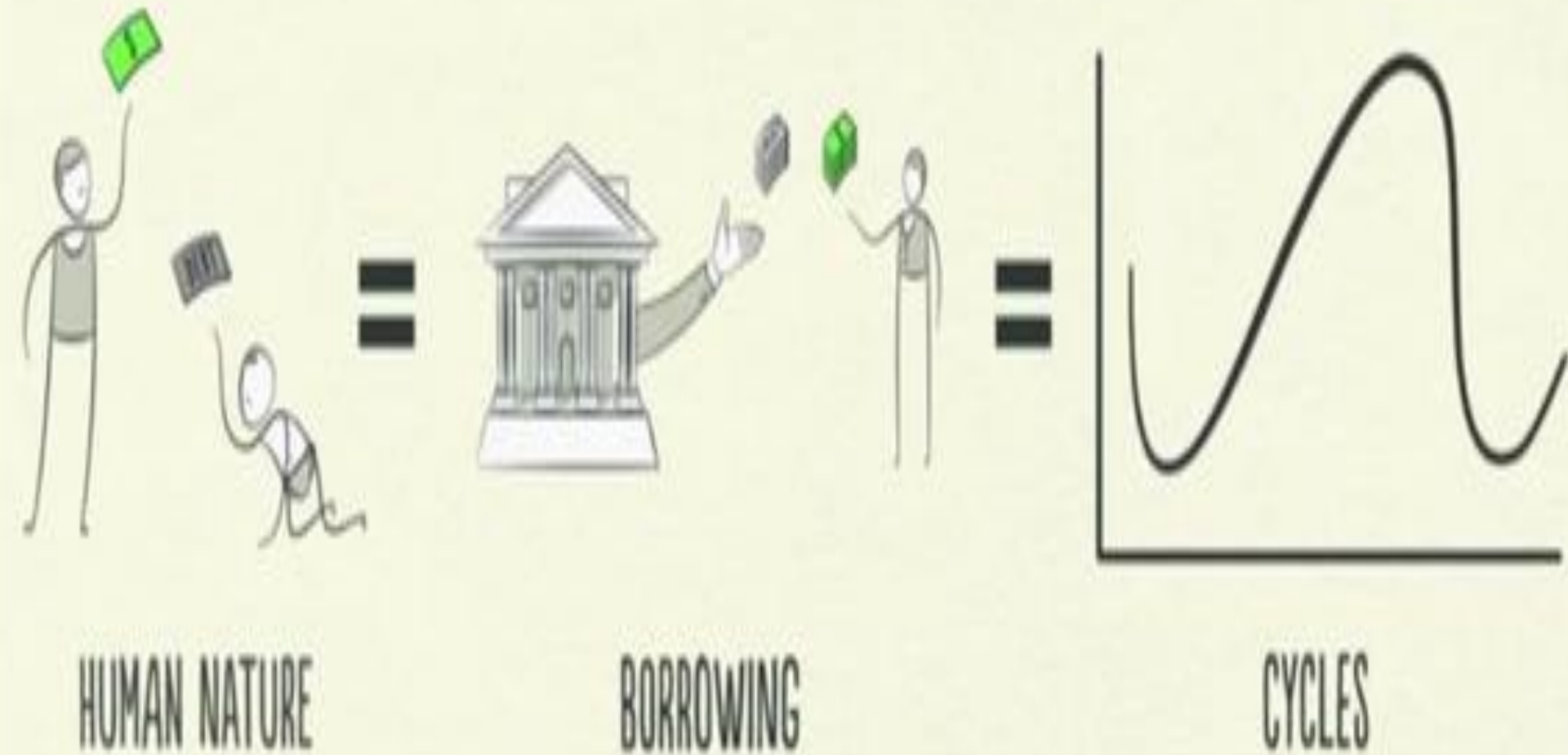
Economic growth and **CREDIT** ... cycles



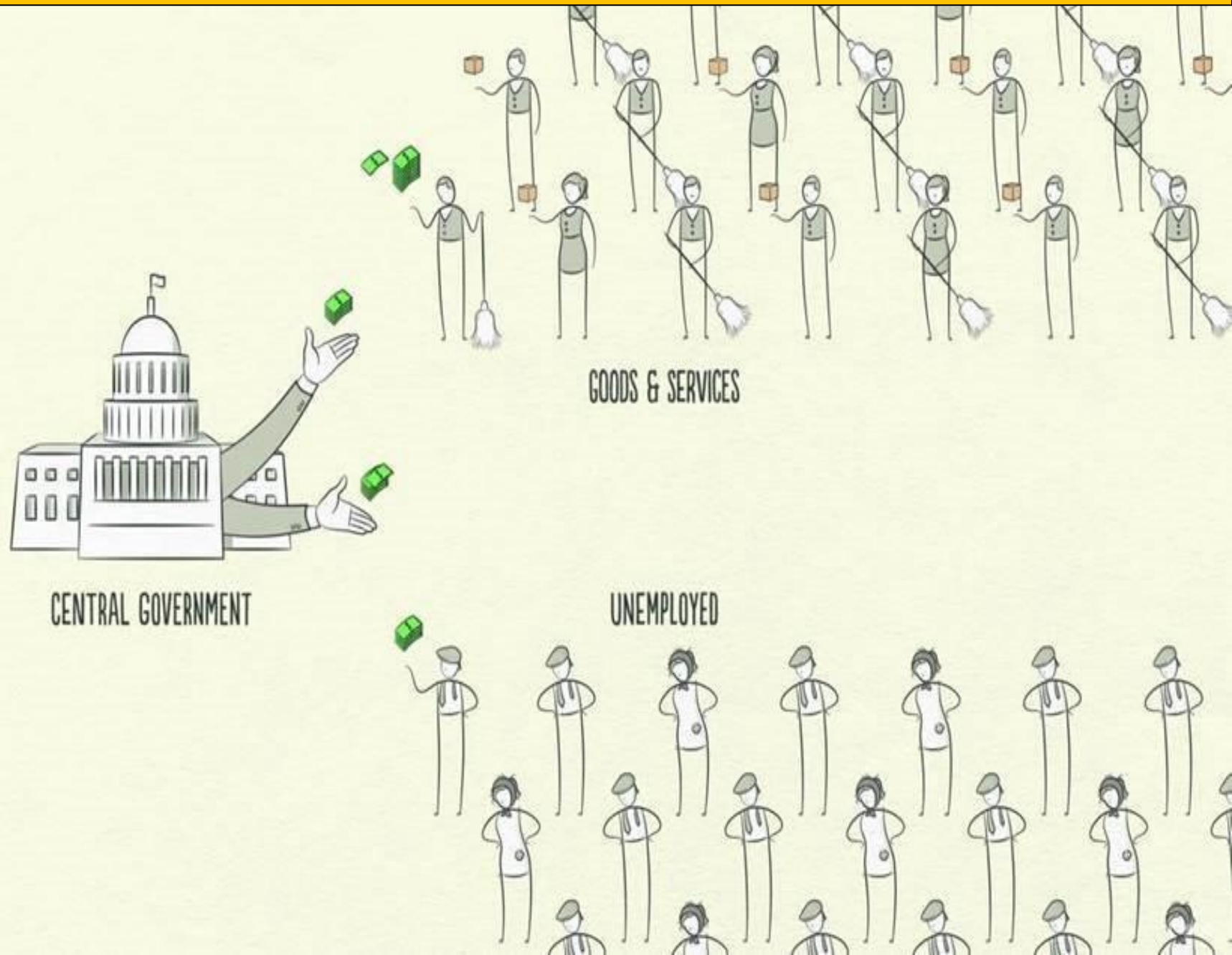
Understanding ...

... Economic Cycles

Economic Cycles ... due to Human Behaviour



...and also, Economic Cycles ... due to **Government**



Government creates Debt and after tries slowly to fix it ...?



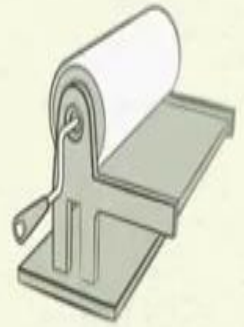
CUT SPENDING



REDUCE DEBT

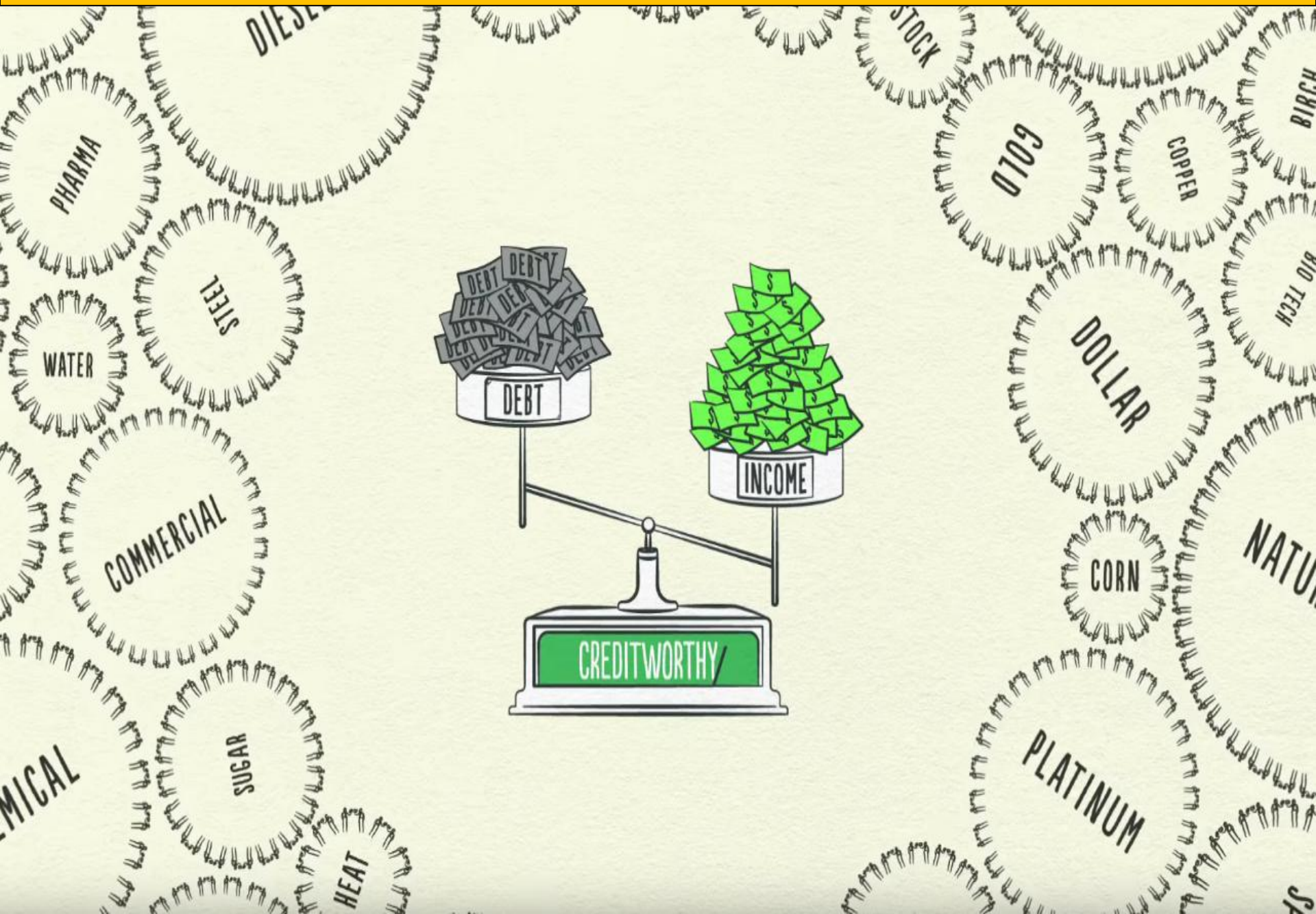


REDISTRIBUTE WEALTH

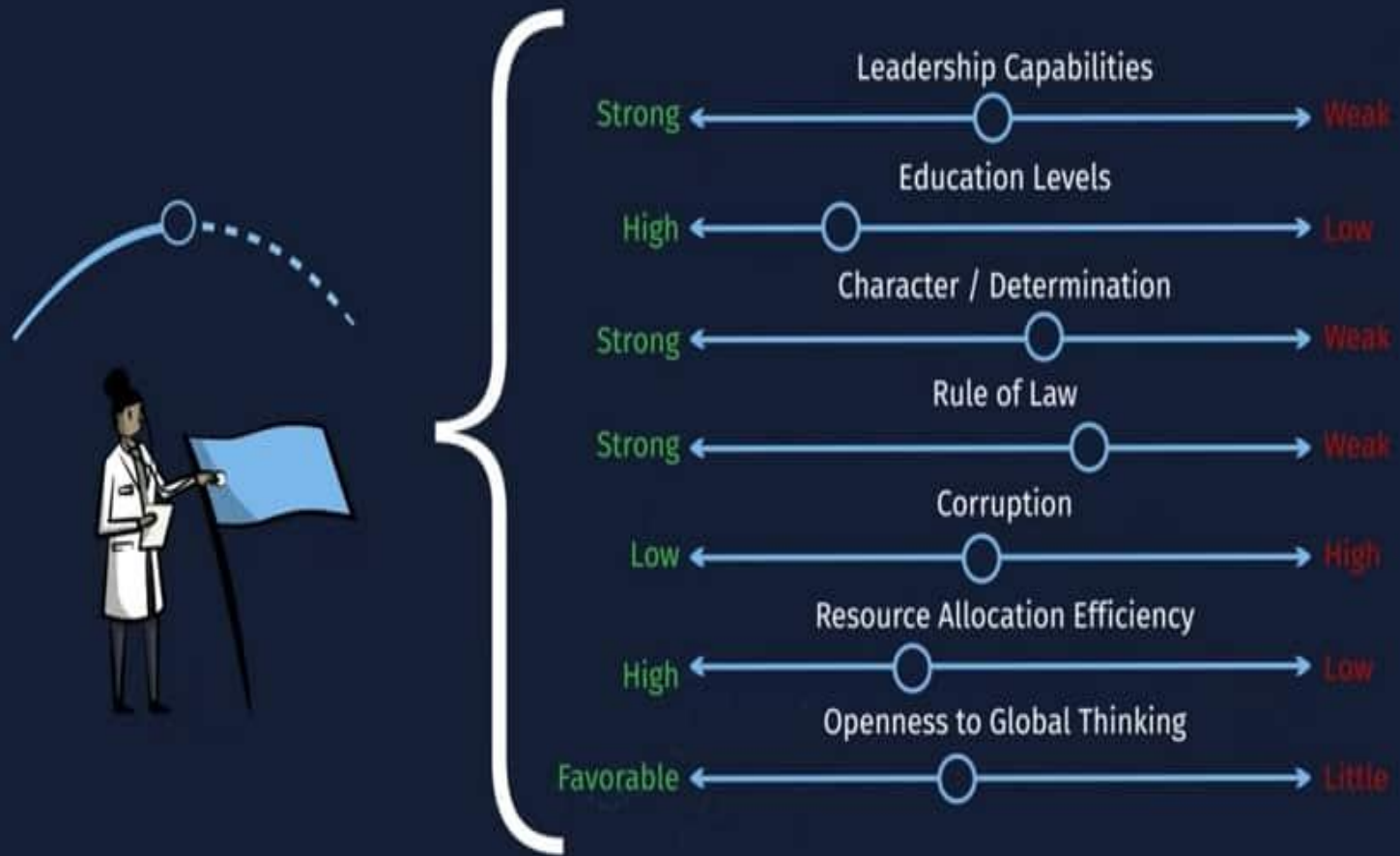


PRINT MONEY

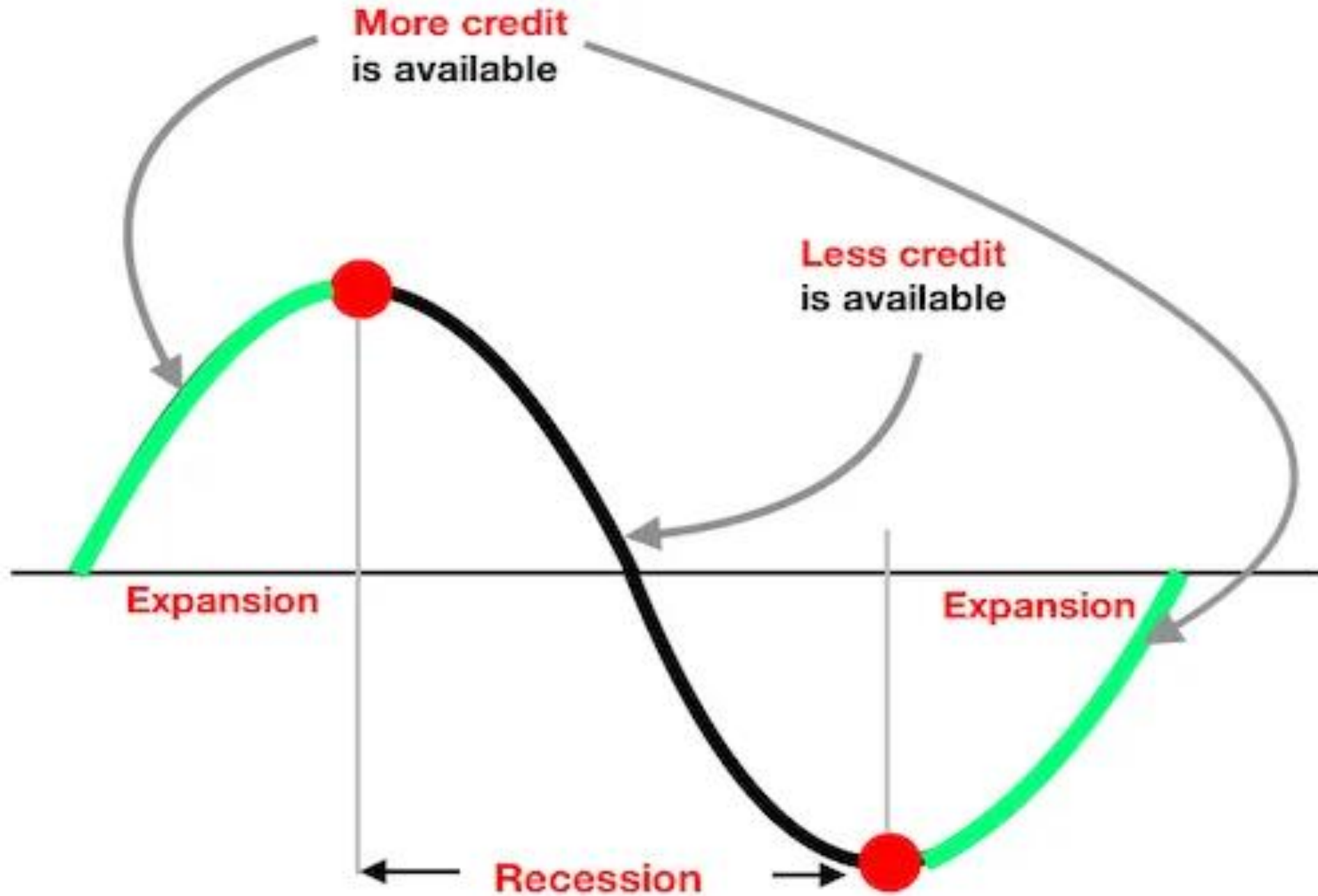
Government tries to balance Income & Debt



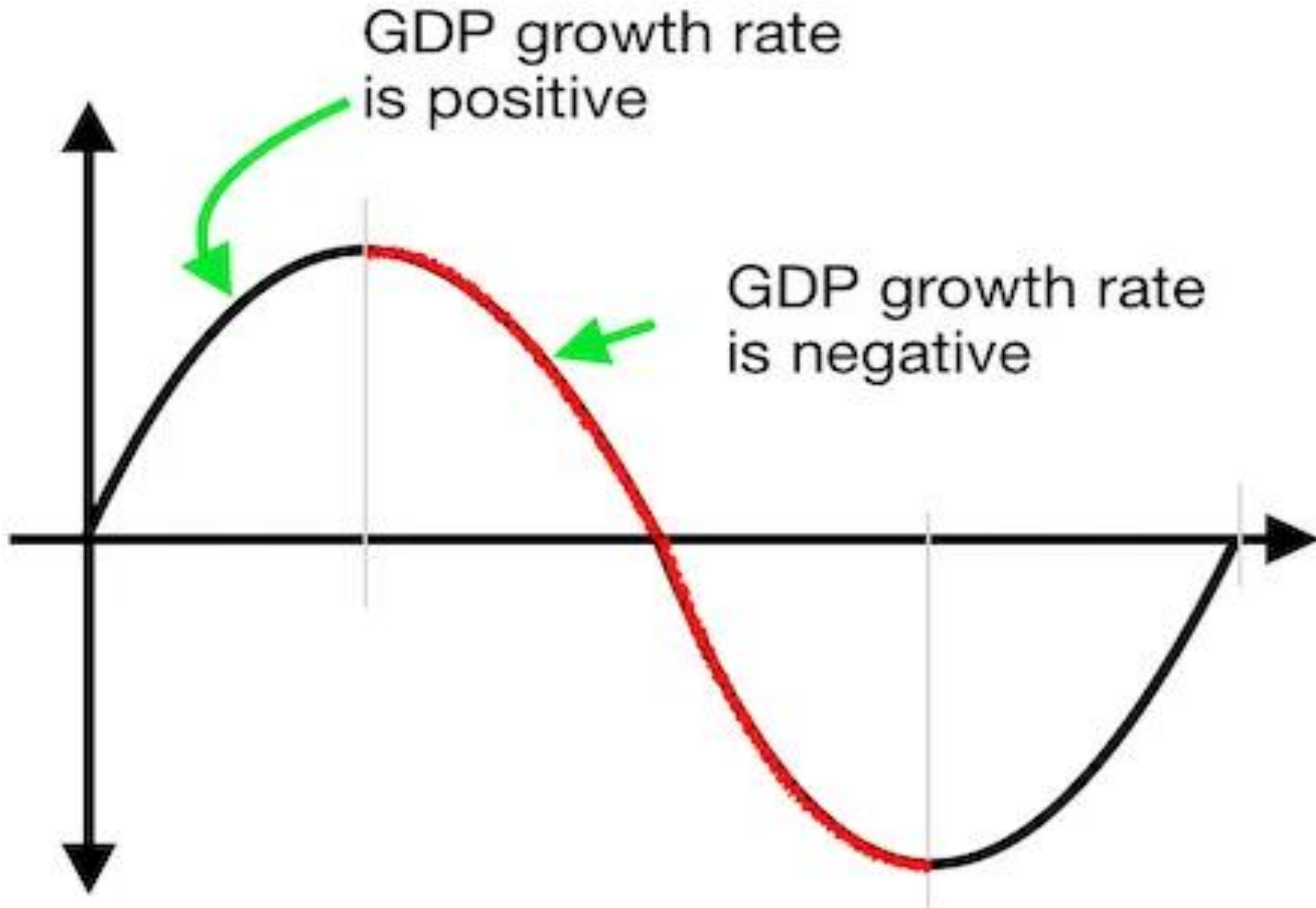
Is our Government focuses or has ...?



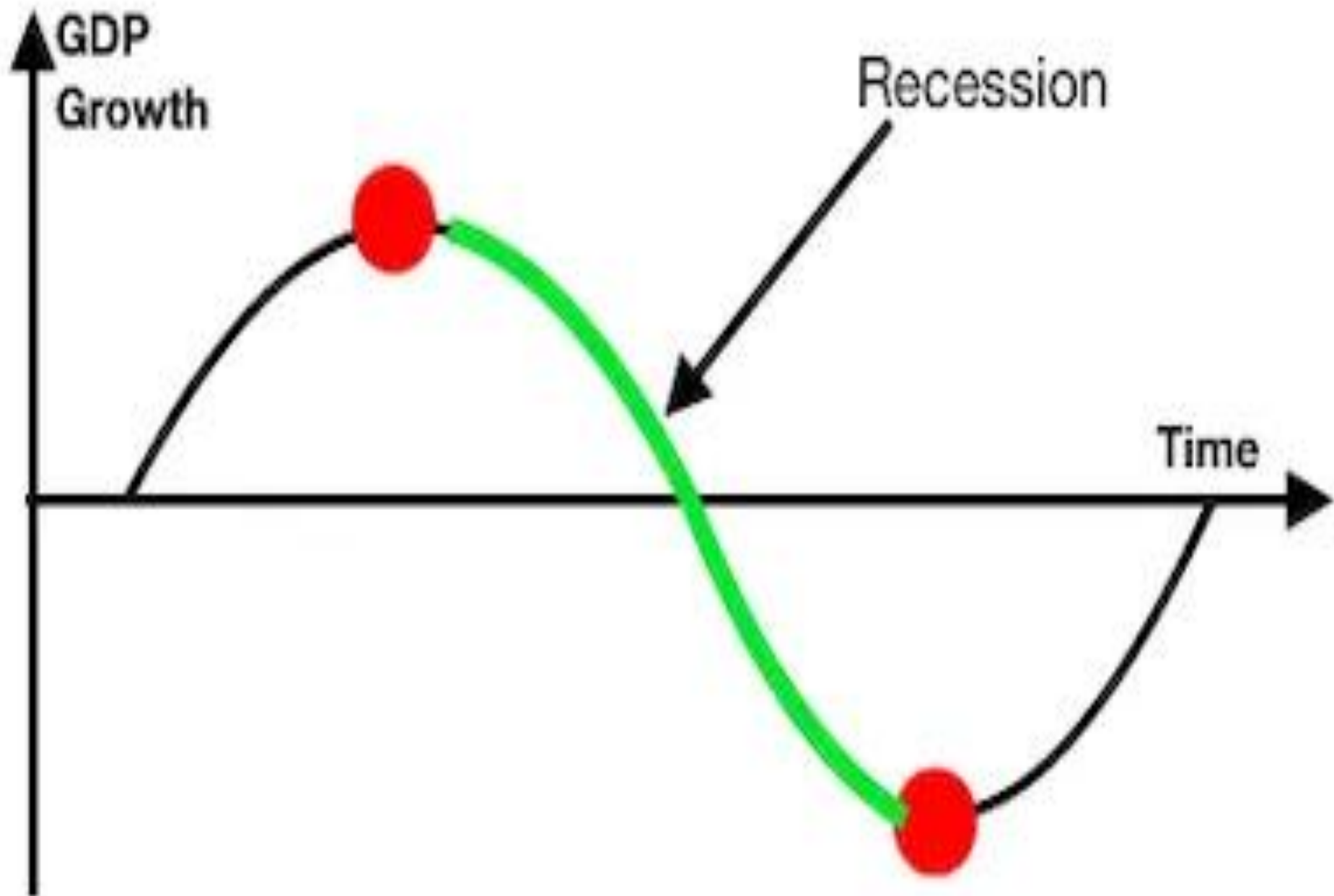
Governments use Money and Credit to operate/function



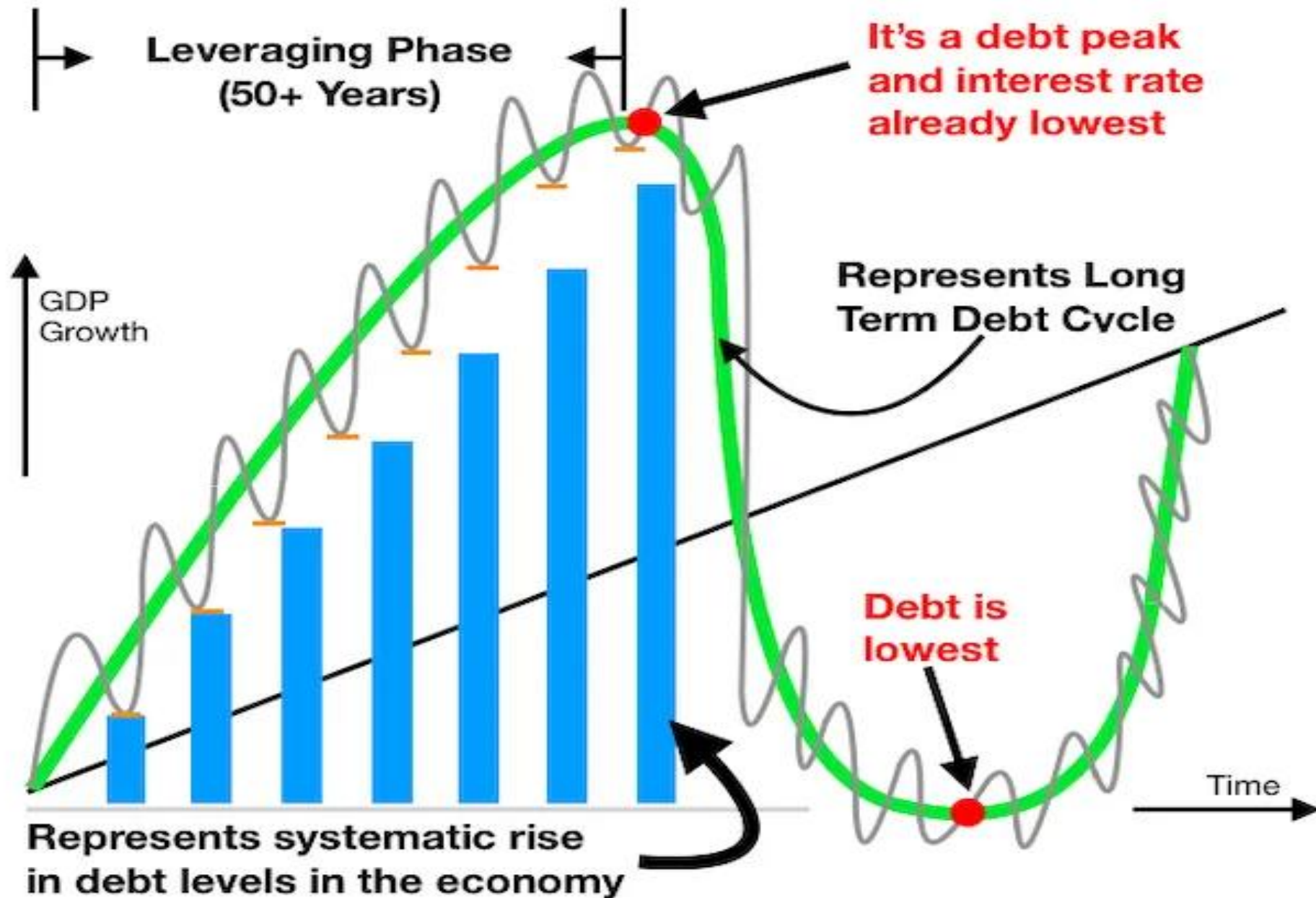
Governments' aim is GDP/Income Growth ...



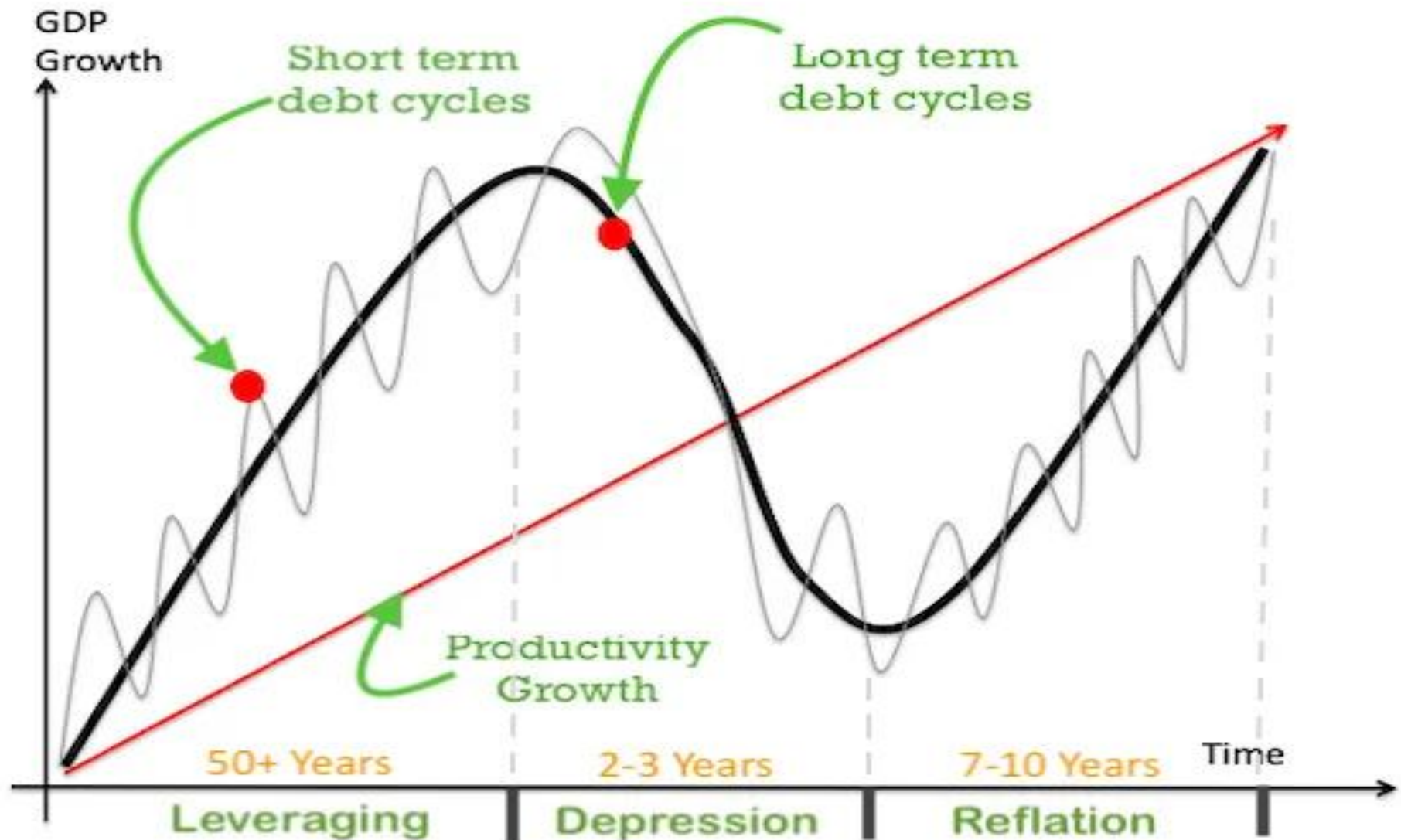
Governments' aim is GDP/Income Growth ... *but*



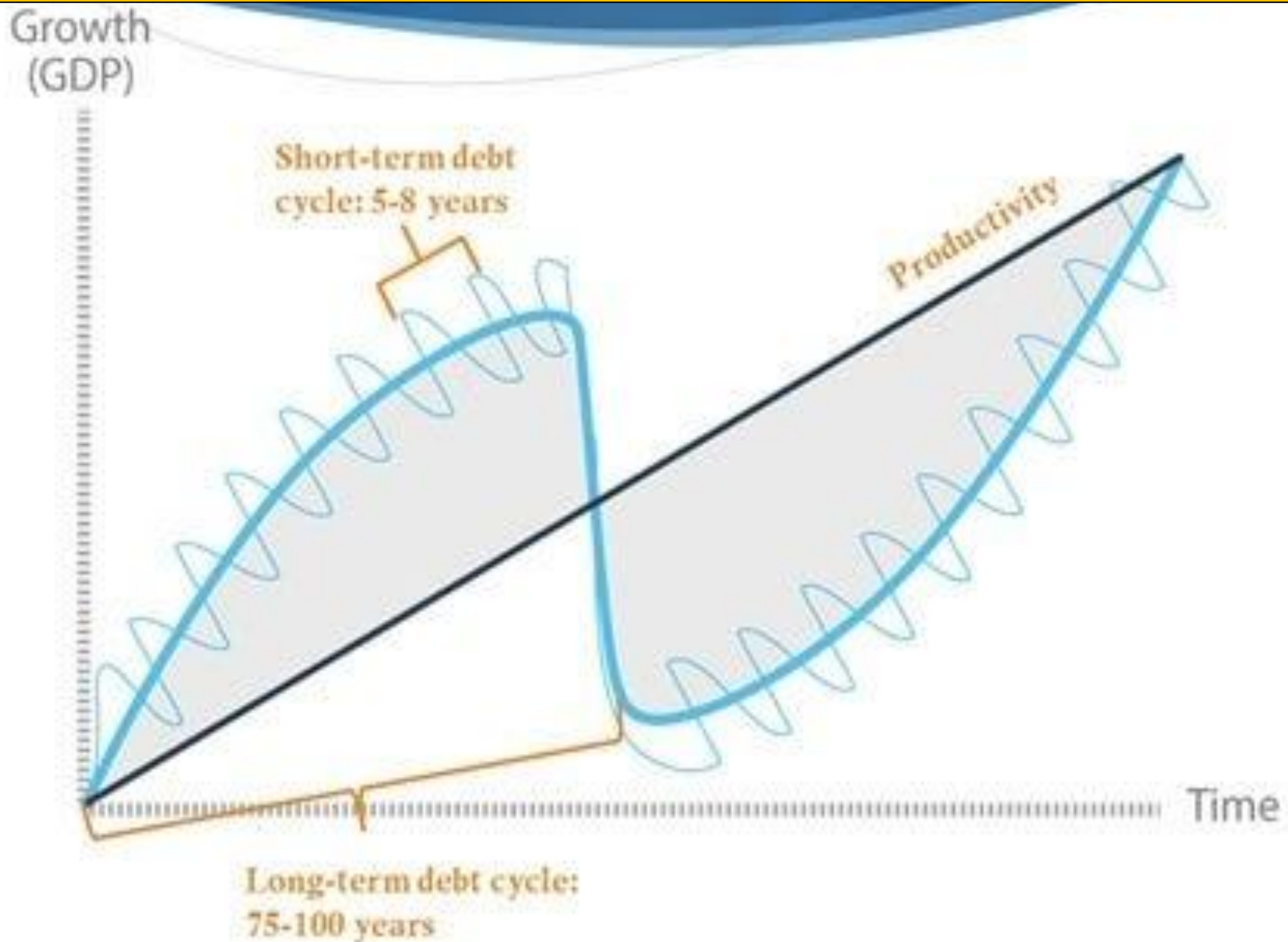
Governments choose Credit-Debt rather than Taxes ...



Governments choose Credit-Debt, especially LR ...

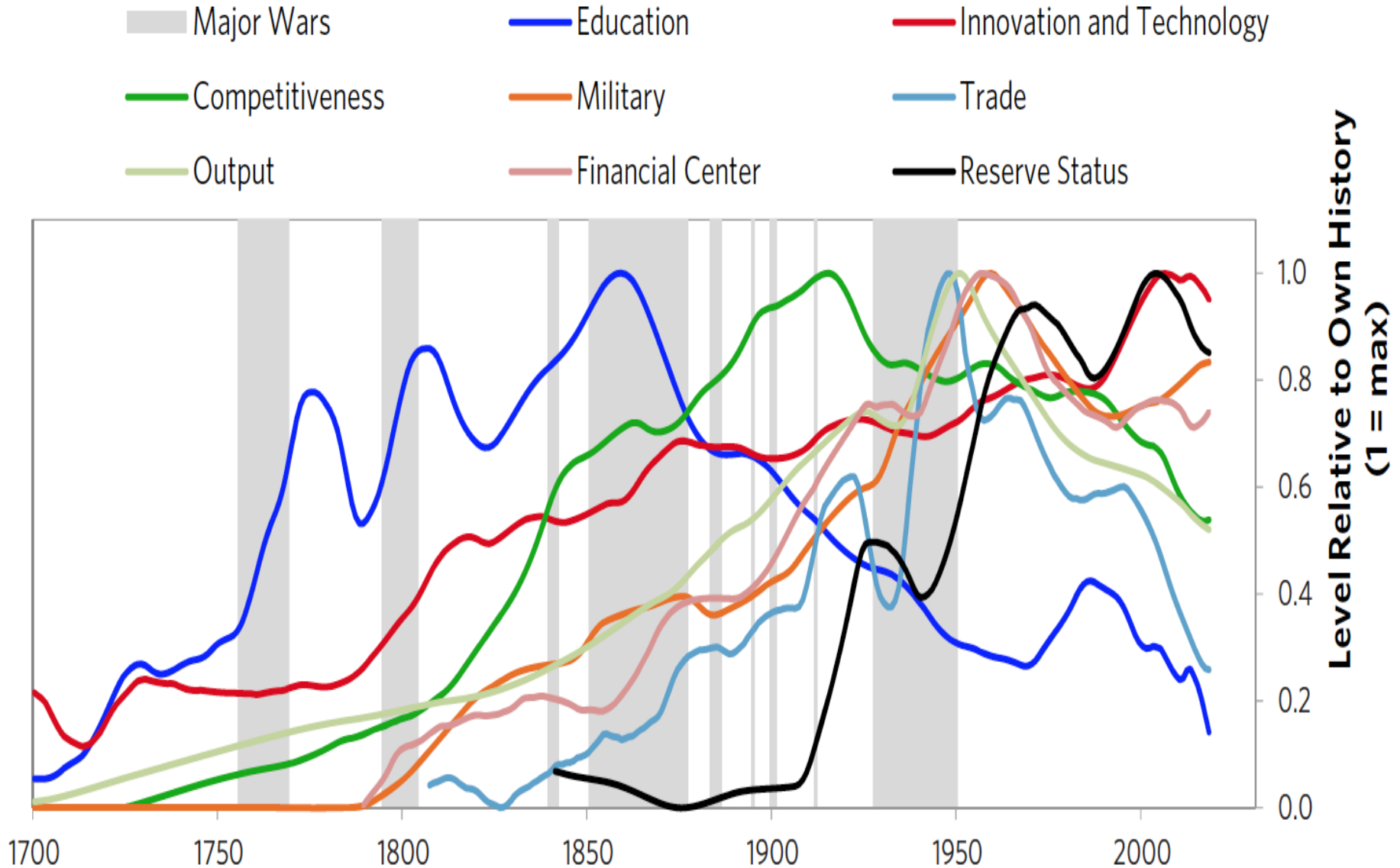


Governments borrow-borrow...and then Bankruptcy ...



Example (History) - USA Economy ...

United States



Example (Future) - USA Economy ...

COMPUTER ANALYSIS OF THE CONDITIONS OF, AND PROSPECTS FOR, THE WORLD'S LEADING COUNTRIES

UNITED STATES—KEY DRIVERS OF OUR COUNTRY POWER SCORE

Overall Empire Score (0–1)

Level: 0.87

Rank: 1



The Big Cycles	Level	Z-Score	Rank	Trajectory
Economic/Financial Position	Unfavorable	-1.7	10	↘
Debt Burden	High Debt	-1.8	11	↘
Expected Growth	1.1%	-0.7	4	↘
Internal Order	High Risk	-1.8	11	↘
Wealth/Opportunity/Values Gap	Large	-1.6	9	↘
Internal Conflict	Very High	-2.0	10	↘
External Order	At Risk			↘
Eight Key Measures of Power				
Markets & Financial Center	Very Strong	2.6	1	→
Innovation & Technology	Very Strong	2.0	1	→
Education	Very Strong	2.0	1	↘
Military Strength	Very Strong	1.9	1	↘
Reserve Currency Status	Very Strong	1.7	1	↘
Economic Output	Very Strong	1.7	2	↘
Trade	Strong	1.1	3	↘
Cost Competitiveness	Average	-0.4	6	→
Additional Measures of Power				
Geology	Strong	1.4	2	→
Resource-Allocation Efficiency	Strong	1.3	2	↘
Infrastructure & Investment	Strong	0.7	2	↘
Character/Determination/Civility	Strong	1.1	3	→
Governance/Rule of Law	Strong	0.7	5	↗
Acts of Nature	Average	-0.2	9	

↗ Getting better

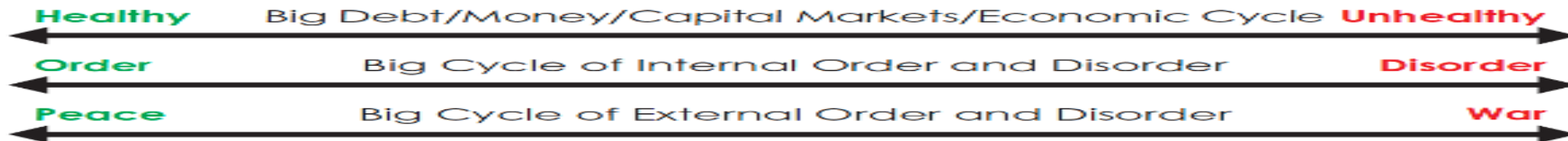
↘ Getting worse

→ Flat

Every Economy-Market-Country faces the 3 cycles ...

THE CHANGING WORLD ORDER

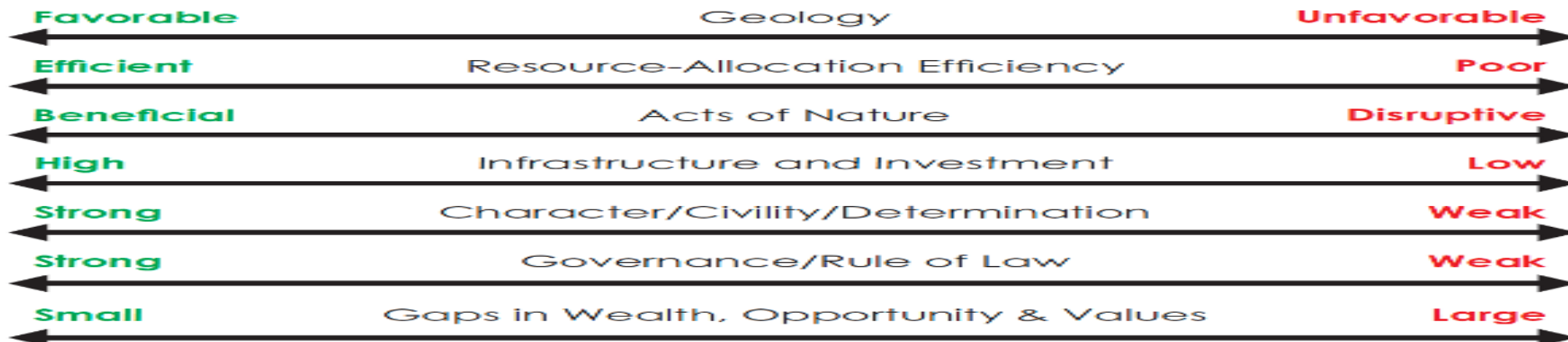
THE THREE BIG CYCLES



OTHER KEY DETERMINANTS (EIGHT KEY MEASURES OF POWER)

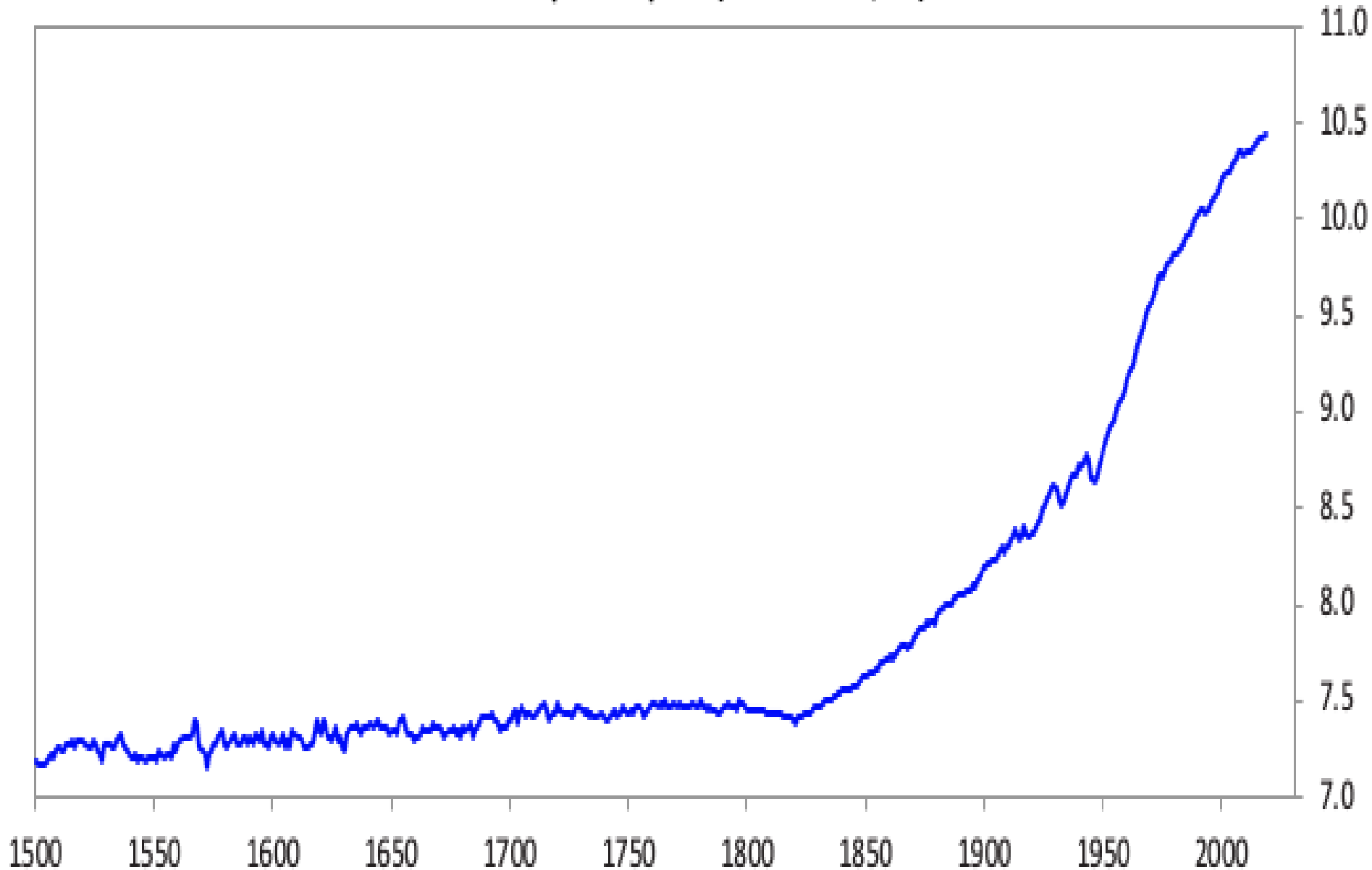


ADDITIONAL DETERMINANTS



Steaming ahead and Destemming ...

Global RGDP per Capita (2017 USD, ln)



Comparing the two Superpowers - USA vs China

	The US		China	
The Big Cycles	Level	Z-Score	Level	Z-Score
Economic/Financial Position	Unfavorable	-1.5	Somewhat Favorable	0.3
Debt Burden	High Debt	-1.9	Moderately Low Debt	-0.0
Expected Growth	1.3%	-0.6	4.3%	0.4
Internal Order	High Risk	-2.0	Low Risk	0.2
Wealth/Opportunity/Values Gap	Large	-1.8	Typical	0.2
Internal Conflict	Very High	-2.2	Average	0.1
External Order	At Risk	-	At Risk	-
Eight Key Measures of Power				
Trade	Very Strong	2.7	Very Strong	1.9
Education	Very Strong	2.1	Very Strong	1.7
Innovation & Technology	Very Strong	2.0	Strong	1.6
Economic Output	Very Strong	2.0	Strong	1.5
Military Strength	Very Strong	1.9	Strong	0.9
Cost Competitiveness	Very Strong	1.7	Strong	1.1
Markets & Financial Center	Strong	1.1	Average	0.2
Reserve Currency Status	Average	-0.4	Weak	-0.6
Additional Measures of Power				
Infrastructure & Investment	Strong	1.4	Very Strong	2.6
Character/Determination/Civility	Strong	0.7	Strong	1.6
Resource-Allocation Efficiency	Strong	1.6	Strong	0.8
Geology	Strong	1.0	Strong	0.5
Governance/Rule of Law	Strong	0.7	Weak	-0.6
Acts of Nature	Average	-0.2	Average	-0.1

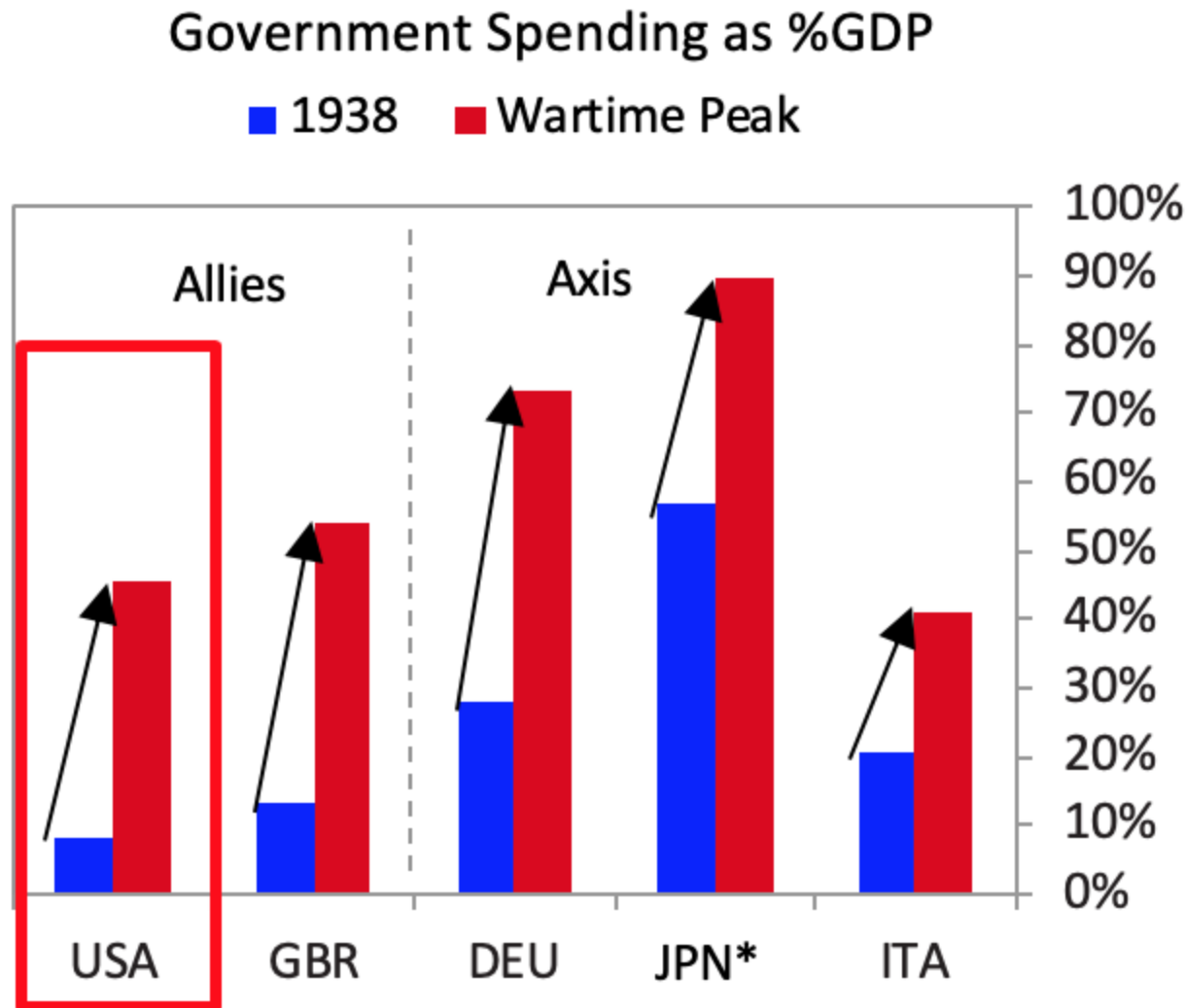
 Getting better
  Getting worse
  Flat

Macroeconomics ... *for selected economies ...*

How Was the War Financed?

%Government Expenditures Financed by...	United States	United Kingdom	Germany	Japan	Italy
<i>Revenue</i>	44%	48%	40%	52%	35%
Taxes, etc.	44%	48%	28%	-	-
Seizures and Conquest	0%	0%	12%	-	-
<i>Borrowing from Pvt Sector</i>	34%	38%	32%	32%	18%
<i>Money Printing</i>	22%	14%	28%	15%	46%
Central Bank Printing	7%	3%	7%	-	-
Printing via Commercial Banks	15%	8%	-	-	-
Other "Creative" Measures	0%	3%	21%	-	-

Government Spending ... *for selected economies* ...



**Note: Japan was already at war with China in 1938*

ECONOMIC PRINCIPLES

- Everything is a transaction and one has to understand them to understand economics. They add up to:

Three Big Forces

- 1) Productivity
- 2) The short-term debt cycle
- 3) The long-term debt cycle

Three Important Equilibriums

- 1) Debt growth is in line with the income growth that is required to service debts.
- 2) Economic capacity utilization is neither too high nor too low.
- 3) Projected returns of equities are above the projected returns of bonds which are above the projected returns of cash by appropriate risk premiums.

Two Levers

- 1) Monetary Policy
- 2) Fiscal Policy

- Economic and market movements are like a perpetual motion machine of the interactions of these.

Analysis of an Economic System ...

Production



Goods

Service



**Difficult to expand
production scale**

**Little impact on the
market**

Consumption



Currenc

Credit

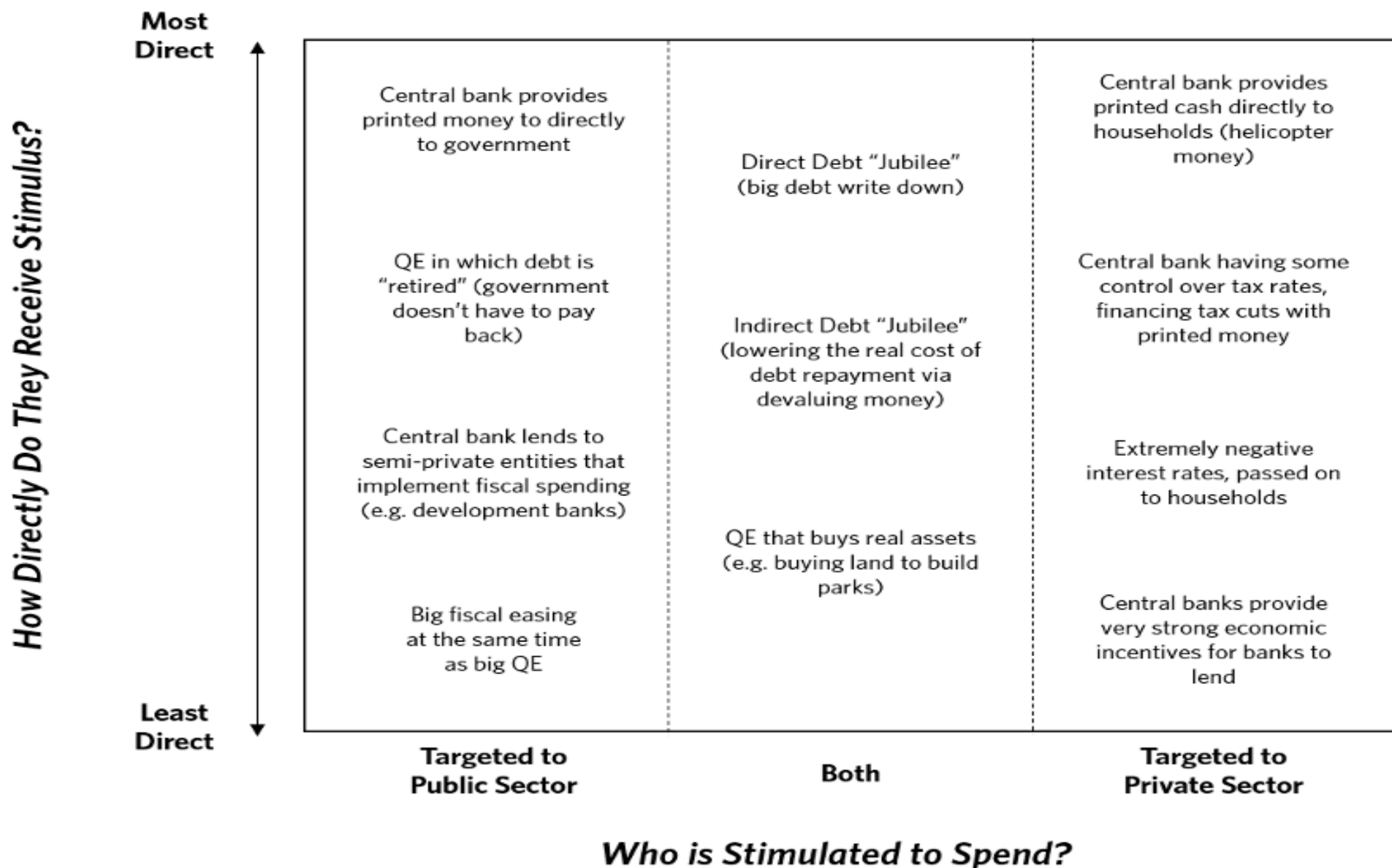


Easy to expand credit

**Large impact on the
market**

Monetary Policy ...that Affects Credit – Debt and Consumption

Flavors of Monetary Policy 3



... back to ... Economic Cycle ...

ECONOMIC CYCLE

EARLY UPSWING PHASE

- Increasing confidence
- Healthy economic growth
- Inflation remains low

MARKETS :

- Short rates at neutral
- Bond stable
- Stock market strong
- Commodities strong
- Property prices picking up

RECOVERY PHASE

- Stimulatory economic policies
- Confidence picks up
- Inflation falling

MARKETS :

- Short rates low or falling
- Bond yields bottoming
- Stock market rising
- Commodities rising
- Property prices bottoming

LATE UPSWING PHASE

- Boom mentality
- Inflation gradually picks up
- Policy becomes restrictive

MARKETS :

- Short rates rising
- Bond yields rise
- Stock market topping out
- Commodities rising strongly
- Property prices rising strongly

**We are
here:
2021**

ECONOMY SLOWS/ENTERS RECESSION

- Confidence suddenly drops
- Inflation continues to rise
- Inventory correction begins

MARKETS :

- Short rates peaks
- Bond yields tops out
- Stock market starts falling
- Commodities starts falling
- Property prices tops out

RECESSION

- Confidence weak
- Inflation peaks
- Production falling

MARKETS :

- Short rates drops
- Bond yields drops
- Stock market bottoming
- Commodities weak
- Property prices weak

Economic Cycle ...

A Full Market Cycle



This is the system of

CAPITALISM

that like any other organism

goes through CYCLES ...

and over and over again ...

creates some issues ...over time ...

that we call them

ECONOMIC GAPS

and

FINANCIAL RISKS

**A major task for every government is to
smoothen
avoid
correct
Iron
these**

Gaps and Risks

**This is why I say the most difficult job on the
planet is to be
the President ...**

CAPITALISM

- ❑ The ability to make money, save it, and put it into capital (i.e., capitalism) is an effective motivator of people and an allocator of resources that raises people's living standards.
- ❑ But capitalism is also a source of wealth and opportunity gaps that are unfair, can be counterproductive, highly cyclical, and can be destabilizing:
 - *Large wealth gaps*
 - *Opportunity gaps*
 - *Over indebtedness or Debt bubbles*
 - *Worsening inequalities*
 - *Instability*
- ❑ However, over the long run capitalism has created wealth and opportunity gaps and over-indebtedness that have led to economic downturns and revolutions, and wars that have caused changes in the domestic and world orders.

Policies ... must avoid

Upcoming and potential risks, that is big risks that naturally develop and undermine the self-sustaining good results that can be:

- **The widening of the opportunity, income, wealth, and values gaps (accompanied by)**
- **Bad and unfair conditions for the majority,**
- **Luxurious and unfairly privileged positions for the elites**
- **Declining productivity**
- **And bad finances in which excess debts are created.**

If not... then internal & external CONFLICT

- ✓ Big fights typically happen when both sides have roughly equal powers and existential differences exist between them.
- ✓ Big fights typically do not occur when there are big asymmetries in power because it would be stupid for obviously weaker entities to fight obviously stronger ones, and if they did fight, the fights would be small in scale.
- ✓ However, sometimes when there are roughly equal levels of power on both sides, stalemates and gridlocks rather than big fights can occur when the existential threat of harming oneself in the process of trying to beat the other side is greater than the gains that would come from having a fight to the death.
- ✓ The balance of power dynamic drives virtually all struggles for power - e.g.,
 - Office politics within organizations
 - Local and national politics in shaping domestic order, and
 - International politics in shaping the world order.

Another Challenge ahead: **ARTIFICIAL INTELLIGENCE**

Humans vs. Machines

The human player is:

- **More inventive.**
- **More lateral in thinking and**
- **Better able to reason.**

While the Computer

- **Can calculate more data faster.**
- **Is better able to identify patterns, and**
- **Is much less emotional.**

Solution - Proposal

Normative or Ideal

- ❑ The greatest challenge for policymakers is to engineer a capitalist economic system that
 - raises productivity and
 - living standards
- without worsening inequalities and instabilities.
-
- ❑ For as long as there is peace and prosperity for the majority of the people, which will only be the case if the system is fair and the majority of the people remain self-disciplined and productive, peace and prosperity are likely to continue.

Economics should create an Economic Platform

Where and When People and Citizens

- Have an abundance of opportunities to be productive,
- Are excited about it,
- Work well together,
- Produce a lot,
- Get rich, and
- Are admired for being successful.

Economics should create an Economic Platform

Where conditions

- Are improving for almost everyone.
- So, most of the next generation is better off than most of the prior generation.
- So, there is broad optimism and excitement about the future.

An Economic Environment that has a lot of:

- **Creativity**
- **Productivity and**
- **Energy**

PRODUCTIVITY

- **Human productivity** is the most important force in causing the world's total wealth, power, and living standards to rise over time.
- **Productivity** - i.e., the output per person, driven by learning, building, and inventiveness – has steadily improved over time.
- **The provision of excellent public education** – which is clearly a leading cause of higher productivity and greater wealth across a society – should be a high priority.
- It is smart to trust and invest in **humanity's adaptability and inventiveness.**

... because PRODUCTIVITY ... can provide solutions ...

- ❑ Productivity creates Income and GDP growth that fuels in turn productivity and in turn real income growth**
- ❑ Which makes debt easy to service and provides excess profits that make equity returns excellent.**
 - Incomes exceed expenses and**
 - Savings exceed liabilities.**
 - with the savings financing investment in the future.**

Consumption & Aggregate Consumption

Consumer – The King and Queen

**Marketing and other subjects
deal with the
Consumption**

B) Aim:

Increase Production

&

Aggregate Production

Specialization

Exchange

Global Trade

Who produces which goods and why?

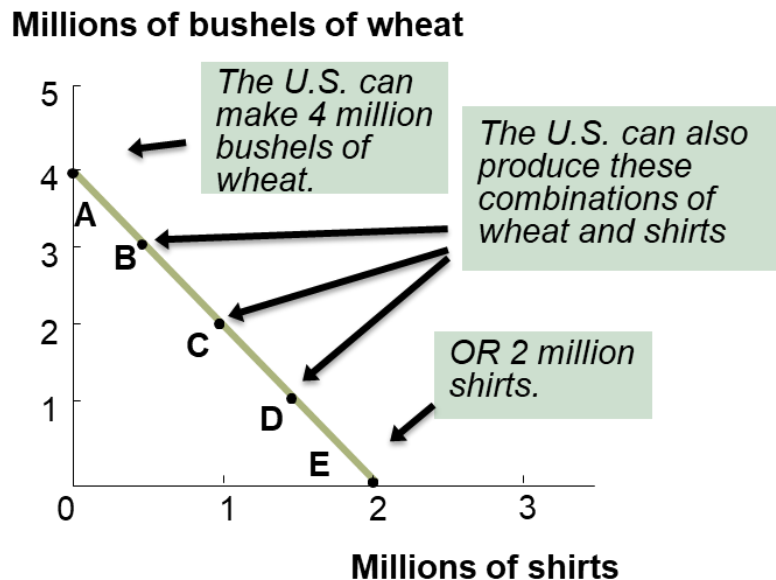
- People around the globe coordinate production activities to sell to consumers what they want.
- The global production is a natural outcome of people everywhere acting in their own self-interest to improve their own lives.
- Economists call this coordination mechanism the *invisible hand*.

Production possibility

- One way to understand the invisible hand is the **production possibility model**.
 - ❖ *Two groups: Producers and consumers.*
 - ❖ *Two goods being produced.*
 - ❖ *Each producer has their own production technology.*
 - Technology can be proprietary.

Production possibility frontier

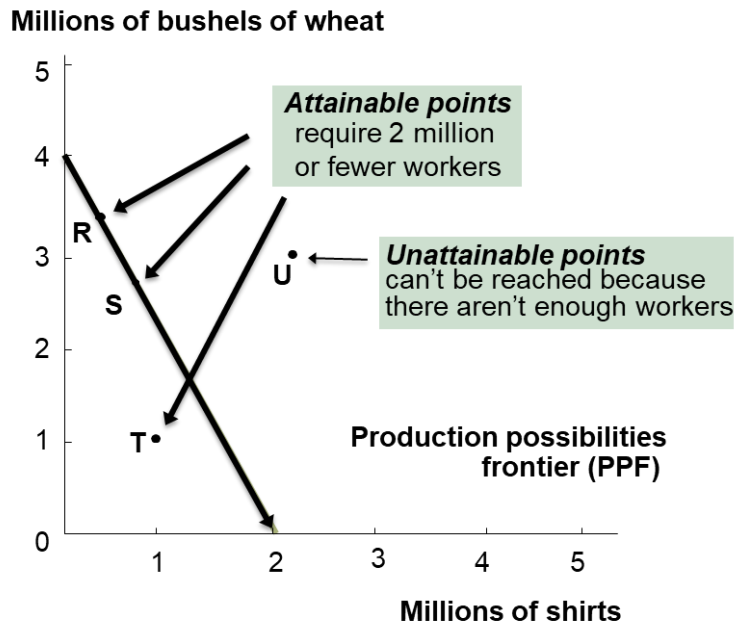
A country's production capabilities can be modeled using the *production possibilities frontier* (PPF).



Production Possibilities	Bushels of Wheat (millions)	Shirts (millions)
A	4	0
B	3	0.5
C	2	1.0
D	1	1.5
E	0	2.0

Production possibility frontier

The *production possibilities frontier* is the line or curve that shows all possible combinations of two outputs that can be produced using all available resources.



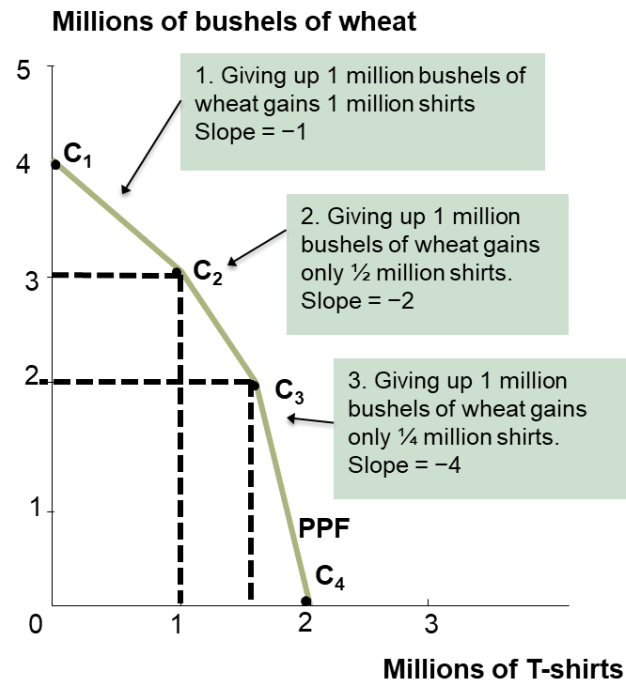
- The trade-off between producing more of one good and less of another is the *opportunity cost*.
- Equal to the slope of PPF, -2 .
- The opportunity cost of 1 shirt is 2 bushels of wheat.

Convex PPFs

- The previous PPFs assumed that all inputs are able to be transferred between production processes at a constant rate.
- It is likely that some inputs are better suited for making shirts, while others inputs are better suited for farming.
- What happens to the shape of the PPF if transferring inputs between production processes is costly?

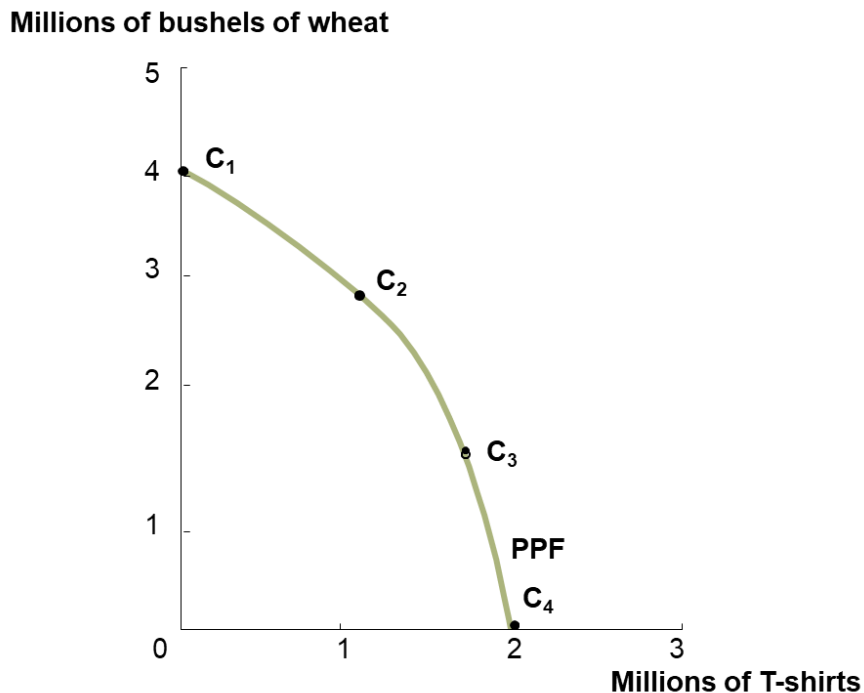
Convex PPFs II

The opportunity cost of producing an additional unit of a good typically increases as more resources are allocated to its production.



Convex PPFs III

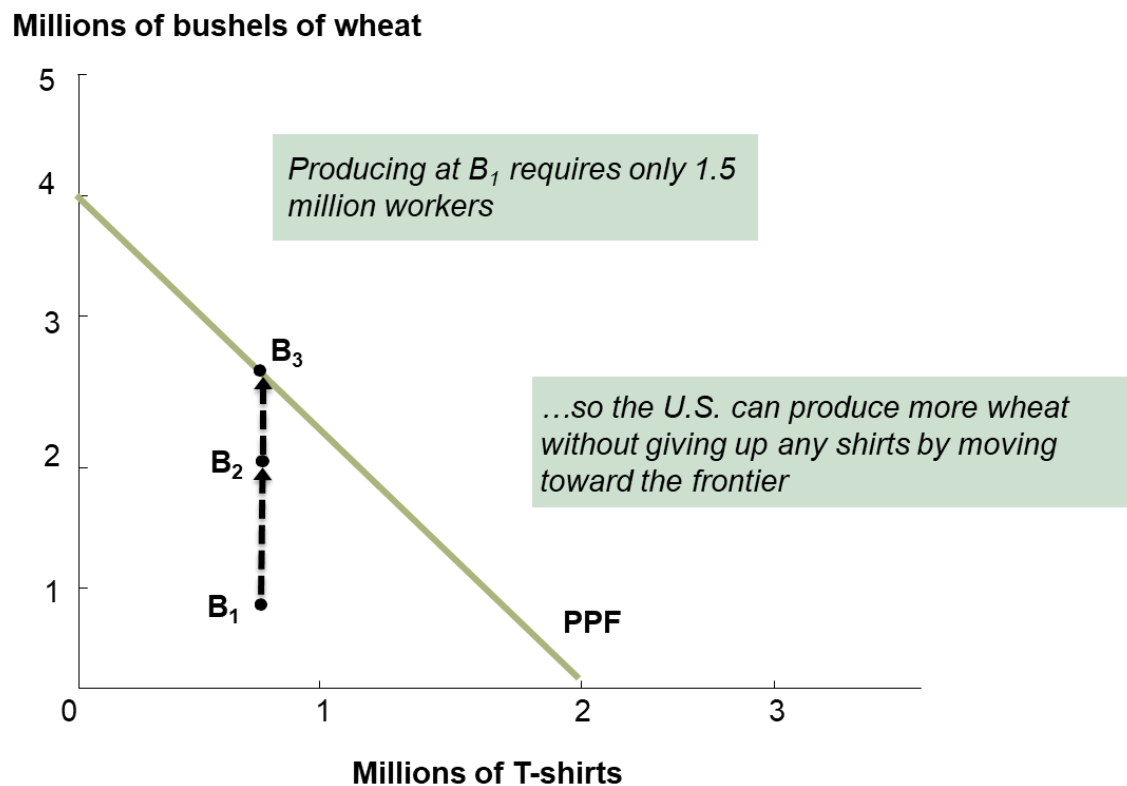
At each point of the curved production possibilities frontier, the slope represents the opportunity cost of producing more t-shirts.



- The opportunity cost represents the suitability of the next input that is transferred from one production process to the another.

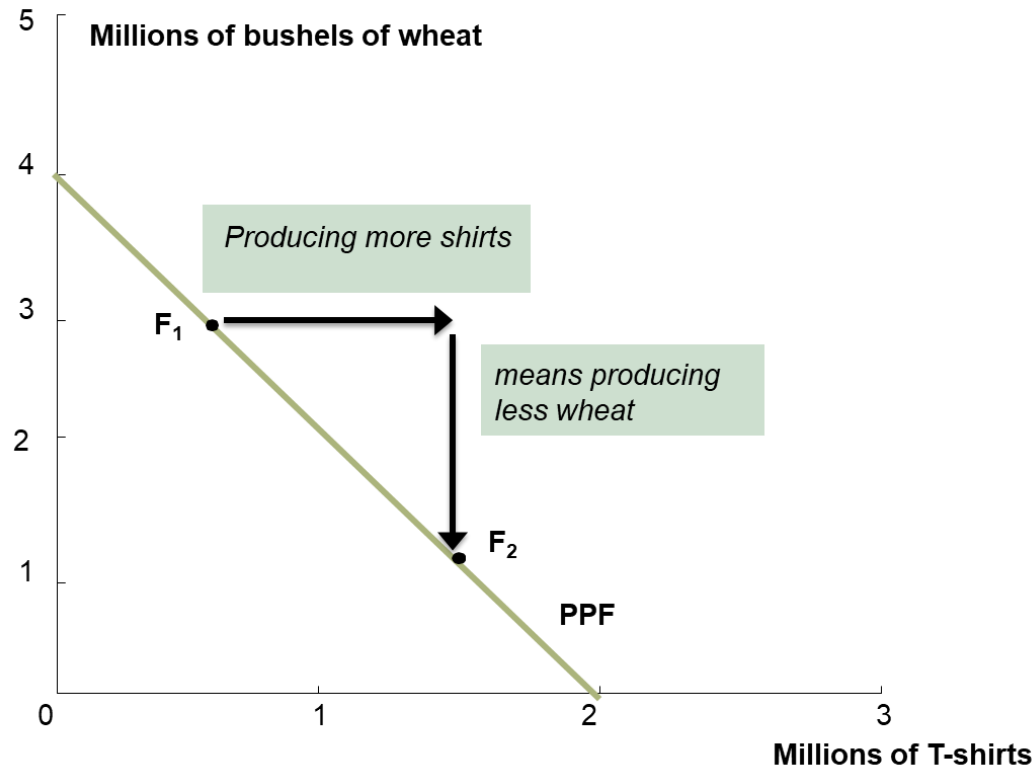
PPFs and opportunity cost

If the country is producing inside the PPF, producing more of one good does *not* require giving up some of the other good.



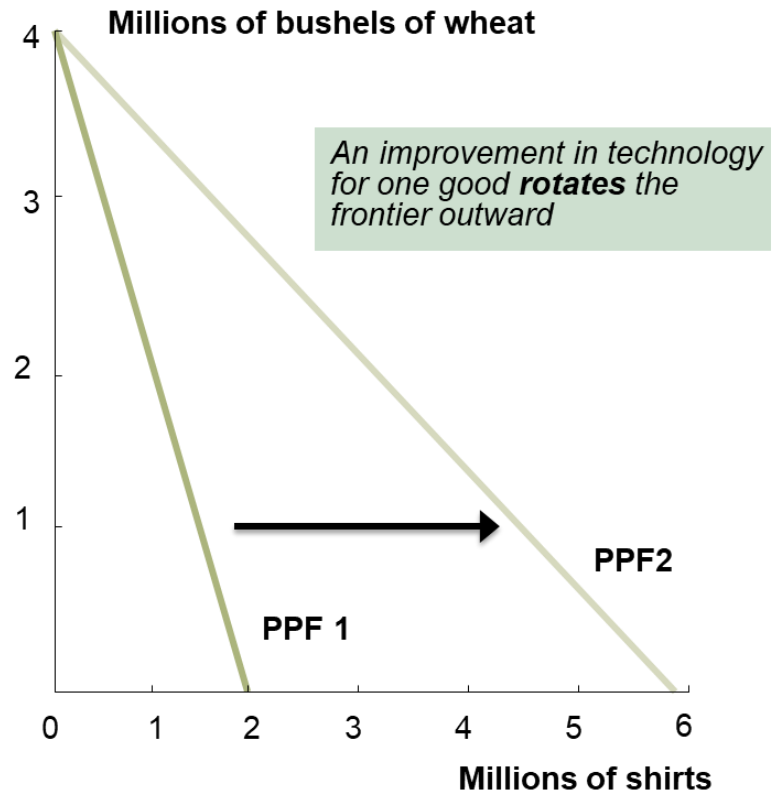
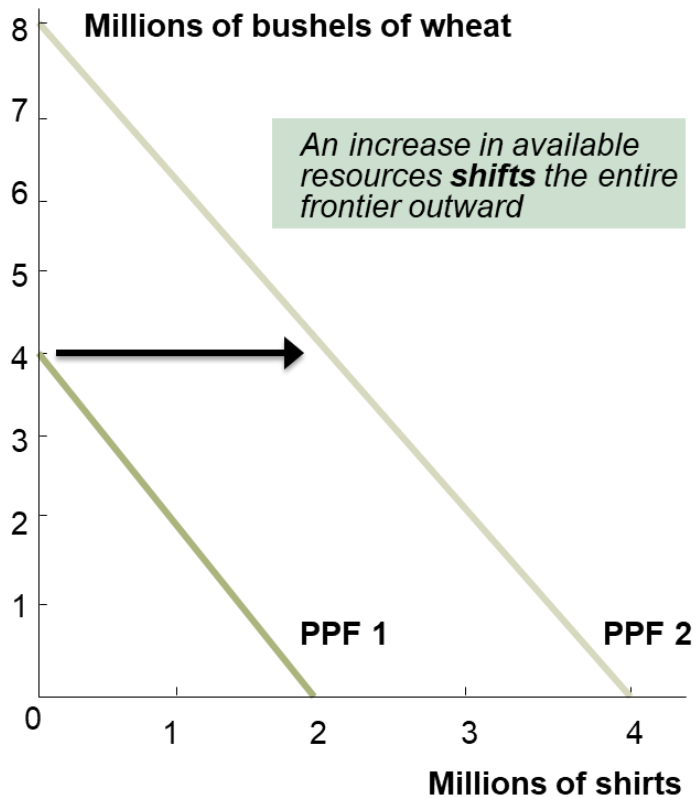
PPFs and opportunity cost II

If the country is producing on the PPF, producing more of one good requires giving up some of the other good.



Shifting the PPF

The PPF shifts when resources are adjusted.



Absolute and comparative advantage

- The PPF illustrates the key trade-offs faced by one economy.
- If there is no trade between economies, then what a country produces is what it consumes.
- Using the understanding of PPFs, the analysis can be extended to understand how countries decide what to produce.

Absolute and comparative advantage

- Suppose that an American worker can produce 50 shirts or 200 bushels of wheat per day. A Bangladeshi worker can produce only 25 shirts or 50 bushels of wheat.
 - The U.S. has an *absolute advantage* in shirt production since a U.S. worker can produce more shirts than a Bangladeshi worker.
 - The U.S. has an *absolute advantage* in wheat production since a U.S. worker can produce more wheat than a Bangladeshi worker.
- Absolute advantage does not aid in understanding how countries decide which goods to produce.
 - For every t-shirt produced, the country uses resources that could otherwise be spent growing wheat.
 - Trade is based on opportunity cost.

Absolute and comparative advantage

- To understand how each country decides which good to produce when they interact, the opportunity costs are calculated:
 - U.S.: 1 shirt costs 4 bushels of wheat.
 - Bangladesh: 1 shirt costs 2 bushels of wheat.
- Using the reciprocal of the above opportunity costs:
 - U.S.: 1 bu. of wheat costs $1/4$ shirt.
 - Bangladesh: 1 bu. of wheat costs $1/2$ shirt.

Absolute and comparative advantage

- A country has a *comparative advantage* in a good if it can produce it at a lower opportunity cost than other countries.
 - U.S. has a comparative advantage in wheat production over Bangladesh.
 - Bangladesh has a comparative advantage in shirt production over the U.S.
- No country has a comparative advantage in everything, and each country has a comparative advantage in producing something.

Example: Babe Ruth, star pitcher

- Babe Ruth was both the best pitcher and the best hitter on the NY Yankees 1920 team.
- From a practical point of view, Ruth couldn't do both.
- Babe Ruth had an *absolute advantage* in both activities.
- Babe Ruth had a *comparative advantage* in hitting, as the team would do relatively better when Ruth was hitting.

Why trade?

- Suppose the US has 150 M. workers and Bangladesh has 80 M.
- In isolation, each country produces and consumes on its own.
 - U.S. produces 1 B. shirts or 26 B. bushels of wheat.
 - Bangladesh produces 0.5 B. shirts and 3 B. bushels of wheat.
- If each country *specializes* by producing the good for which it has a comparative advantage, total production increases.

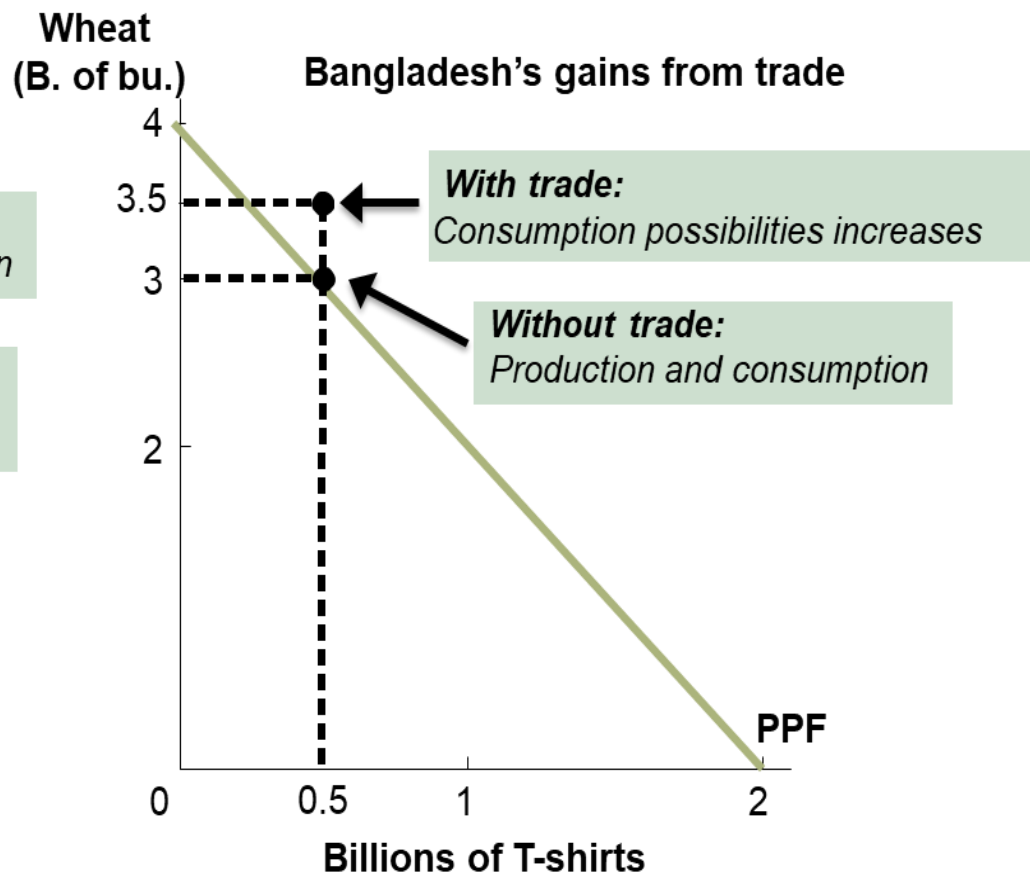
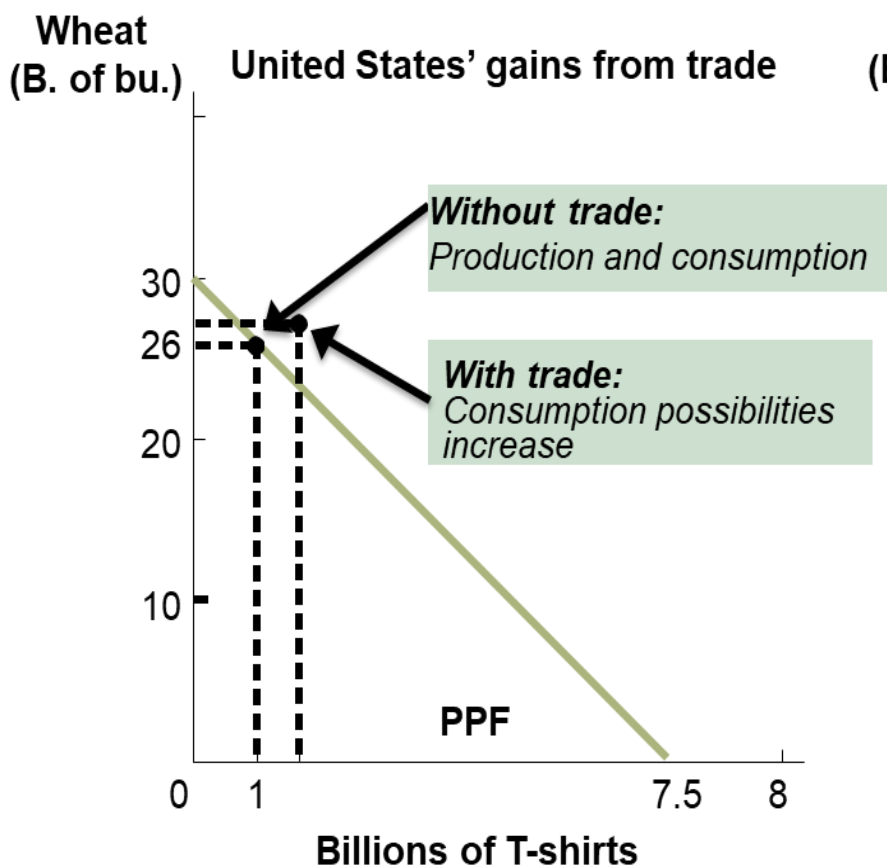
	Country	Wheat (billions of bushels)	T-shirts (billions)
Without specialization	United States	26	1
	Bangladesh	3	0.5
	Total	29	1.5
With specialization	United States	30	0
	Bangladesh	0	2
	Total	30	2

Specialization sauce

- McDonald's, Pizza Hut, Wendy's, and other fast-food chains serve food that's pretty fast and pretty cheap.
- The McDonald brothers were inspired by the way workers specialized on particular tasks when making cars on factory assembly lines.
- The McDonalds decided to use the same idea when running a restaurant.
- Assigning only one specific task to each worker increased food production and lower serving times.

Gains from trade

The improvement in outcomes that occurs when specialized producers exchange goods and services is called the *gains from trade*.



- With specialized production, consumption is outside of the PPF.

Winners and losers

- Trade can bring big gains to economies, but that doesn't mean that everyone wins.
- Specialization does cause gains to trade for all who engage in trade.
- Specialization away from non-comparative advantage activities displaces those workers.
- Government programs help workers cope with job losses, but they require that workers be flexible.

Comparative advantage: the good, the bad, and the ugly

- Most customer service lines for large U.S. companies is often outsourced to someone in India or the Philippines.
- The U.S. likely has an **absolute advantage** in customer service calls.
- Due to communication technology, the U.S. does not have a **comparative advantage** in customer service calls.
- The U.S. has not lost its competitive edge, rather its **comparative advantage** has shifted to other industries.

Summary

- How to construct a *production possibilities frontier*.
- What causes shifts in *production possibilities curves*.
- What are *absolute* and *comparative advantages*.
- Explain why people *specialize*.
- How the *gains from trade* follow from comparative advantage.

Summary

- *Specialization* and *trade* can make everyone better off.
- An economy is driven by individuals seeking to make a profit; people specialize so as to exploit their *comparative advantages*.
- This principle is as true for countries, like the United States and China, as it is for individuals picking their careers.

1) Productivity

What is Productivity ...

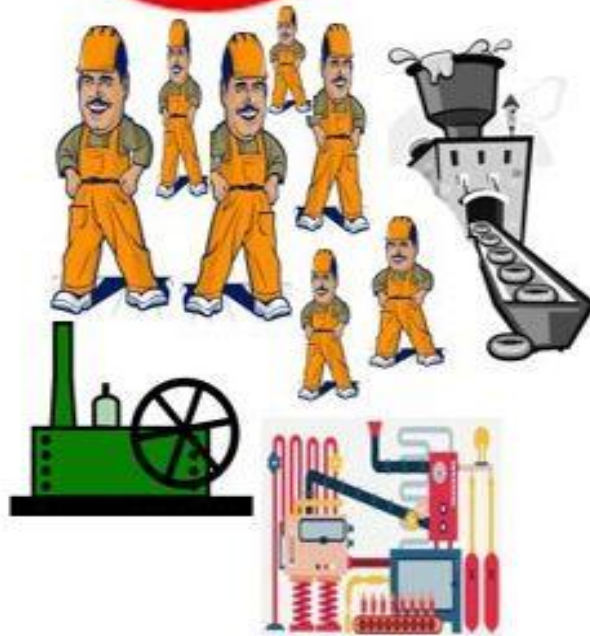
- ❑ Productivity, in economics, measures output per unit of input, such as labor, capital, or any other resource. It is often calculated for the economy as a ratio of gross domestic product (GDP) to hours worked.
- ❑ Labor productivity may be further broken down by sector to examine trends in labor growth, wage levels, and technological improvement. Corporate profits and shareholder returns are directly linked to productivity growth.
- ❑ At the corporate level, productivity is a measure of the efficiency of a company's production process, it is calculated by measuring the number of units produced relative to employee labor hours or by measuring a company's net sales relative to employee labor hours.

What is Productivity ...

- Productivity, in economics, measures output per unit of input.
- When productivity fails to grow significantly, it limits potential gains in wages, corporate profits, and living standards.
- The calculation for productivity is output by a company divided by the units used to generate that output.
- Auto giant Toyota and online marketplace king Amazon are prime examples of businesses with an impressive level of productivity.
- Productivity in the workplace refers simply to how much "work" is done over a specific period of time.

What is Productivity?

$$\text{Output} \div \text{Input} = \text{Productivity}$$



Per



Per Day



Productivity



Wages



Prices



Profits



Economic
growth



$$1. \text{ Productivity} = \frac{\text{output}}{\text{input}} = \frac{\uparrow}{\rightarrow}$$

$$2. \text{ Productivity} = \frac{\text{output}}{\text{input}} = \frac{\rightarrow}{\downarrow}$$

$$3. \text{ Productivity} = \frac{\text{output}}{\text{input}} = \frac{\uparrow}{\downarrow}$$

Fig. 1 – the 3 way in improving productivity

What is Productivity ...

The Office for National Statistics (UK) identifies five drivers that interact to underlie long-term productivity performance: investment, innovation, skills, enterprise and competition.

- **Investment is in physical capital** — machinery, equipment and buildings. The more capital workers have at their disposal, generally the better they are able to do their jobs, producing more and better-quality output.
- **Innovation is the successful exploitation of new ideas**. New ideas can take the form of new technologies, new products or new corporate structures and ways of working. Speeding up the diffusion of innovations can boost productivity.
- **Skills are defined as the quantity and quality of labour** of different types available in an economy. Skills complement physical capital and are needed to take advantage of investment in new technologies and organizational structures.
- **Enterprise** is defined as the seizing of new business opportunities by both start-ups and existing firms. New enterprises compete with existing firms through new ideas and technologies increasing competition. Entrepreneurs can combine factors of production and new technologies forcing existing firms to adapt or exit the market.
- **Competition** improves productivity by creating incentives to innovate and ensures that resources are allocated to the most efficient firms. It also forces existing firms to organize work more effectively through imitations of organizational structures and technology.

How to Calculate Productivity

- ✓ The calculation for productivity is straightforward: divide the outputs of a company by the inputs used to produce that output. The most regularly used input is labor hours, while the output can be measured in units produced or sales.
- ✓ For instance, if a factory produced 10,000 widgets last month while being billed for 5,000 hours worth of labor, productivity would simply be two widgets per hour ($10,000 / 5,000$).
- ✓ Sales can also be used as a measure of output. For that factory, let's say 10,000 widgets translates into \$1 million dollars in sales. One simply needs to divide the \$1 million figure by 5,000 labor hours in order to get the productivity number: \$200 in sales for each hour of labor.



Productivity

[,prō-dək-'ti-və-tē]

Measuring output per unit of input to gauge the efficiency of production.



Strategy to Improve Business Productivity and Quality

This slide is 100% editable. Adapt it to your needs and capture your audience's attention.



Factors for ... Productivity ...

Collaboration

- Ease of collaboration with colleagues
- Efficiency of application workflow
- Ease of communication with suppliers, partners, customers

Business Insight

- Ease of comprehensive reporting
- Real-time access to information
- Visibility across departments

Flexibility

- Agility in handling unexpected issues
- Ease of completing infrequent or unusual tasks
- System adaptability to business needs



Usability

- Ease of use
- User 'command' of application
- User enjoyment with software

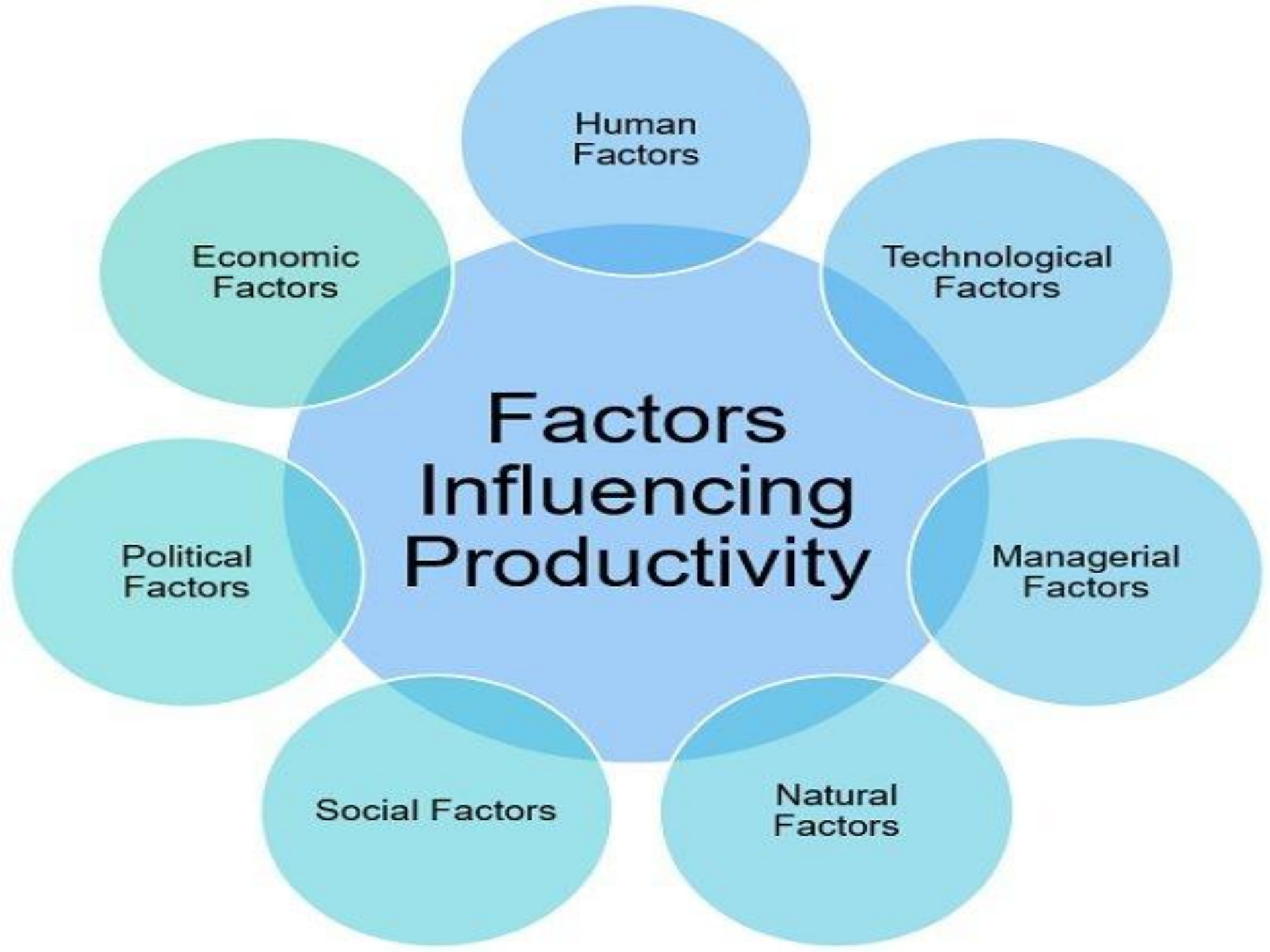
Familiarity

- Ease of learning
- Intuitiveness of system
- User comfort with application

Transactional Efficiency

- User effectiveness in executing repetitive tasks
- Efficiency of user interface
- Speed and reliability of system

Figure 1. Business Productivity Framework



The diagram consists of a central light blue circle containing the text 'Factors Influencing Productivity'. Surrounding this central circle are seven smaller circles, each containing a specific factor. The circles are arranged in a ring, with each outer circle overlapping the central circle. The factors are: Human Factors (top), Technological Factors (top-right), Managerial Factors (right), Natural Factors (bottom-right), Social Factors (bottom-left), Political Factors (left), and Economic Factors (top-left). The circles are colored in various shades of blue and teal.

Factors Influencing Productivity

Human
Factors

Technological
Factors

Managerial
Factors

Natural
Factors

Social Factors

Political
Factors

Economic
Factors

7 Most Common Causes of Low Productivity



12 IDEAS TO INCREASE PRODUCTIVITY



1 CHOOSE THE RIGHT TIME 

Nearly everyone has times of the day when they are most effective and times when they tend to drag. It's smart to schedule the most critical tasks for your most effective time of the day.

6 BATCH SIMILAR TASKS TOGETHER 

Do all your emailing at one time. Make all your phone calls at another. Open your snail mail during a set block of time. You'll waste less time by doing your work in this fashion.

7 SET A TIMER 

Even if a task might take hours, starting will seem easier if you simply give yourself 30 minutes to get as much done as you can. A time limit seems to help many people concentrate and work better, too.

2 TOSS IT 

If a task doesn't really need to be done, just get rid of it altogether.

8 SET TARGETS 

For example, if you have to make cold-calls for your sales job, tell yourself that you're not getting up for any reason until you've made at least 100 calls. Regardless of what happens, refuse to stop until you hit your target.

3 GET THE BAD STUFF OUT OF THE WAY 

Do the unpleasant items quickly and as early in the day as possible.

4 SET A GOAL EACH DAY (OR NIGHT) 

In the morning, decide what you want to accomplish that day. This can be even more effective when planned the night before. Once you have a sense of direction, you can spend all your time getting things done!

9 USE THE PARETO PRINCIPLE 

This principle states that 20% of the actions you could take will provide you with 80% of the benefits. So focus on the tasks that will accomplish the most. Unfortunately, these are frequently the tasks that are not enjoyable. You might be surprised how little you really have to do if you focus on the critical 20%.

5 ELIMINATE ALL COMMUNICATION 

While you're working, turn off the phone / cell phone, and don't check your email. Hang a sign that says, "Do not disturb," if necessary. You don't have to do this for all your tasks, but at least do it during the more difficult items.

10 DELEGATE SOME OF YOUR WORK 

Is there anyone else who can help you? The people around you are resources. When appropriate, use their time and talents wisely to get things done more quickly.

12 INCREASE YOUR SPEED 

It sounds silly, but this can really help. Try doing everything a little faster. Walk faster, talk faster, type faster, and read faster.

11 SET A DEADLINE 

Having a specific endpoint will really help to focus your time and energy. If a task doesn't feel necessary, chances are that it won't get done.



The #1 factor for productivity is having clear expectations and goals



Snapshot of Productivity in Ireland 2021



Employment

Foreign
624,914
Domestic
1,764,315
Total
2,389,229

Emissions Per Employee

EU Average
13.7 KtCO₂e*
Ireland
22.8 KtCO₂e

*kilotonnes of carbon
dioxide equivalent



Gross Value Added per Employee

Foreign
€399,811
Domestic
€78,086
Total
€162,235



Capital Assets Per Employee

Foreign
€1,300,000
Domestic
€345,000
Total
€469,000



Labour Share

Foreign
9%
Domestic
50%
Total
29%

THE DEATH OF PRODUCTIVITY

Failing to Adapt

2.5 Years

is the skills life to the rapid pace of the change in technology²

Productivity growth (non-farm business sector)



Not up to Pace

200 Million

adults in the US are part of the digital workforce



1 out of 10 rate themselves as proficient with the digital tools they use¹

Killing Productivity

\$1.3 Trillion

estimated in loss to the US economy due to the digital skills gap per year



How Declines in Productivity Cost the U.S. \$1.3 Trillion a Year

Cost of the Crisis



of time is wasted due to inadequate digital skills³

\$10 Million

is the annual loss in compensation alone for a firm with 1,000⁴ employees



*One unit is 100 employees

Solution

Digital Skills Essential for the 21st Century Workforce



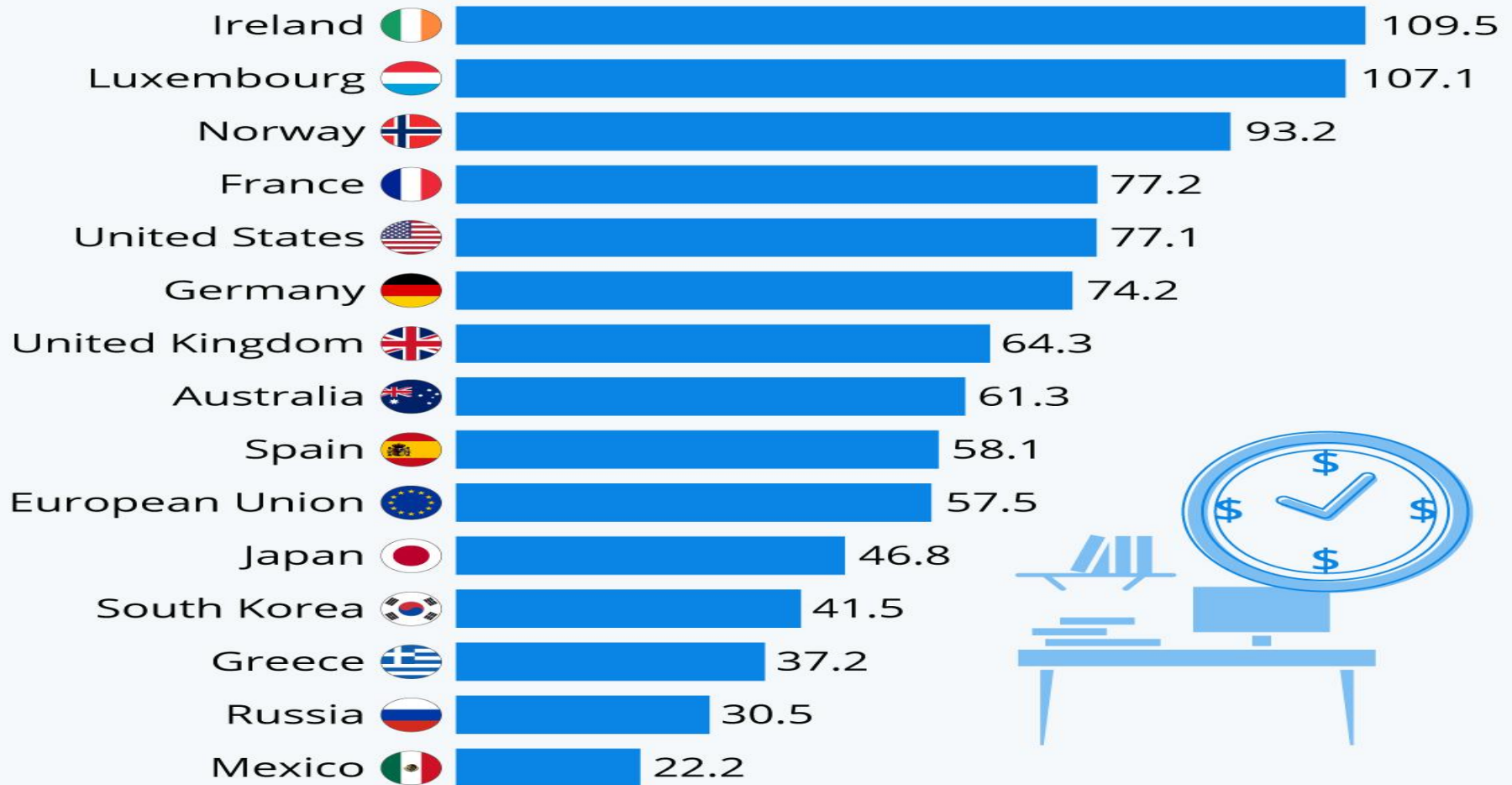
5 Steps

Digital Skills Essential for the 21st Century Workforce



How Productive is an Hour of Work?

GDP per hour worked in selected countries in 2019* (in USD)



* At current prices and purchasing power parity.

Source: OECD

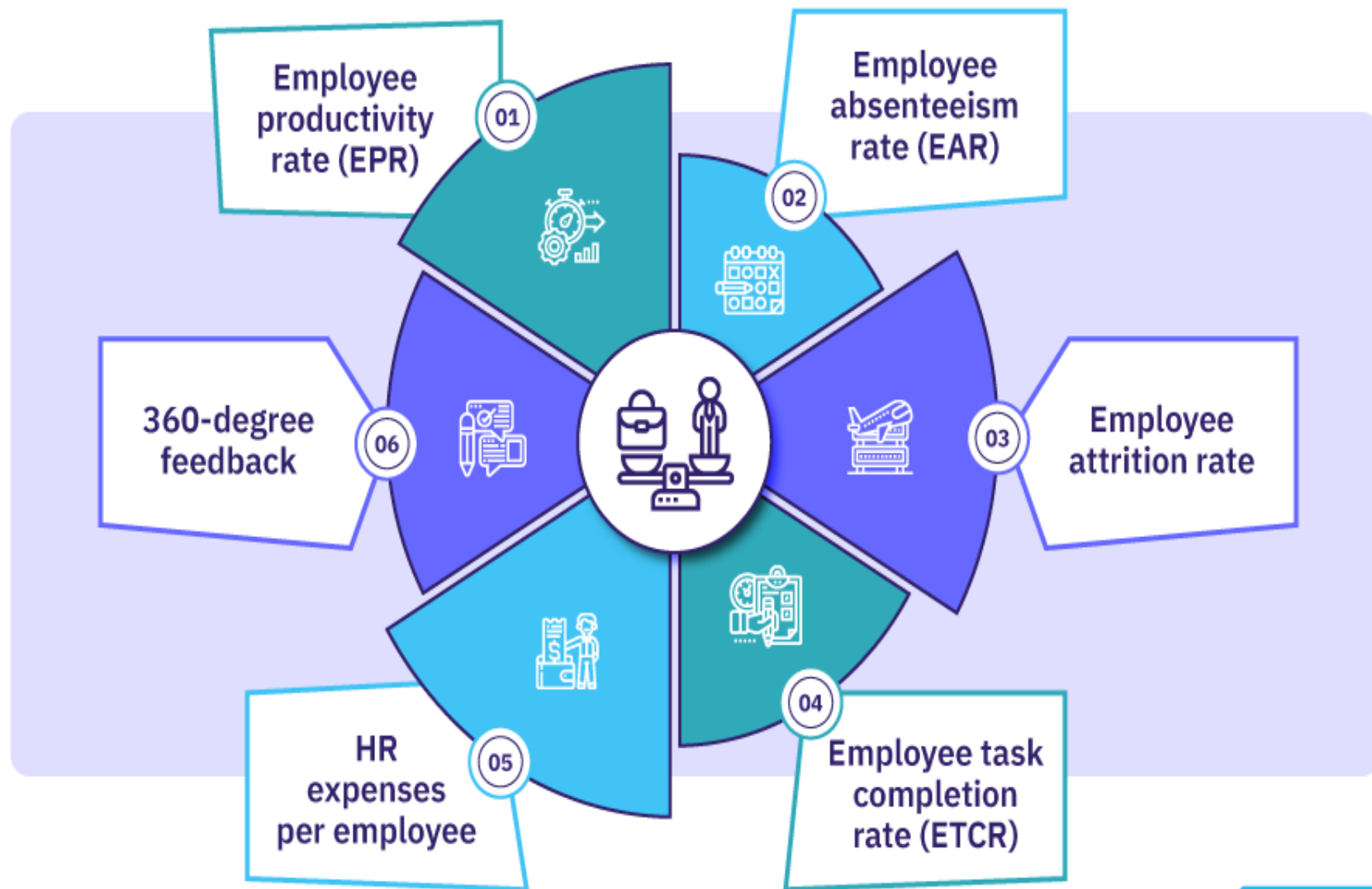


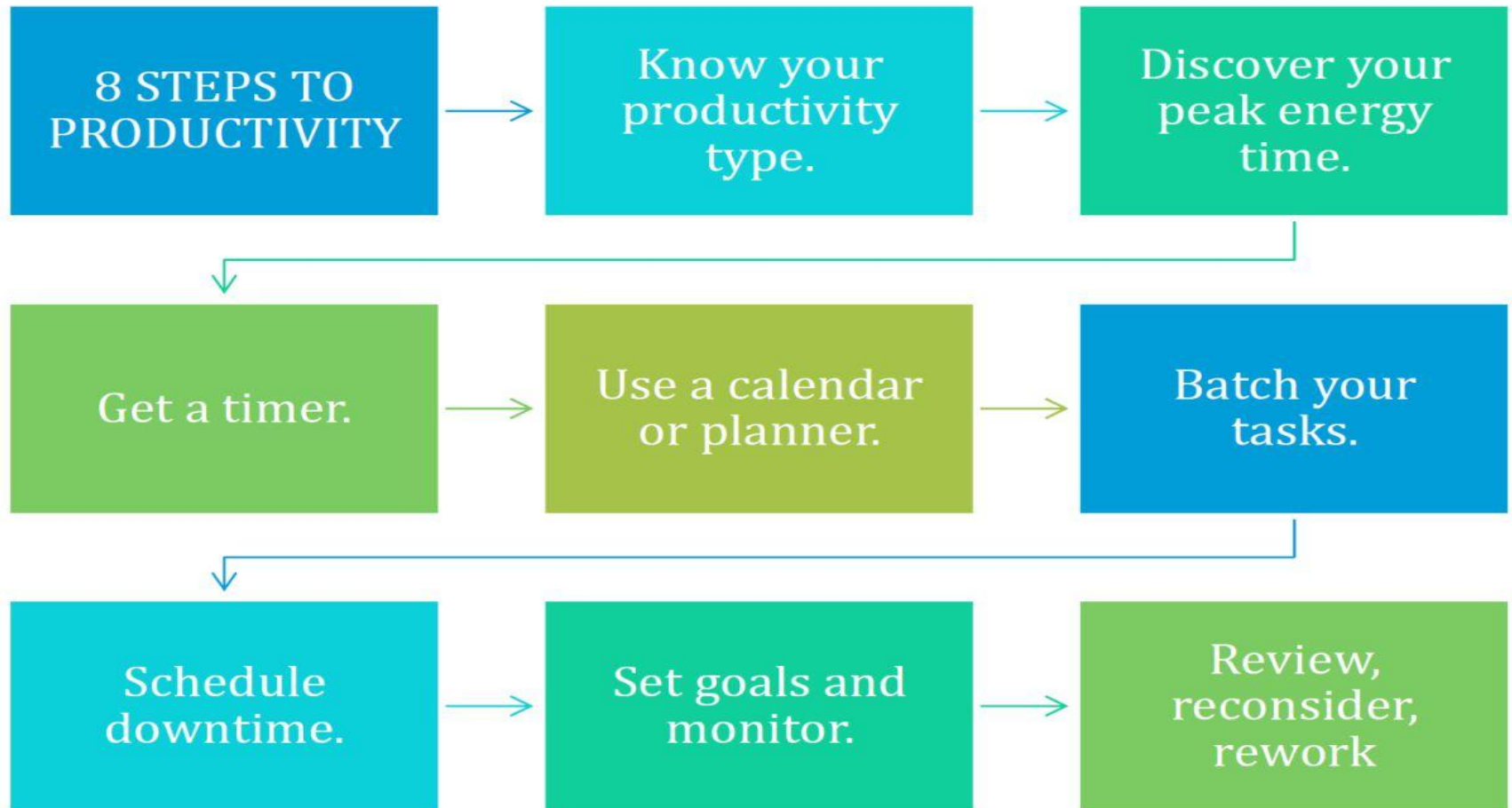
Labour productivity, 2019

GDP per hour worked, total economy,
US dollars, current prices and current PPPs



Employee Productivity Metrics To Track





Productivity and Time Management

If productivity had continued to grow at 2% per year in the last decade, it would have meant an extra **£5,000** per worker per year on average



Productivity Measurement Models

Craig and Harris Model

Points out Inadequacy of partial productivity measure.

"Service Flow Model"

$$\text{Total Productivity, } P = \frac{O}{L+C+R+Q}$$

Where,

- **P = Total Productivity**
- **L = Labor Input Factor**
- **C = Capital Input Factor**
- **R = Raw Materials and Purchased Parts**
- **Q = Other Misc. Goods and Services**



Taylor-Davis Model

They defined a Total Factor Productivity (TFP) model

$$\text{Total Factor Productivity, TFP} = \frac{S+C+MP-E}{(W+B)+[(KW+KF) Fb \cdot df]}$$

Where,

- **S = Net sales adjusted (deflated to base year)**
- **C = Inventory change (Raw mat, Finished goods, WIP)**
- **MP = Manufacturing plant (Unsaleable products)**
- **E = Exclusions (Materials and Services purchased from outside + Depreciation of buildings + Plant + Equipment + Rentals)**
- **W = Wages and Salary**
- **B = Benefits**
- **KW = Working Capital**
- **KF = Fixed Capital**
- **Fb = % of Investors Contribution**
- **df = Price Deflator**



APC Model

American Productivity Centre (APC) developed this model to distinguish between **profitability**, **price recovery** and **productivity**.

$$\text{Profitability} = \frac{\text{Revenue}}{\text{Cost}}$$

$$= \frac{\text{Output Quantities} \times \text{Sales Price}}{\text{Input Quantities} \times \text{Unit Cost}}$$

$$= \frac{\text{Output Quantities}}{\text{Input Quantities}} \times \frac{\text{Sales Price}}{\text{Unit Cost}}$$

$$\text{Profitability} = \text{Productivity} \times \text{Price Recovery}$$



Continuous Improvement

Operational Excellence and the
High-Performance Organization

Corporate
Vision

Acceleration of Corporate Vision

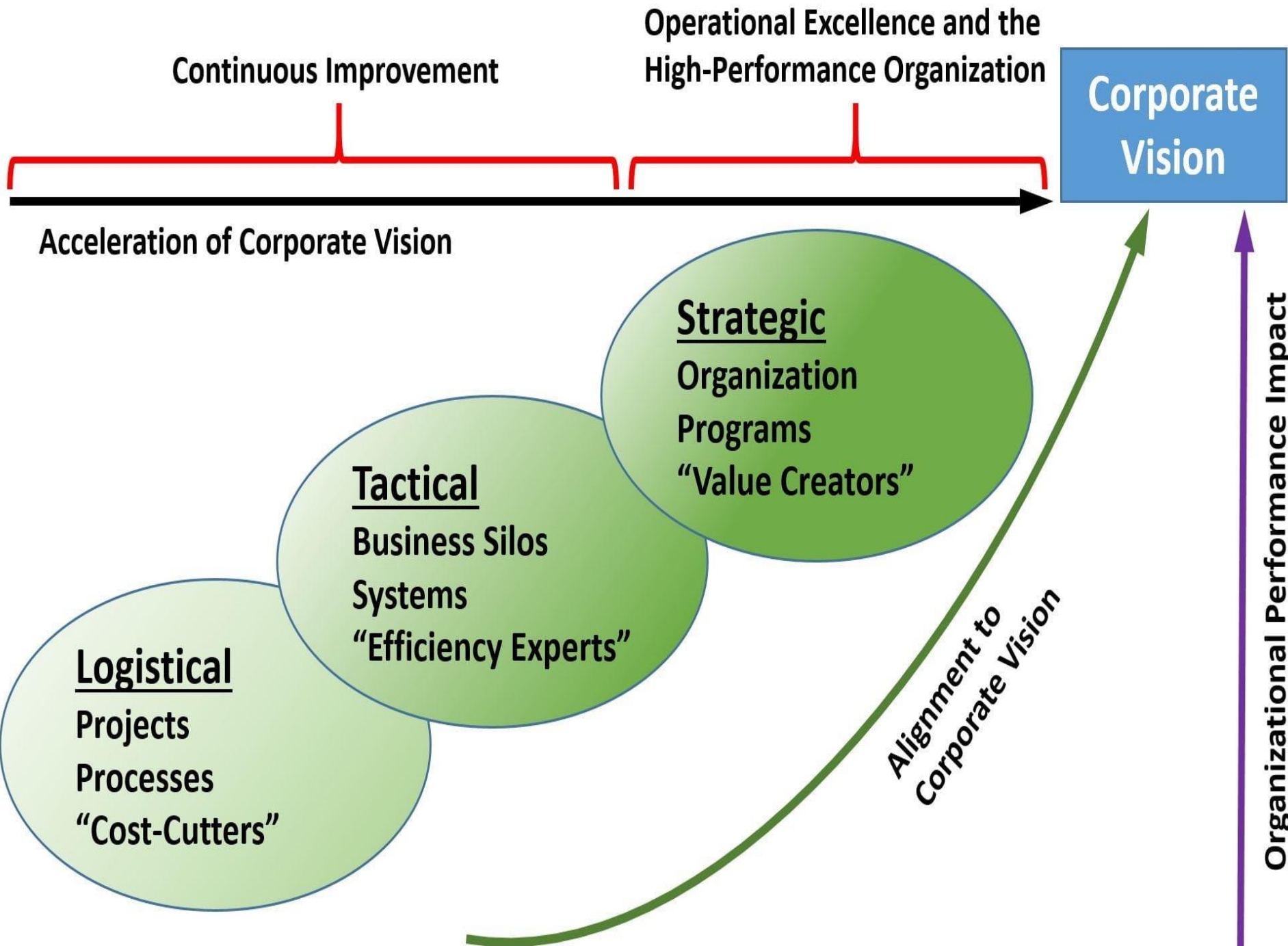
Strategic
Organization
Programs
“Value Creators”

Tactical
Business Silos
Systems
“Efficiency Experts”

Logistical
Projects
Processes
“Cost-Cutters”

Alignment to
Corporate Vision

Organizational Performance Impact



“

Productivity isn't about being a workhorse. Keeping busy or burning the midnight oil... It's more about priorities, planning, and fiercely protecting your time.

GARY KELLER

GRACIOUSVOTES.COM

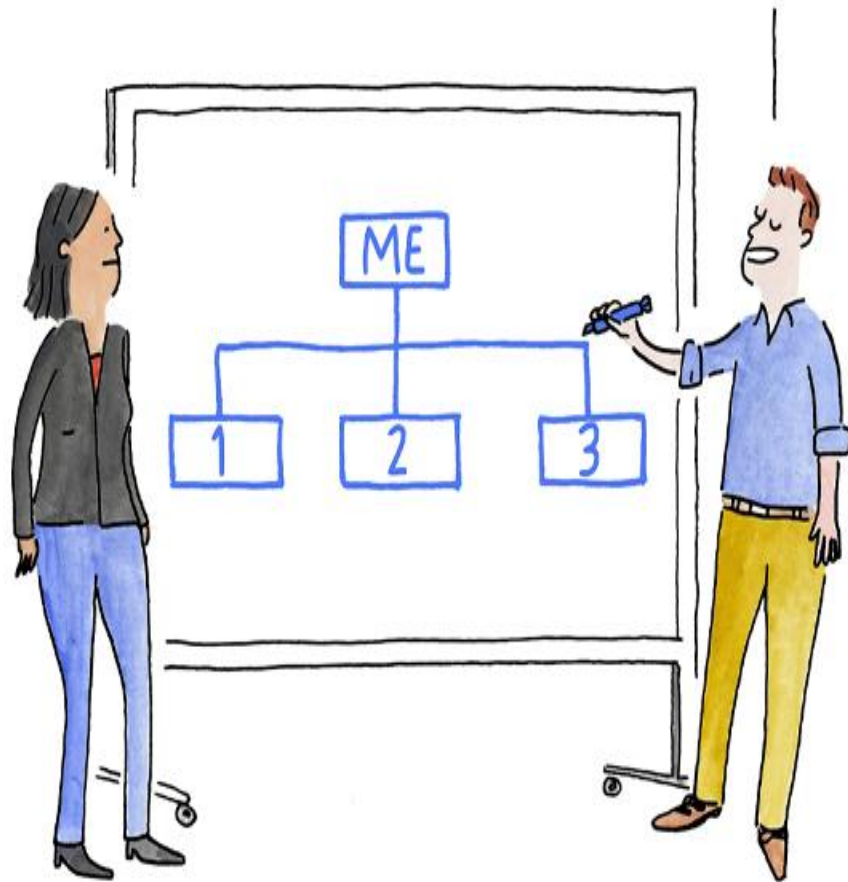
“

I think of productivity as using your time to accomplish things of value to you and others.

ADAM GRANT

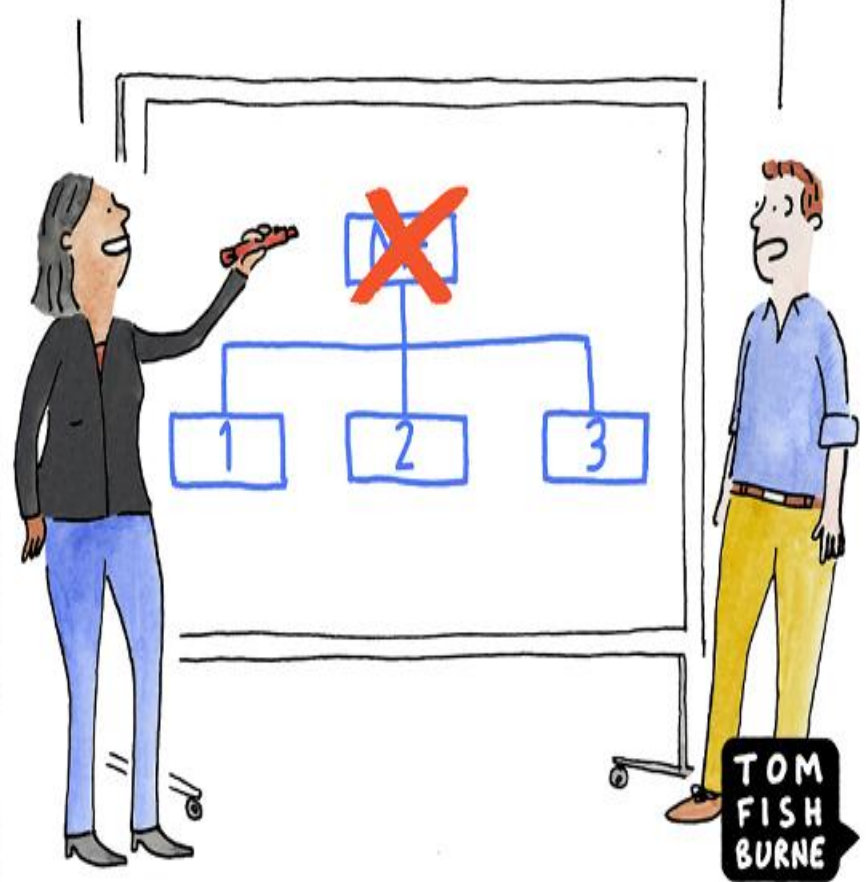
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IMAGINE THE PRODUCTIVITY
SAVINGS WITH AI! WE COULD
SHRINK MY WHOLE TEAM
TO JUST THREE PROMPT
ENGINEERS REPORTING TO ME.



THAT'S
A GOOD
START.

WAIT,
WHAT?



TOM
FISH
BURNE

**“PRODUCTIVITY IS NEVER AN ACCIDENT.
IT IS ALWAYS THE RESULT OF A
COMMITMENT TO EXCELLENCE, INTELLIGENT
PLANNING, AND FOCUSED EFFORT.”**

PAUL J. MEYER

PRODUCTIVITY VS EFFICIENCY



PRODUCTIVITY

EFFICIENCY

To achieve great levels of performance, is it better to be productive or efficient?

WHICH ONE TO CHOOSE?

Let's start by pointing out that each notion has its own implications, which aren't necessarily positive. As a result, you must ask yourself which one is best appropriate for your needs. But first and foremost, you surely should start by learning how to differentiate the two concepts, right?

WHAT IS PRODUCTIVITY?

The first thing you need to know about productivity is that **it's a subjective concept**. Normally, it is always related to an estimate of how much work an individual, or group of people, can deliver. However, there are variations of metrics between businesses and segments. **It is usually measured for the finalized product or jobs performed at a certain time.**



WHAT IS EFFICIENCY?

Unlike productivity, it's possible to define efficiency with **better objectivity**. Efficiency is the equation between the final result and the resource invested. Resources, however, can vary in time, money, or other components. Furthermore, efficiency is something that we estimate in terms of comparison. For example, **we assess efficiency by comparing the initial to the final stages of a work.**

Let's put it this way:

The production of 10 architectural design projects per day may seem excellent in terms of productivity, but it's inefficient if half of them aren't consistent with the client's requirements.

SO WHICH IS THE BEST APPROACH?

Should you measure your performance in terms of productivity or efficiency? **The answer is pretty simple: on both**, with flexibility. Neither can be entirely ignored and you can't build your business 100% on only one performance metric.

You can use productivity indicators - such as a timesheet, for example - to calculate people's performance while you can use efficiency indicators to calculate the ROI (return on investment) of a tool.



HOW TO MAKE THE MOST OF THESE TWO NOTIONS?

Any company's goal to obtain profit and credibility is to optimize both productivity and efficiency, which means producing as many products as they can while maintaining high-quality standards and using the smallest number of features possible. If that's also your goal, **there are a few interesting ways to achieve it:**

TIME
TRACKING

TASK
ORGANIZING

PROJECT PLANNING
AND VISUALIZATION

BUDGET
MONITORING

2) Efficiency



Efficiency

[i-'fi-shən-sē]

Using the least amount of inputs to achieve the highest amount of output.

EFFICIENCY



Speed



Quality



Costs



Efficiency

Analyze Employee Processes

Promote a Culture of Open Communication

Get a Technology Update



Implement Smart Mobile Devices

Set Achievable Goals

Embrace Feedback

Consult Ergonomic Standards

Streamline Social Media Marketing Efforts

Efficiency Formula (Manufacturing Sector)

$$\text{Efficiency} = \frac{\text{Total minutes produced} \times 100}{\text{Total hours worked} \times 60}$$

$$\text{Efficiency} = \frac{\text{Produced quantity} \times 100}{\text{Production target quantity}}$$



Economic Efficiency

Types

**Allocative
Efficiency**

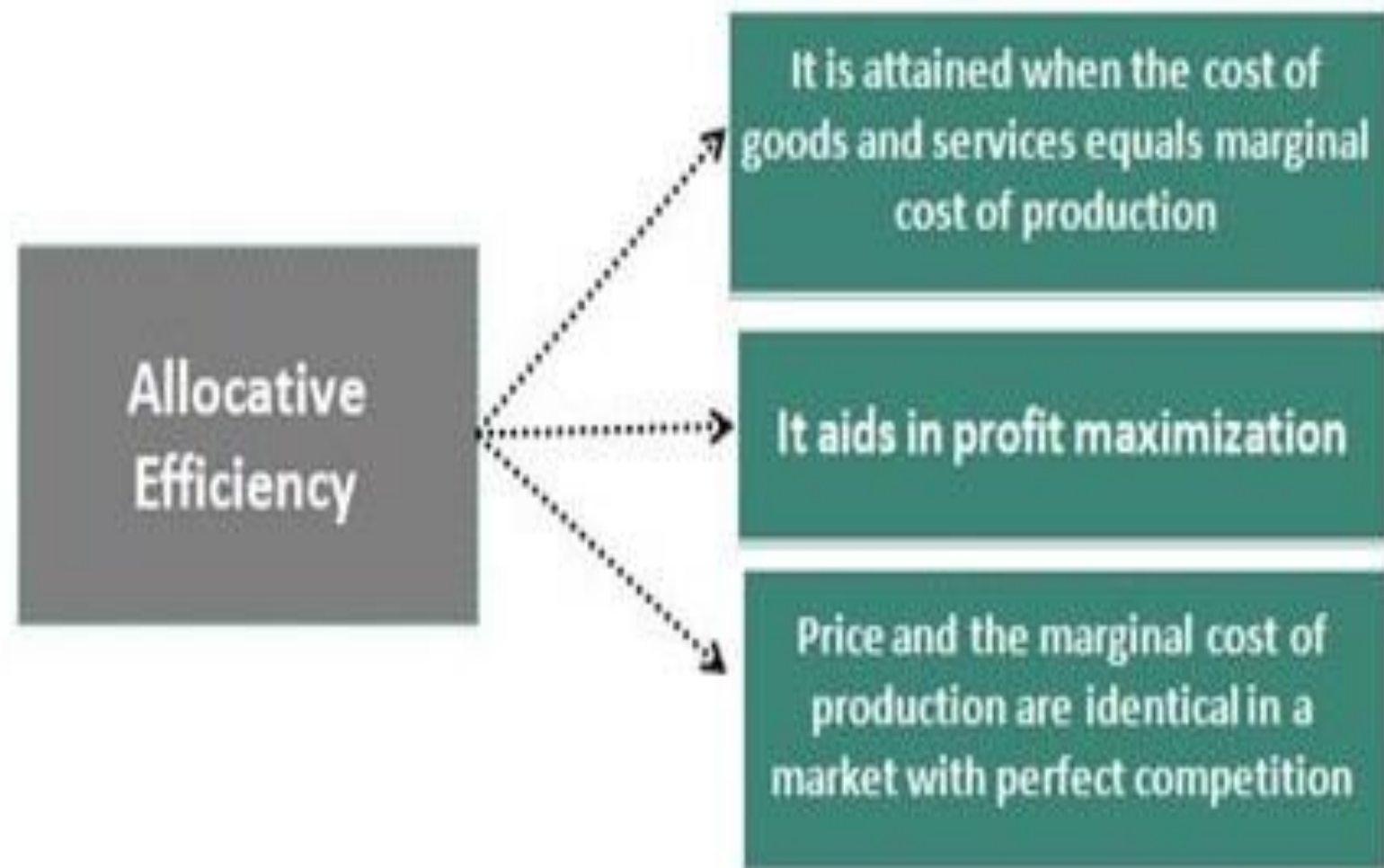
**Productive
Efficiency**

**Dynamic
Efficiency**

**Pareto
Efficiency**

**Other
Efficiencies**

Allocative Efficiency

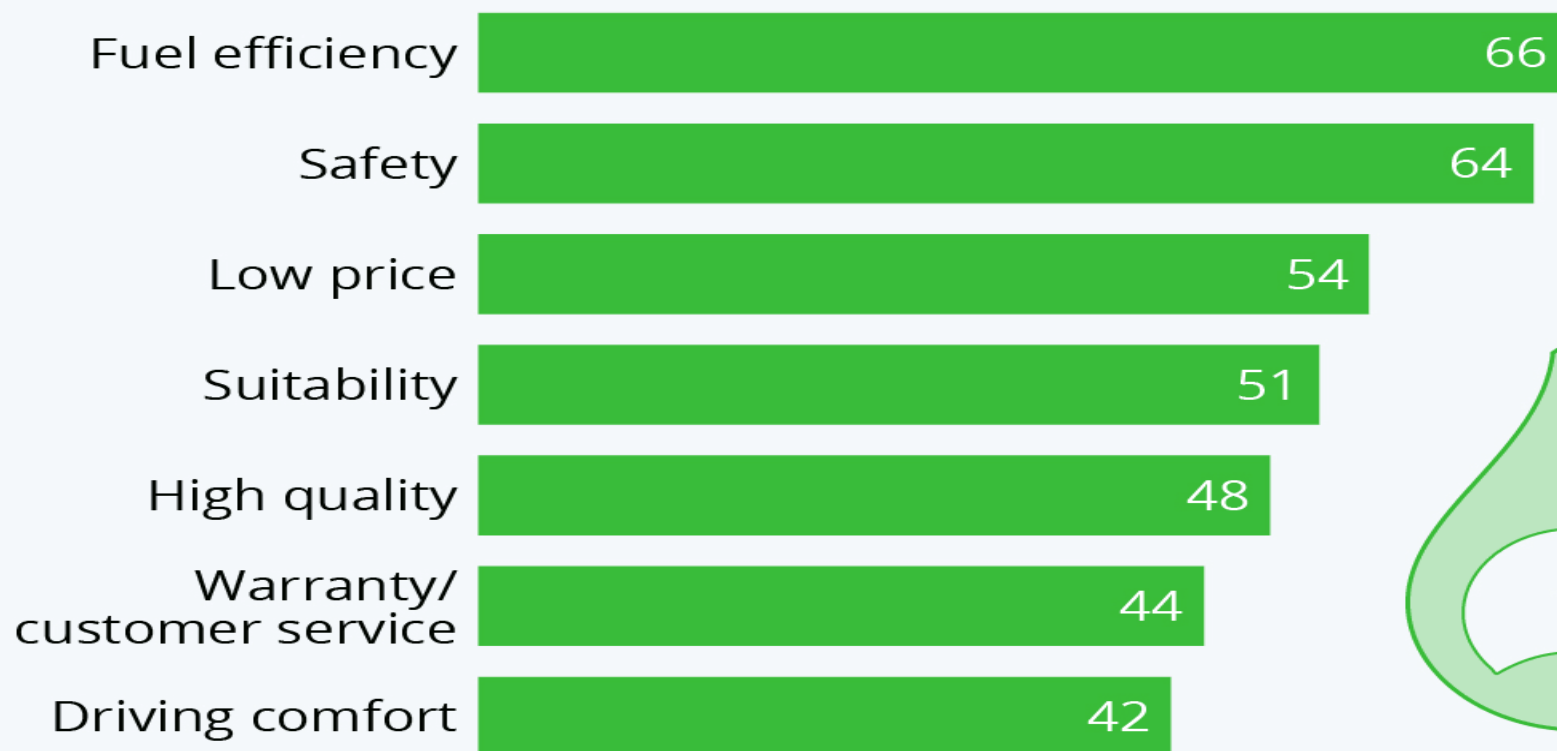


Key Concepts – Economic Efficiency

Allocative efficiency	Producing what is demanded by consumers at a price that reflect the marginal cost of supply
Dynamic efficiency	Changes in the choice available in a market together with the quality/performance of products that we buy.
Pareto optimality	Where it is not possible for individuals, households, or firms to bargain or trade in such a way that everyone is at least as well off as they were before and at least one person is better off
Productive efficiency	Producing an output at the lowest feasible average cost. This is at an output where $AC=MC$
X-inefficiency	A lack of real competition may give a monopolist less of an incentive to invest in new ideas or consider consumer welfare

Fuel Efficiency Top Priority for New Car Owners

Percentage of U.S. adults who said they prefer each characteristic when buying a new car



Source: Statista Global Consumer Survey, 2020 Update 2

efficacy

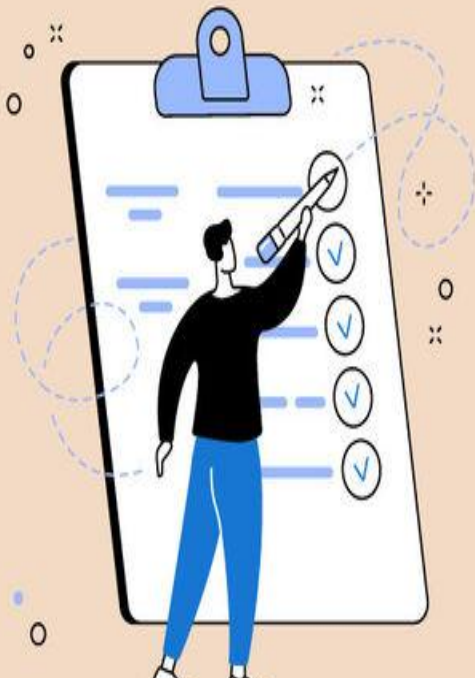
vs

efficiency

vs

effectiveness

I can do
it right.



I can do it
quickly and
economically.



I can do
it well.



Effective

refers to something that produces the desired results, achieves its intended purpose, or has a significant impact.

Example

The medication proved to be effective in treating the symptoms of the illness.



Efficient

pertains to achieving maximum productivity with minimal waste of time, effort, or resources.

Example

The efficient use of energy-saving appliances reduced electricity consumption in the household.



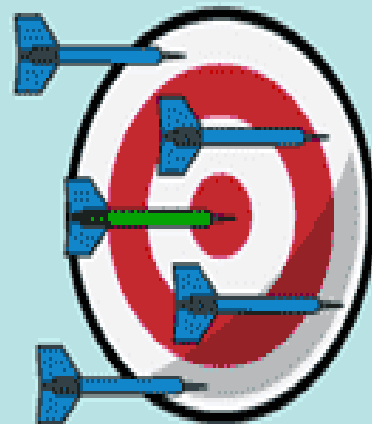
EFFICIENCY vs EFFECTIVENESS

Efficiency vs Effectiveness Explained with Examples

FREE
TUTORIAL

BEING EFFICIENT

5 attempts

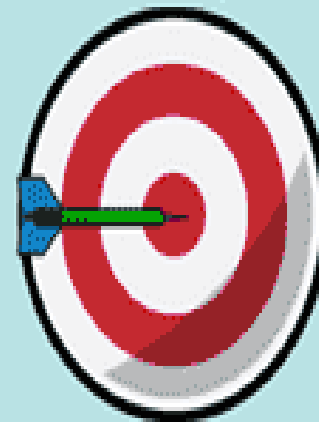


VS

nikunjboraniya.com

BEING EFFECTIVE

5 attempts



Thank You

Sources

- 1) Copyright © 2021-2026 Visual Capitalist, All rights reserved.
- 2) Wikipedia
- 3) References at Slides

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