

Growth, Financial Markets, and Regulation: We Need a New Drug

Kevin R. James
Systemic Risk Centre
London School of Economics
k.james1@lse.ac.uk

20 January 2022

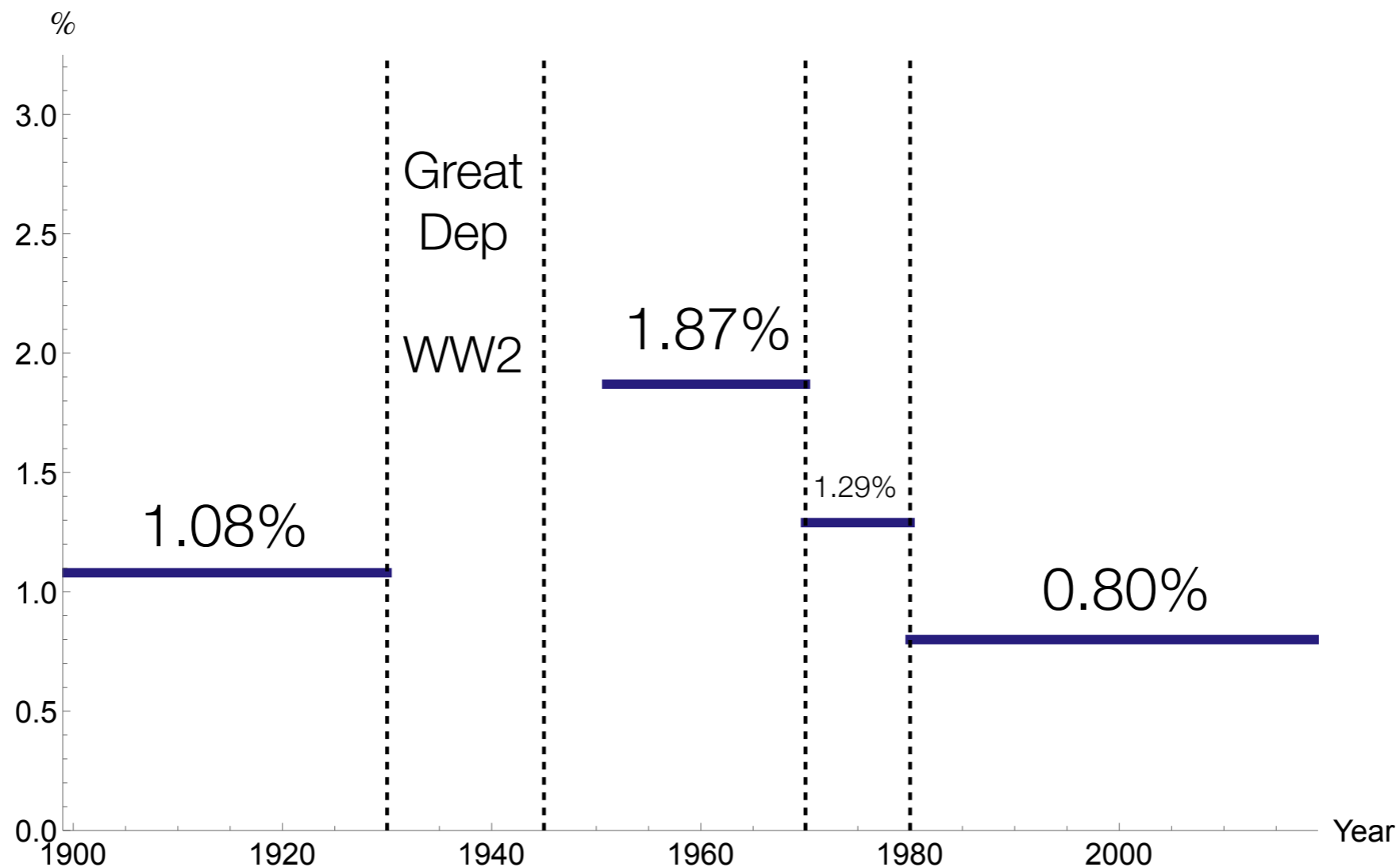
This presentation is based upon “Ideas, Idea Processing, and US TFP Growth: 1899 – 2019”, by Kevin R. James (LSE), Akshay Kotak (LSE), and Dimitri P. Tsomocos (Oxford)

Overview

The Evolution of TFP Growth in the US: 1899 — 2019

- Total Factor Productivity (TFP) growth in the US plummeted in the 1970s and has stayed low, with devastating economic consequences

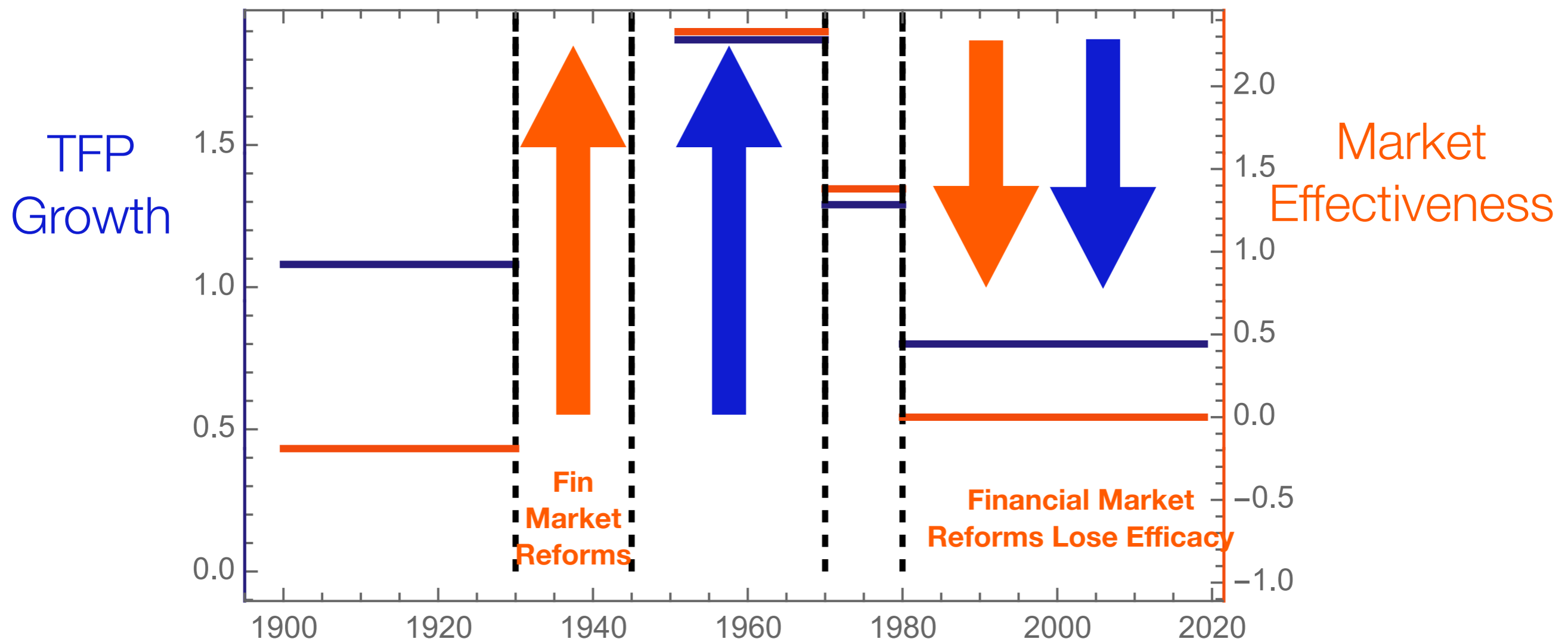
Average TFP Growth



Why this pattern?

- Financial market effectiveness drives TFP growth, and the quality of financial market regulation drives market effectiveness.

TFP Growth and Market Effectiveness

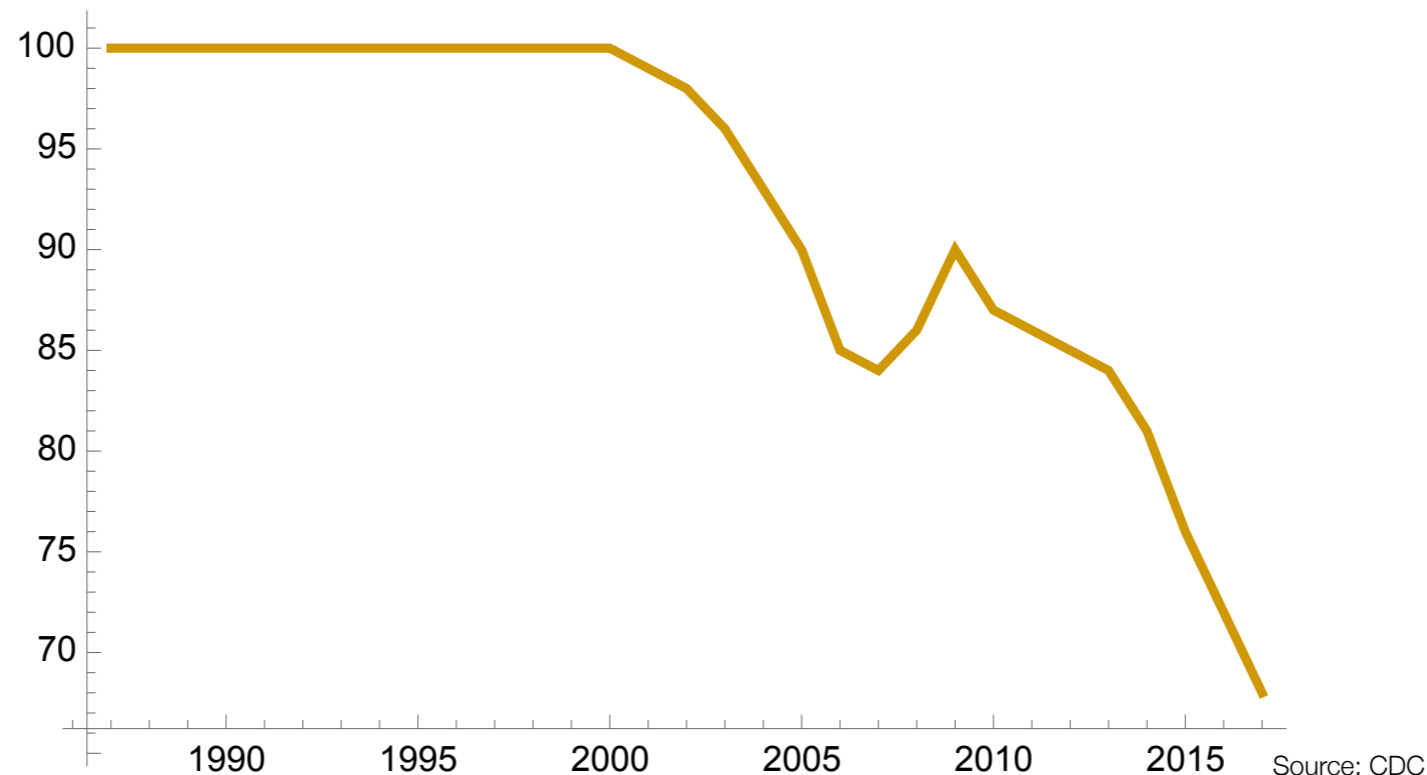


Why this pattern?

- The glorious 1930s/1940s financial market reforms massively boosted US market effectiveness and so created the foundation for the highly innovative Peak period of 1951/1970;
- The regulatory framework did not keep up with the markets and/or firms found ways around the rules...
- ...So the efficacy of the reforms declined to the point where market effectiveness now is about the same as it was in the unregulated PreWar period;
 - Firms still follow the rules, the rules just do not have the same beneficial effect that they had in the past;

Solution: We Need a New Drug

Effectiveness of Ciprofloxacin Against Gonorrhea



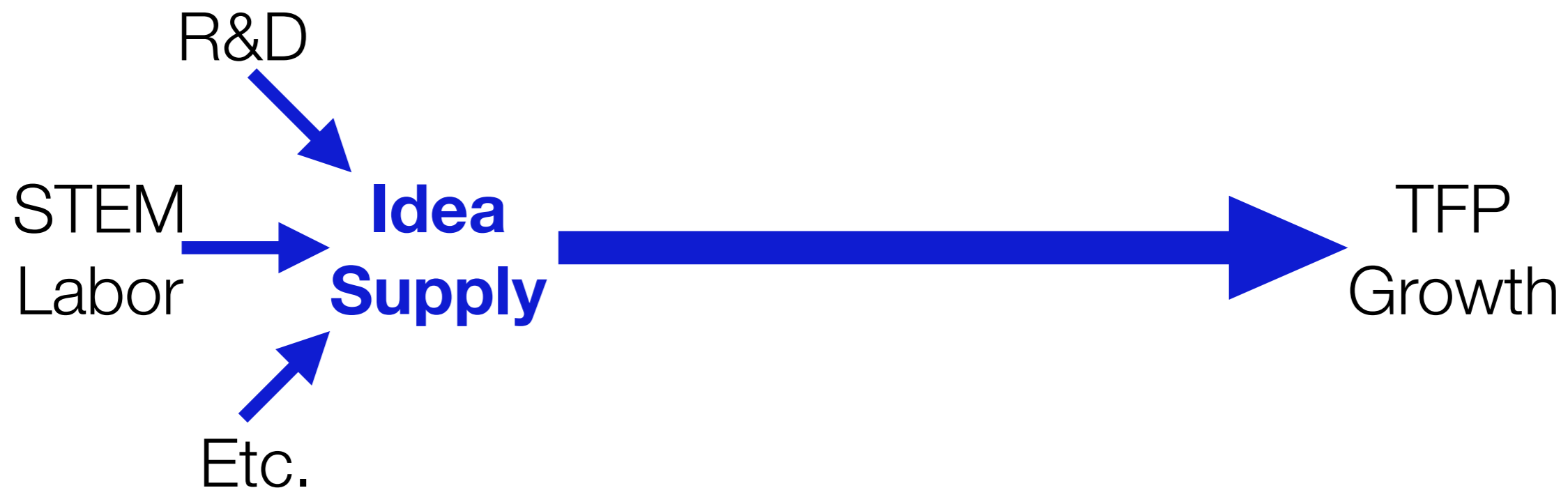
- Like Penicillin (also invented in the 1930s), the market has developed resistance to the old regulatory regime. So, we need a new one;
- To do that, we need a new objective:

The principal objective of financial regulation should be to create effective financial markets from the perspective of the real economy.

The Diagnoses: The Economy is Suffering from Ineffective Financial Markets

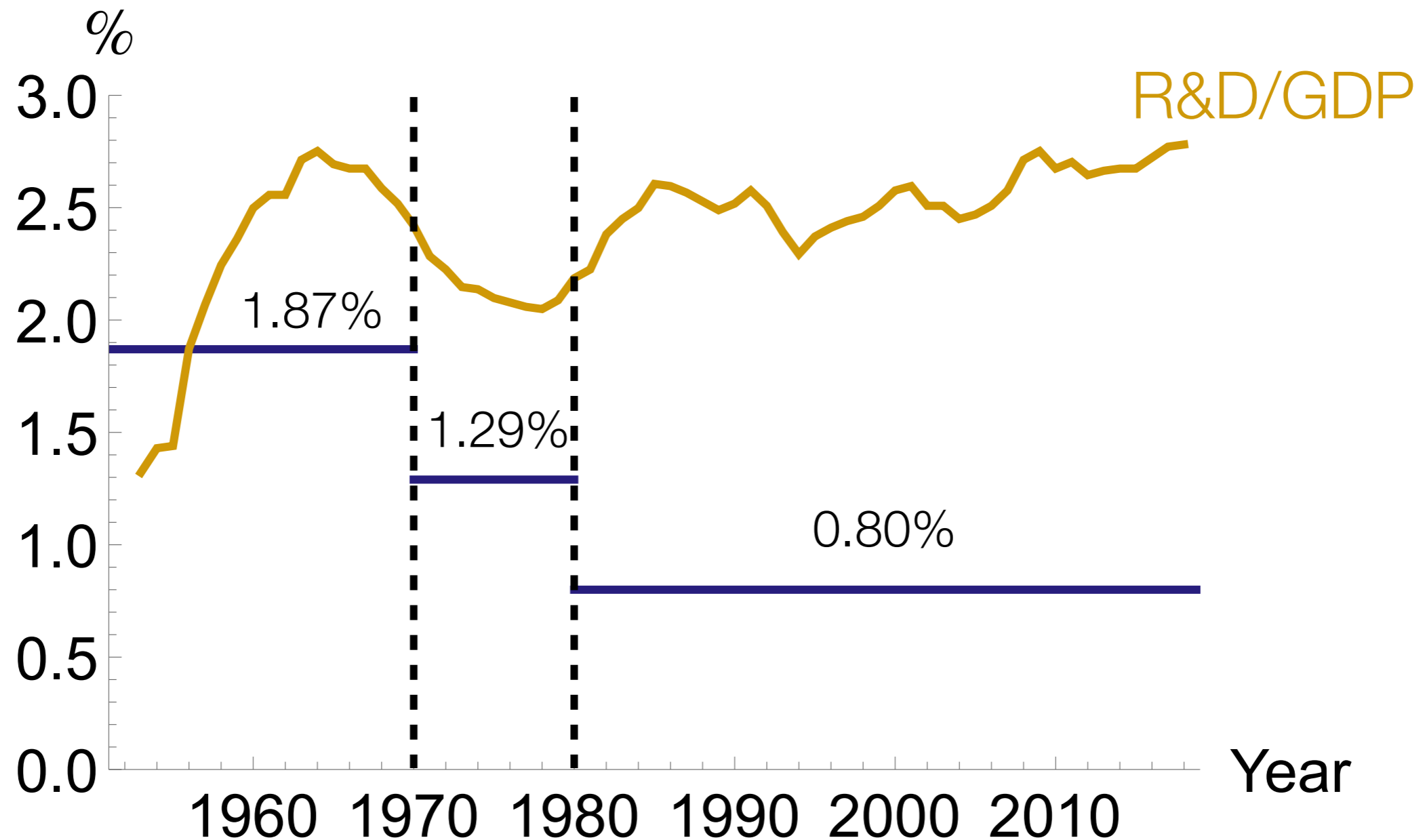
The Standard View of TFP Growth

- The unifying thread of Endogenous Growth Theory is that “economic growth arises from people creating ideas” (Bloom et. al 2020);



The TFP Puzzle and the Gordon Conjecture

Average TFP Growth and R&D/GDP

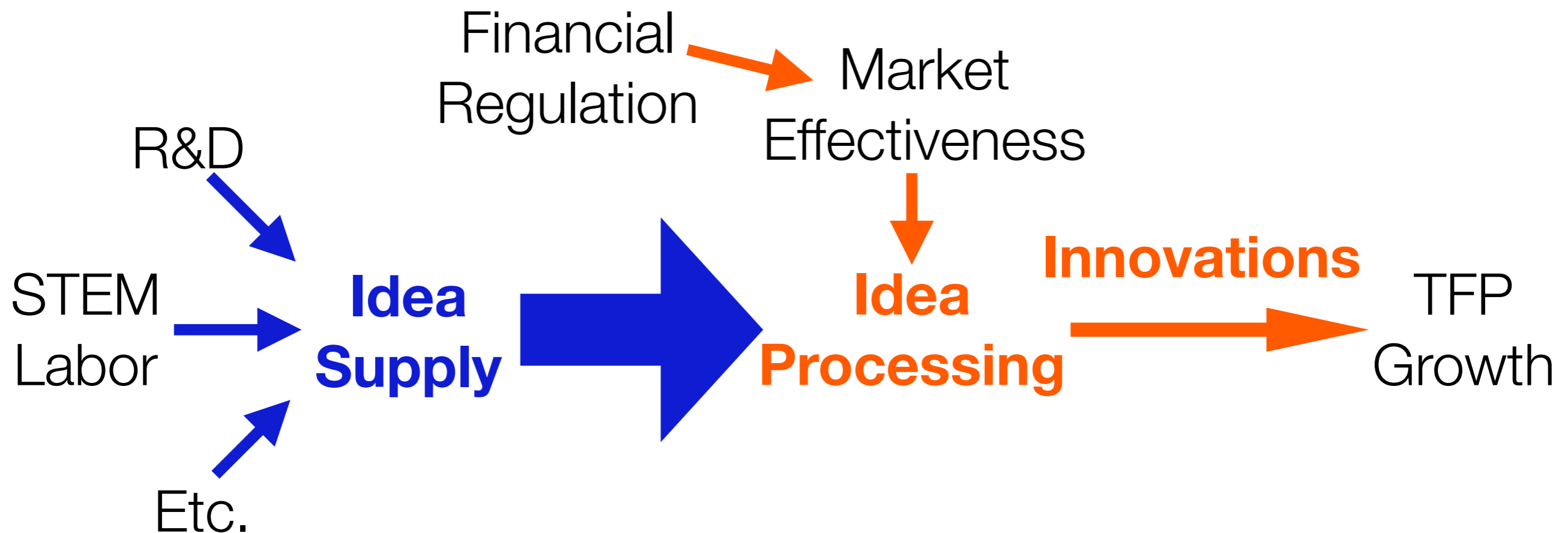


The TFP Puzzle and the Gordon Conjecture

- R&D/GDP and other inputs into Idea Supply have been increasing over time, but TFP growth has been falling;
- Starting from the premise that idea supply determines TFP growth, it follows axiomatically that idea supply must be falling as too;
- Thus the enormously influential Gordon Conjecture (2012, 2014):
Growth is Over Because We Are Running Out of Ideas to Find
- This seems crazy, but there is no other solution within the confines of standard theory;

We have a different theory

- An innovation requires both an inventor to come up with an idea and a firm to process that idea into a new product or process;



TFP growth is low because the economy's idea processing capability has declined due to ineffective markets

Market Effectiveness Idea Processing

- A project produces a payoff if the project is successful, but to be successful a project must attract a specific investment by an outside party (financing, skilled labor, suppliers, etc.).
 - The probability that the outside party makes the investment depends upon the market's estimate of the project's success;
- Firms can pursue two strategies to develop projects:
 - a short horizon *Quick Win* (Q) strategy that focuses on signaling to maximize the probability of success without creating an innovation;
 - a long horizon *Innovation* (I) strategy that focuses on maximizing the value of the project given success by processing an idea to produce a valuable innovation;
- When markets work well, firms can spend less time signaling and more time on processing ideas to produce innovations;
- Idea processing capability increases with market effectiveness;
 - See our paper for the math (email me);

Regulation Market Effectiveness

- Effective markets produce information about firm success probabilities;
- Effective regulation increases the market's ability to produce that information;
 - For example:
 - Better accounting rules, disclosures, and enforcement of those rules improves market effectiveness (Simon 1989);
 - Anti-manipulation rules produce more informative prices (Pirrong 1995);
- The reform effort of the 1930s/1940s led to substantial improvements in market effectiveness across many dimensions (Seligman 2003) and so led to a dramatic increase in market effectiveness;
- As our analysis predicts, the improvement in market effectiveness led to a period of high TFP growth;

Is “Idea Processing” a Real Thing?

- Bhattacharya and Packalen (2020) study the Q// strategic choice in the context of science;
 - Scientists can pursue a Q strategy by doing incremental science with immediate payoffs or a longer horizon I strategy that aims at doing risky innovative work;
 - They find that the Q strategy has to come to predominate, and scientific progress has stagnated as a result. We find that as firms pursue a Q strategy, TFP growth stagnates.
- Arora, Belenzon, and Patacconi (2015) examine the composition of R&D spending at US firms and find that:
 - Creating a fundamental innovation requires putting into place the capability to take an idea and “access significant resources...integrate multiple knowledge streams... and direct their research towards solving specific practical problems”;
 - As we would put it, the firm must have an I strategy and process their ideas;
- So, we think that our theory does capture something real about the innovation process;

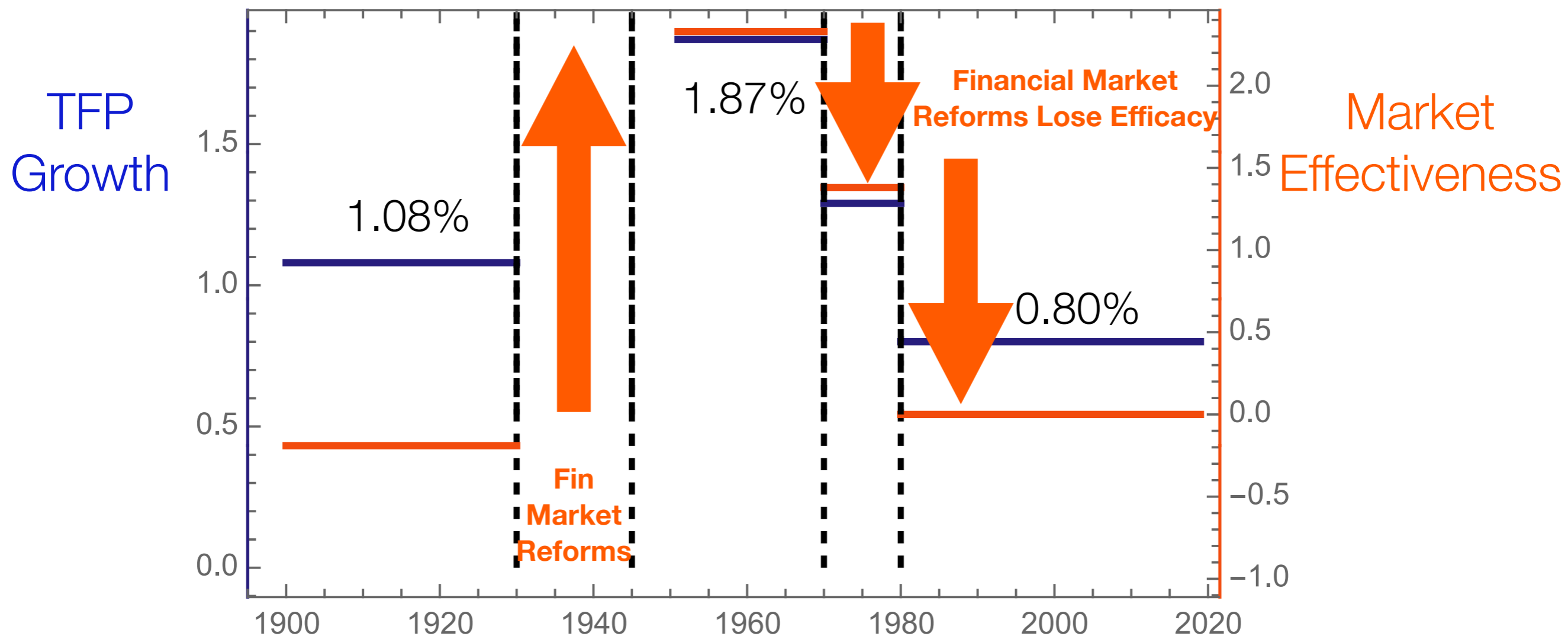
How to measure market effectiveness?

- Comparing the impact of Q and I strategies:
 - A Q strategy produces more signals about the firm's project, and these signals move the firm's price;
 - It follows that the standard deviation of the return of a Q firm will be higher than the standard deviation of an I firm;
- So, as the proportion of I firms increases, the standard deviation of returns for the market as a whole will fall;
- Our measure of idea processing capability is then $1 -$ the standard deviation of idiosyncratic firm returns (controlling for a bunch of things);
 - We calculate this measure without **ANY** reference to the TFP data itself, so there is **NO** mechanical relationship that automatically finds that idea processing capability is high when TFP growth is high;
 - The actual derivation is a bit more complicated, see the paper for the details;

Market effectiveness explains the variation in average TFP growth over the last 120 years

- Financial market effectiveness drives TFP growth, and the quality of financial market regulation drives market effectiveness.

TFP Growth and Market Effectiveness



A New Drug

Market Effectiveness

- We need:
 - A regulator with an explicit market effectiveness mandate so that this is a goal;
 - A regulatory architecture that enables the regulator to examine the effectiveness of the financial system **as a system** rather than as a collection of separate markets;
 - A regulator with the capabilities required to pursue an effectiveness agenda;
- India is an excellent position to do all this!

A Market Effectiveness Mandate

- Why do we need an effectiveness mandate?
 - Improving market effectiveness requires thinking about the financial system as a system;
 - If a regulator looks at different pieces of the financial system one at a time (as they do without an effectiveness mandate), the system-wide perspective is lost;
 - For example, index funds are great for each investor one at a time. Investor protection rules then naturally push investors towards index funds. But, index funds free ride on the price formation and corporate governance efforts of other investors, so as they expand they may create negative externalities from the perspective of the financial system as a whole;
 - Thus, just as financial stability requires a regulator with an explicit mandate to regulate the stability of the system as a whole, so too market effectiveness requires a regulator with an explicit mandate to examine the effectiveness of the financial system as a whole;

The Right Regulatory Architecture

- A financial effectiveness regulator therefore needs financial market expertise and a system-wide perspective;
- India already has a system-wide regulatory body: the Financial Stability and Development Council (FSDC) which brings together SEBI, the RBI, the Ministry of Finance, and the other regulators;
- The FSDC has a sub-committee on systemic risk chaired by the Governor of the RBI;
- The FSDC could add a Market Effectiveness sub-committee chaired by the Chairman of SEBI to promote the effectiveness of the financial system as a whole;
 - SEBI is the natural agency to take the lead on the Market Effectiveness agenda given its expertise on financial markets and its work on increasing financial market efficiency;

The Right Capabilities

- A market effectiveness regulator needs to be research-driven (more like a central bank);
 - No amount of data alone will tell you if markets could work better;
 - To know if markets could work better, you need good models and analysis (you need lots of data too, of course);
 - And to do that research and analysis, the regulator needs: i) internal research capabilities; ii) the ability to tap into outside research; and iii) the ability to engage with financial market participants (who obviously have an enormous amount of knowledge that the regulator needs to draw upon) from a position of expertise;
 - To develop the necessary skills among its staff, the regulator will need to engage in in-depth training;
- As it happens, SEBI has an educational wing NISM that is ideally positioned to lead on these matters;
 - And, let me add: NISM is in a partnership with the Systemic Risk Centre, one of the world's leading research centers on financial market effectiveness and systemic risk;

What should be on an effectiveness agenda?

- The other presentations at this conference have some excellent ideas to inspire us...and we will be hosting additional conference and pursuing related projects as part of the SRC/SEBI/NISM partnership;
- In keeping with the theme of this presentation:
 - We do not have a shortage of ideas; but
 - We need build up our idea processing capability (events like this help);
 - So, we have the recipe for increasing total regulatory productivity, and we should use it;

Can We Afford This New Drug?

Low TFP Growth: Rounding Up the Usual Suspects

- Everyone knows that we have a low growth problem;
- Most solutions depart from the Endogenous Growth Theory perspective and so aim at developing policies to increase idea production;
 - For example, spend more on R&D or STEM training (Bloom et. al 2019)
- I don't think that this policy approach will work because idea supply is not the binding constraint on growth...but, hey, I could be wrong!
- However, increasing idea supply is enormously expensive;
- So, the optimal policy mix would be to pursue the enormously expensive/unlikely to work but extremely popular idea supply option **AND** the incredibly cheap/likely to work financial market effectiveness option;

A Market Effectiveness Agenda Passes the CBA Test

- A major effort to improve financial market effectiveness would cost basically nothing in comparison to increasing R&D/GDP by a non-trivial amount;
 - US GDP = \$21 Trillion and R&D/GDP is around 2.8% or \$600 billion/year;
 - Increasing that by 25% will cost \$150 billion/year
 - India GDP = \$2.6 Trillion and R&D/GDP is about 0.7% or \$18.2 billion/year;
 - Increasing R&D/GDP to 1% would cost \$7.8 billion/year
- Financial market reform will not cost \$billions/year;
 - My consulting rates are nowhere near that high;
- From a social risk/reward perspective, then, betting on financial market effectiveness offers the best risk/reward trade-off of any policy aimed at improving TFP growth (or, really, any economic policy full stop);
 - And there are no downsides to having better financial markets!

TFP Growth: It Matters!

Slow growth will be an economic catastrophe

- Without high TFP growth, a high proportion of the population in India (and the US and UK) will face extremely bleak economic prospects going forward;
- On the other hand, India has very strong economic fundamentals;
- Effective financial markets could help to bring about the dynamic and innovative economy that will transform the lives of India's poor and help to put India into a position of global economic leadership;

A Brutal Era of Geopolitical Competition

- The holiday from history is over, and we now in an era of brutal geopolitical competition where hard power matters a lot;
 - China is engaged in a massive conventional and nuclear build-up, has a lakh of troops on India's border, and they are calling the Indian state of Arunachal Pradesh "South Tibet";
- A dynamic, growing, and innovative economy creates the resources and skills that support hard power;

Growth, Liberty, and Democracy

- The competition between autocracies and democracies is playing out over both military and economic/political domains;
- If democracies fail to provide the growth that autocracies do (or at least seem to), social tensions could threaten political stability itself;
 - And any such social tensions will certainly provide a vulnerability that hostile powers could exploit;
- Economic failure could therefore lead to social catastrophe, while success could play an important role in helping to secure liberty and democracy;

Market Effectiveness, Regulation, and TFP Growth

- Robert Lucas observed that “Once you start thinking about economic growth it is hard to think about anything else” because the issues around growth are both intellectually fascinating and profoundly important;
- I hope that I have persuaded you that this is true, that questions about growth are both fascinating and important;
- I hope that I have also persuaded you that it is worth thinking hard about how financial regulation can play a crucial role in creating a financial system that supports a dynamic and innovative real economy that delivers the high TFP growth that society needs.

References

- Arora, Belenzon, and Patacconi (2015), “Killing the Golden Goose? The Decline of Science in Corporate R&D”, NBER WP 20902
- Bloom, Van Reenen, and Williams (2019), “A Toolkit of Policies to Promote Innovation”, *Journal of Economic Perspectives*
- Bloom, Jones, Van Reenen, and Webb (2020), “Are Ideas Getting Harder to Find?”, *American Economic Review*
- Bhattacharya and Packalen (2020), “Stagnation and Scientific Incentives”, NBER WP 26752
- Gordon (2012), “Is U.S. Economic Growth Over? Faltering Innovation Confronts the Six Headwinds”, NBER WP 18315
- Gordon (2014), “The Demise of U.S. Economic Growth: Restatement, Rebuttal, and Reflections”, NBER WP 19895
- Pirrong (1995), “The Self-Regulation of Commodity Exchanges: The Case of Market Manipulation”, *Journal of Law and Economics*
- Seligman (2003), *The Transformation of Wall Street* (Third Edition)
- Simon (1989), “The Effect of the 1933 Securities Act on Investor Information and the Performance of New Issues”, *American Economic Review*

Kevin R. James
Systemic Risk Centre
London School of Economics

e) k.james1@lse.ac.uk

Akshay Kotak
Systemic Risk Centre
London School of Economics

e) a.kotak@lse.ac.uk

Dimitri P. Tsomocos
Saïd Business School &
St. Edmund Hall, U. of Oxford

e) dimitrios.tsomocos@sbs.ox.ac.uk