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Modern day banking arose in fourteenth century Italy. Banca Monte dei Paschi di Siena, founded in 1472 in Siena, is currently the oldest operating bank in the world. The origins of the American banking system date back to 1780 with the founding of the Bank of Pennsylvania in Philadelphia. Its goal was to provide funding for the Continental Army that was fighting the Revolutionary War, helping the Commonwealth of Pennsylvania and giving loans to merchants in Philadelphia. This was followed by banks in New York and Boston in 1784, Providence in 1791 and Baltimore in 1795.

The First Bank of the United States, established in 1791, was the first attempt at establishing a central bank that would take care of the financial needs of the federal government. However, supporters of states’ rights, who were mostly from the South, clashed with the federalists, who were mostly from the North, and the bank’s charter lapsed in 1811. A few years later, the War of 1812 necessitated the chartering of the Second Bank of the United States in 1816. Its charter lapsed in 1836 largely due to pressure from President Andrew Jackson. The reasons were both political and a response to widespread corruption. This was followed by the free banking era (1837-1863), when all commercial banks were chartered by states. Each bank issued its own banknotes, which often had a different value than a banknote of similar denomination issued by a different bank. The National Bank Acts of 1863 and 1864 eventually created a new system of federally chartered banks called national banks. Periodic banking crises characterized the second half of the nineteenth and the early twentieth centuries. When the large Heinz Trust Company failed in 1907, people panicked and the resulting financial crisis was so severe that the U.S. government turned to J. P. Morgan to bail out the banking system. Economists and politicians were coming around to the view that having a central bank was critical for the economic success of the country. A few years later, in 1913, the Federal Reserve Act or Glass-Owen Act was under President Woodrow Wilson, creating the Federal Reserve System. The Fed opened its doors in 1914.

Historically Americans have been hostile towards large banks, especially in states with large farming populations, as smaller banks are likely to offer more personalized services as they are more intimate with their customers.

The aspect of U.S. commercial banks that we will mostly focus on is their number: at over six thousand, there are significantly more here than in any other country. This is the result of a patchwork of regulations that prevented banks from opening new branches. The McFadden Act of 1927 prohibited banks from opening branches in other states. On the coasts, banks could usually establish branches only within a state. In the interior states, policies were even more restrictive. In Ohio, banks could only open branches in counties adjacent to ones where the bank already had a branch. The most extreme were the sixteen states of Arkansas, Colorado, Florida, Illinois, Iowa, Kansas, Min-
nnesota, Missouri, Montana, Nebraska, North Dakota, Oklahoma, Texas, West Virginia, Wisconsin and Wyoming, all of which had unit banking laws that limited banks to a single office. For instance, the reason the North and South Towers of the historic Wrigley Building in Chicago had to be connected by a pedestrian walkway in 1931 was because the only way a bank with a rapidly expanding portfolio could expand by acquiring new space without being in violation of Illinois’ unit banking laws was for the spaces to be physically connected. Historically Americans have been hostile towards large banks, especially in states with large farming populations, as smaller banks are likely to offer more personalized services as they are more intimate with their customers.

There were two main ways of getting around the branching restrictions. One was the emergence of bank holding companies. A bank holding company can own a majority stake in several banks and thus overcome branching restrictions on individual banks. At the forefront of this other response was the proliferation of automated teller machines (ATM). Banks realized that if it wasn’t their own ATM but owned and operated by someone else, then the ATM would not be counted as a branch. Cirrus, NYCE and several other companies operate such ATMs where customers of any bank can take out cash for a small fee.

The number of banks in the U.S. held steady at a little under 15,000 till the mid-1980s, and started to decline after that. The reason was consolidation (mergers and acquisitions) spurred by deregulation. The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 overturned the McFadden Act, and now we have a banking system where banks are free to open branches anywhere they want within the country. All states except Hawaii had already relaxed their branching restrictions by varying degrees by the time of the act, so the Riegle-Neal Act simply sped up the process. Advocates of bank consolidation say consolidation induces economies of scale (increasing the bank size helps spread out the fixed costs) and economies of scope (one institution can be a one-stop shop for a variety of services). These lead to more efficient banks that can choose the services that they want to provide without any interference. Critics say that the elimination of small banks will lead to less lending to small businesses and a few banks dominating the industry, making it less competitive and producing banks that are too big to fail.

Several economists have looked into what the data says about the economic effects of banking deregulation. Among the early studies on the subject, Amel and Liang (1992) found that deregulation in the U.S. banking industry has led to an increase in the number of new branches but not in the number of de novo (new) banks. Calem (1994) found that the small banking sector has contracted in states that have relaxed intra-state branching restrictions, while the relaxation of inter-state branching restrictions has not had an appreciable effect. Intra-state branching restrictions prevented many banks from reaching their efficient size. Once the removal of these restrictions enabled them to get to their optimal scale, further deregulation did not lead to significant additional adjustments.

Jayaratne and Strahan (1996) studied the impact of bank branching deregulations during the Reagan administration on economic growth in the U.S. states and found that growth rates increased substantially following the reforms. The cause of this increase was not a rise in the volume of bank lending but rather the quality of bank lending, as measured by non-performing loans, the fraction of loans written off and the fraction of loans classified as “insider loans”. Kroszner and Strahan (1999), on the other hand, came to the conclusion that much of the deregulatory patterns could be explained by the private-interest theory of regulation. Better organized groups (usually large banks and bank-dependent firms) use the coercive power of the state to capture rents at the expense of the less organized ones (usually smaller and

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**Figure 1: Number of U.S. Commercial Banks, Branches & Offices**

Source: Data taken from www.fdic.gov

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Features
medium-sized banks). Hence reform occurs later in states where small banks are stronger relative to big banks; contrary to what the competitive framework suggests, geographically adjacent states did not necessarily deregulate at the same time. Furthermore, starting in the seventies, location began to matter less and less due to the introduction of ATMs, banking via mail and telephone and falling communication costs (phone services, fax and the internet). As a result, banks started to relent in their fight to preserve their respective geographical monopolies.

Most of these studies date back more than a decade, whereas bank branching decisions and consolidations are ongoing and often intensifying. How did these changes affect the banking industry and the wider economy, especially the industries that borrowed from the banks? We analyzed data from the fifty U.S. states and Washington, DC for the period 1963-2010 in an attempt to answer the question. We focused on the effect of evolving branching regulations on the growth rate of different industrial sectors and on various commercial banking indicators like the number of commercial banks, number of branches and offices, assets and equity.

As local banking markets open up, banks witness increased competition from other in-state banks establishing new branches in areas hitherto only served by them. Unsurprisingly, our results indicated a smaller number of surviving banks that were larger in size. The U.S. banking system prior to deregulation resembled the banking system in present-day Western Europe, where most banks are usually confined within national boundaries. Post-deregulation, it has inched somewhat closer to Canada, which has a handful of big banks, all of which have nationwide presence. Small banks are vulnerable due to inventory issues and overheads, while a bigger bank benefits from economies of scale due to the drop in overhead costs. However, the larger the bank, the more severe the principal-agent problem and the consequent diseconomies of scale. So it can be argued that medium-sized banks are the best for the economy. There is one final factor in the mix: bailouts support bigger banks, as they get bailed out while smaller banks are allowed to fail. This partially offsets the diseconomies of scale. The concentration of the five biggest banks has grown as a result following the financial crisis of 2008.

The effect of deregulation on the numbers of bank branches and offices is very different. While the number of commercial banks was decreasing as a result of post-deregulation consolidation in the banking industry, the number of branches was rising. At the same time, the growth rate in the number of branches was slowing down. This may seem surprising, but technological innovations such as ATMs and increased phone and internet banking have simultaneously reduced the need to have branches.

Interestingly, the annual growth rates of bank assets, bank equity, total deposits and loans all decreased in the post-deregulation period. This slowdown is especially marked in the former unit banking states. This might reflect the acquiring and subsequent conversion of former unit banks (or other small banks in the non-unit banking states) into branches of the acquiring bank and their eventual closure if the branches turned out to be unprofitable. This would leave some locations unserved or underserved by banks. It could also be the result of an increase in the number of credit unions or other alternatives to commercial banks in these states; post-2008, a significant number of customers have also moved away from larger banks towards credit unions.

Rajan and Zingales (1998) focused on a specific factor that might cause bank lending to raise the growth rate of the economy. They argue that financial development makes external finance less costly and different industries have different degrees of dependence on external finance. Hence industries like drugs & pharmaceuticals and plastic products that use a lot of external capital should grow faster than industries like tobacco and pottery that use the least. Their cross-country data indeed supports this view. Our results were quite different. Instead of witnessing accelerating growth rates as a result of increased supervision by lending institutions, the average growth rate of U.S. industries that borrow more from banks have been markedly slower in the post-deregulation period.

While looking deeper into the reasons was beyond the scope of our current research, possible explanations are the increasing market share of non-bank financial intermediaries and the general decline of manufacturing industries in the U.S.

References:
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s adults, we are responsible for the educational success of our children. And as adults we can easily thwart young learners. Let me ask you a question. A child enters kindergarten. His mother is a single-parent who works a minimum wage job. Perhaps he lives in the inner city or he is an immigrant learning English. What do we expect of him? Do we expect him to read by the third grade, learn fractions or write coherent sentences? Do we expect him to graduate from high school equipped to attend college, begin a career or join the Armed Forces? Or do we look at his circumstances, dumb-down his expectations, and give his school excuses not to make every effort to ensure he learns. Do we just shuffle him through the system? Promote him out of third grade even if he can't read. Let the fourth grade teacher deal with it, who will let the fifth grade teacher deal with it until he is so far behind nobody can deal with it. Sadly this isn't just a hypothetical question, but it is reality for countless students across our nation. Their dreams and potential are being crushed under system that neglects its true purpose.

When you boil down education reform to one guiding principle, it is this – every child can learn. And so, we must refuse to accept excuses that only set children up for failure and deny them the opportunity to achieve the American Dream. That is immoral on an individual level and unsustainable on a national level if we plan to be world leaders in the 21st century. We must set high expectations for every child and put in place the strategies to achieve them. Many important figures in education have contributed tremendously to education, inspiring the rest of us. Iranetta Wright, a principal in Jacksonville, was assigned to the worst performing high school in Florida. She transformed a perennial F school to a B school, and she now helps other principals improve their schools. Wright advises these principals, “You have to be relentless about it, and it’s not for the faint of heart.” We must heed her words and champion our students.
Public education has become a labyrinth of political, bureaucratic and union empires that depend on a captive population of students and minimal quality control. In education, there is a resistance to change and a desire to maintain the status quo, with many groups fighting back against reform. Despite these efforts, education reform is maturing into a broad-based, bi-partisan movement to combat decades of failure and fiscal recklessness by an education system dominated by union politics and enabled by pass-the-buck politicians.

For decades, our most vulnerable kids have fallen through the cracks and under the radar. Half of our Hispanic and African American fourth graders are functionally illiterate; they are two and a half years behind white students. This year, only 25% of students taking the ACT qualified as college-ready on all four sections. How will America remain the most dominant nation on earth when we are a middling nation in the classroom?

If trying to reverse this is a war on public education, we need to revisit the definition of public education. My suggestion is this: It is the public’s obligation to provide each child with the best education possible without regard to provider.

As parents, teachers, employers and leaders, our society has a responsibility to provide students with an education that prepares and inspires every child to achieve his or her God-given potential. To accomplish this, we must rely on a variety of reforms, starting with early literacy. Illiteracy destroys lives. Students who can’t read are four times more likely to drop out. Eighty-five percent of kids who enter the juvenile-justice system are functionally illiterate, and 70% of prison inmates cannot read above the fourth-grade level. Literacy is the ground upon which students gain knowledge and build their skills, and we need to make sure each child has that foundation before they are promoted to fourth grade.

Next, we need school choice. With the most diverse student population in history, it defies common sense to corral them all in the same early 20th-century education model and expect them to thrive. Bureaucracies are not designed to innovate or compete, and they don’t like accountability. Consequently, we have an education system isolated from the very forces that drive American innovation and success. We need more options – charter schools, home schools, vouchers, tax-credit scholarships, and Education Savings Accounts – so parents can shop for a school that best fulfills their children’s needs.

Third, we need to make education relevant to 21st century kids. Today’s kids are digital natives, and with digital education, they can go to class anytime, anywhere, in their own style and at their own pace. Digital learning is an education equalizer. It enables kids in rural Mississippi to take the same Advanced Placement courses available to students in Boston, and allows a math whiz to complete Algebra 2 in six months while other kids might need 11 months. Yet, in most states, protection-
to keep her. While the current model based on tenure and seniority may be a union-friendly model, it is certainly not a child-friendly model and it fails to attract the best and brightest into the teaching profession. Great teachers must be recognized and rewarded. That will happen if we eliminate tenure and evaluate and pay teachers based on their performance instead of how long they’ve been on the job or how many degrees they’ve accrued.

Finally, high standards are the most basic element of reform. Standards define what children are expected to learn over their school year and what they will need to know to succeed in each grade. Ultimately, the quality of the standards determines whether a high school diploma is worth more than the paper it is printed on.

To compete with the rest of the world in the 21st century, we must produce competitive high school graduates ready for college or meaningful careers. That means we have to raise the bar to make sure the skills they are learning are aligned with what employers and college presidents expect high school graduates to know. These skills include critical thinking, problem solving and verifying work. The Common Core State Standards were designed based on these skills.

I understand there are those opposed to the standards. But we need to hear more than just opposition. We need their solutions for the hodgepodge of dumbed-down state standards that have created group mediocrity in our schools.

Criticisms and conspiracy theories are easy attention grabbers, and solutions are hard work. We need problem solvers willing to be decisive and resolute. Delay is a strategy designed for the comfort of adults, not the progress of children.

In 1984, the Florida education commissioner complained that the pace of reform was overwhelming and that Florida need “some more time to chew what we already have bitten off.” When I became governor 14 years later, Florida was still chewing, and our kids were at the bottom of the barrel in national academic rankings.

We abandoned delay and started moving full steam ahead. This strategy made many adults very uncomfortable, but in a few short years, Florida became a national leader in advancing the academic achievement of its children. We discovered kids have a remarkable ability to meet expectations; we just have to get adults on the same page.

We discovered kids have a remarkable ability to meet expectations; we just have to get adults on the same page.
Labor Productivity in the Information Age and the Implications for Health Care in America

Daniel M. Sullivan

About 20 years ago, labor productivity in the United States dramatically accelerated. The year-on-year increase in output created by an hour of labor grew robustly after World War II before slowing to an average of 1.6% per year during the 1970s and 1980s. In the 1995–2000 period, labor productivity growth averaged 2.7% annually and 3.1% between 2000 and 2005. It is now generally accepted that the force behind this acceleration was the same force behind many other dramatic economic trends at the turn of the century—cheap computers. In hindsight this is hardly surprising or controversial. What is surprising, however, is how varied the response has been to information technology (IT) across industries and even countries. Some industries have exploded (IT producers, naturally, along with agriculture, wholesale trade, and retail trade) while others have stagnated or even showed negative productivity growth. Similarly, European firms, whose output per labor hour had been quickly catching up to that of their American counterparts, did not enjoy the IT productivity boom.

The natural question of why IT has had such varying effect has been answered for many cases. Researchers have identified a number of factors that influence firms’ and workers’ ability to innovate and adapt to new technologies. The divergence in productivity growth due to IT is much less surprising after considering these factors and how they are differentially present across industries and countries. But a few inexplicable outliers remain. In particular, the health care sector has seen very poor productivity growth since 1995. For a country that spends 18% of its GDP on health care, this is very troubling. IT is widely expected to revolutionize American health care, but if the industry did not adopt IT on its own, who’s to say IT will help at all? On a more fundamental level, why didn’t the health care sector benefit from the IT boom like most other industries did? Is health care so inherently different from other industries that the usual productivity-inducing forces don’t hold sway? Or is the labor structure of health care such that it simply can’t benefit from IT very much?

The forces that drive productivity are fairly intuitive. Firms can actively try to increase their productivity by investing in more or better capital, by hiring more talented managers and laborers, or via a number of other “levers” as they’ve been referred to in the economic literature. Firms can actively try to increase their productivity by investing in more or better capital, by hiring more talented managers and laborers, or via a number of other “levers” as they’ve been referred to in the economic literature. Despite the obvious differences in the concrete and health care markets, Nicholas Bloom, Carol Propper, Stephan Seiler, and John Van Reenen found a similar phenomenon among hospitals—increased local competition induced hospitals to improve their managerial practices and increase productivity.

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ice and concrete which not only have relatively little variation in quality or production technology but are also not traded over long distances. It is only profitable to sell these goods close to the point of production, and thus the number of firms and the level of competition is determined by local market demand. He found that, despite the homogeneity of the goods, productive efficiency varied significantly across firms and larger (and therefore more competitive) markets saw higher average firm productivity and lower dispersion of productivity (i.e., the least productive firm’s was closer to the most productive firm in terms of efficiency).

Despite the obvious differences in the concrete and health care markets, Nicholas Bloom, Carol Propper, Stephan Seiler, and John Van Reenen found a similar phenomenon among hospitals—increased local competition induced hospitals to improve their managerial practices and increase productivity. Work by Amitabh Chandra, Amy Finkelstein, Adam Sacarny, and Syverson also suggests that the health care industry responds to market forces and that “health care exceptionalism” is, at least in part, a myth. They have found that productivity dispersion in the health care sector is surprisingly low, lower even than the concrete industry, and local market share flows to the more efficient hospitals over time.

So if the health care sector does respond to these market forces like other sectors do, why didn’t it experience the mid-90s IT productivity boom? It could be that the managerial style or firm structure of most hospitals is not prone to quick or risk adaptation. Bloom, Raffaella Sadun, and Van Reenen isolated several characteristics of management which correlate with lower rates of IT adoption and productivity innovation in general, patterns which hold true in health care. And while data don’t exist for United States hospitals, management style in English hospitals was far from uniform, implying that the widespread adherence to management strategies ill-suited to innovation is not a likely cause for the lack of an IT boom in health care.

Another possible reason for the missing IT boom is that health care simply has little to gain from the IT currently available. David Autor, Frank Levy, and Richard Murnane have argued that the nature of a worker’s tasks (e.g., routine vs. non-routine, analytical vs. manual) determined whether a computer or robot would complement her in her work or replace her altogether. As computing power became cheaper, they argued, those performing routine tasks would be replaced by computers, those performing analytical and abstract work would be aided by computers, and those who needed to frequently adapt or interact with people would be largely unaffected. Autor, Levy, and Murnane found strong empirical evidence for their hypotheses that the advent of computers has caused dramatic shifts in the demand for labor by task type. This phenomenon has since been called the polarization or hollowing out of the labor market since most routine jobs replaced by automated machines have been middle-skill, middle-wage jobs like those in manufacturing.

How does health care fit into this paradigm? It is hard to say. Using Autor et al’s methods, the work of doctors seems highly complementary with computers. But the many occupations in health care—nurses, administrative staff, technicians, and others—have their own set of tasks and interact in peculiar ways. This is an area we hope to explore in the near future.

Before addressing why health care does or does not benefit from health IT, in my current work with David Cutler we try to answer a more preliminary question: does advanced IT in health care have any effect on productivity at all? We look specifically at applications like electronic health records (EHR), clinical decision support (CDS), and computerized physician order entry (CPOE). Such applications are designed to help doctors communicate with patients, with other doctors, and automatically catch harmful drug interactions or allergy problems. These applications are of particular interest because it has been asserted that such systems will help save lives and reduce runaway health care costs.
in the United States. The main impediment to identifying the causal effect of EHR and similar systems is the likely correlation between pre-adoption productivity and the decision to adopt new computer systems. That is, hospitals which adopt EHR systems early on almost certainly differ from non-adopters along other dimensions as well. Simply comparing hospitals with health IT to those without will capture a composite of all the myriad differences between adopters and non-adopters rather than the effect of health IT alone. Even hospitals that look similar on paper could be different in ways we don’t see in the data: for example, they might differ in their management practices, a factor which Bloom et al. found to be an important part of hospital productivity.

We overcome this endogeneity problem by using the HITECH Act, part of the 2009 stimulus bill, as a quasi-experiment. The HITECH Act set up an incentive program which pays hospitals for installing and using health IT systems. If a hospital meets the “meaningful use” requirements outlined by the Centers for Medicare & Medicaid Services (CMS), it will receive incentive payments over several years which could total over $30 million. The size of the incentive payments depends on the size of the hospital, the number of Medicare and Medicaid patients it treats, the amount of charity care it provides, and other variables. While a hospital could theoretically receive the full $30 million, actual payments vary widely from hospital to hospital because of the differences in the variables used to calculate the payments. We use the variation in these potential incentive payments like a medical researcher might vary the dosage of an experimental drug. The higher the potential incentive payment, the more likely a hospital is to deviate from what it would have done on its own and adopt EHR. Thus we have variation in the adoption of EHR that is detached from the idiosyncratic productivity decisions of the hospital.

Our preliminary results suggest several things. First, hospitals responded dramatically not only by adopting new health IT systems but by upgrading their existing systems. The number of hospitals with recently contracted EHR software packages (contracted within the past year, independent of previous contract status) increased by 50% in the program’s first full year, the first increase in the fraction with brand new systems since at least 2005. Second, the increase in IT use appears to have marginally improved hospitals’ compliance with best practices, e.g., taking patients off antibiotics at the appropriate time, giving discharge instructions to heart attack patients, etc. Third, none of this appears to have translated into any improvement in either direct health outcomes (e.g., heart attack mortality and readmission) or cost effectiveness. I should note that our data are particular weak in addressing cost effectiveness or savings and we hope to update these results with better data.

These preliminary findings do not necessarily suggest that health IT is not a worthwhile investment. There is often a disruption cost that comes with new practices as workers adjust and we may see bigger gains over time. It is also possible that health IT benefits only affect outlying firms or patients rather than the average. We also cannot currently say exactly why we see limited benefit from health IT in the short run. As I mentioned, better data in our current analysis and additional examination of health care workers constituent tasks, as in Autor, Levy, and Murnane, may address these holes. But given the previous work I described above, our preliminary results, and the health care market’s own apparent reluctance to adopt health IT widely before the incentive program, it seems unlikely that information technology is going to be a panacea for our growing cost and efficiency woes.

We use the variation in these potential incentive payments like a medical researcher might vary the dosage of an experimental drug.
In mid-November the Central Committee, formally the ruling body of China’s Communist Party, met in its Third Plenum. It was predicted ahead of time to be an exceptionally important meeting, second perhaps only to the Third Plenum of 1978, which elevated Deng Xiao Ping to being the paramount leader and led to major reforms of the Chinese economy. Against that expectation, the statement to emerge from the Plenum was something of a disappointment, at least to non-experts in interpreting official Party language, and that disappointment was expressed around the world and even within China. In response, the Party accelerated the release of its 60-point “Decision on Major Issues Concerning Comprehensively Deepening Reforms,” a document that provided much more specificity to the reforms that are contemplated, and which were presumably approved by the Central Committee.

The economic growth of China has slowed down significantly, although it still impressively remains above 7 percent. While some of this slowdown may be transitory, due to a weak world economy, much of it is more durable, for at least four reasons. First, China’s “demographic dividend” – a rise in the ratio of the working age population to total population – has ended, and will soon go into reverse as the number of retired people rises rapidly. Second, the migration from low-productivity farming into higher productivity mainly urban jobs has slowed, as the most mobile people have already moved and attachment to land-use rights inhibits others from moving. Third, rate of return on China’s unusually high investments, especially those of state-owned enterprises (SOEs), has begun to decline significantly. Fourth, China has become the world’s largest exporting country, and it can no longer expect exports to grow at double-digit rates, as they did during the past thirty years.

The bottom line is that if China wants to continue to grow rapidly, it needs a new growth model, or at a minimum it needs to reverse significantly several of the factors leading to the decline.

The authorities intend to relax the one child policy, such that if one of two parents is a single child, the parents will be allowed to have two children rather than only one. This is a sensible change, but two questions present themselves: why was the rule not liberalized even more, given the rapid aging of society, and will relaxation of the rule have a quantitatively significant effect? The answer to the first probably lies in traditional Chinese caution, reinforced by the presence of a large bureaucracy that attends to enforcement of the existing policy. The answer to the second is: probably not. Birth rates are well below population reproduction rates (2.1 children per woman of child-bearing age) in all other East Asian countries, from Japan to Singapore, even though none of them has a limit on number of children (and indeed Singapore is actively encouraging more children). And according to one report only eight percent of eligible parents in Shanghai took advantage of the 2008 change that allowed two children when...
both parents were single children. Thus, except perhaps in the aging country-side, most newly eligible parents will likely not elect to have a second child.

The 60-point document has many provisions to improve conditions in agriculture, including allowing enterprise production and allowing farmers to sell non-cultivated land and land-use contracts as well as move into towns and smaller cities with full residential rights (but not into the larger cities, where social services are under strain).

The 60-point document also contains many provisions for raising the return to investment, partly by improving the efficiency of SOEs, partly by providing greater scope for growth of more profitable private enterprises by enlarging their allowable field of activity (e.g., into providing hospitals, military products and repair), partly by creating a more even competitive playing field with SOEs.

The key inputs to industry – energy, credit, etc. – are to be determined by market forces, thereby reducing the implicit subsidies many firms receive through existing price controls. SOEs are to be more greatly governed by profitability, with managers held correspondingly accountable. They are to be subject to more competition from non-public entities. In addition, SOEs are to pay 30 percent of their profits to the government by 2020 (revenues to be used to help finance an improved social safety net), up from less than 15 percent today. This is a curiously specific provision in a document largely drafted in general terms. Why not by 2015 instead of 2020? And why not 70 percent or even 100 percent instead of 30 percent? But, it will be argued, SOEs need to continue investing to respond to a growing economy. And so they must. But must they do it out of retained earnings, where managers do not need to meet a market test to justify their planned investments? A case can be made that established corporations should be required to distribute all of their earnings to shareholders, after building small reserves for unforeseen contingencies. For new investment they should have to compete with everyone else for bank credit or market credit. In China’s case, requiring much higher distribution of profits by 2020 would help to build the currently weak corporate bond market, among other objectives. It should be noted that this recommendation applies to all countries (accomplished through much higher taxes on undistributed profits than on dividends), not just to China, and that no other country has adopted it fully.

There are no provisions particularly regarding export promotion, but several of the proposed actions would indirectly raise the importance of export demand by raising the share of export value that is added within China, so that a given level of exports would contribute more to China’s output.

The 60-point document provides a fine and impressive list of reforms. It remains to be seen whether the
A number of points are only indirectly associated with economic reform, but are aimed at correcting many complaints, by foreigners and residents alike, about Chinese government behavior and performance. If fully implemented, they will have the effect of weakening the power of local government officials and communist party leaders, in favor of greater control by provincial or national officials and party leaders. These include the introduction of vertical management of prosecutors and of anti-corruption officials, to weaken or eliminate the influence of local officials, along with a revamp of the court system, also to eliminate local influence on judges and to make trials more transparent. The labor camp system, under which police can incarcerate people for several years without formal charges of wrong-doing, is to be eliminated. The authority of the central government over all public spending is to be strengthened, again to reduce unwise spending by local governments, even while the system of tax apportionment is to be altered in favor of local authorities, to correspond more closely to their spending responsibilities, especially for social services, including health care and education. Local officials will be subject to a post-service environmental audit of their performance, presumably to diminish their prospects for promotion if while in office they pursued economic growth or other objectives at the expense of the environment, reflecting increasing public dissatisfaction with air and water pollution in China. The document also endorses support for the Constitution and the laws, something that would be boilerplate in many countries, but is potentially meaningful in a country where supporters of the constitution and laws have been subject to harassment or worse by local authorities, especially those whose actions have been questioned on legal or constitutional grounds.

Many ambitious decisions have emerged from the Central Committee over the years that have not been implemented. The 60-point paper is specific in identifying priorities for potential action (many topics are not directly mentioned), but with a few exceptions it is remarkably unspecific both on precise actions to be taken and on timing. For example, the only mention of exchange rate policy is an injunction to “improve market-based exchange rate formation mechanisms for the renminbi.” The document thus leaves lots of room for dispute among officials over what precise actions will be taken, and when. The Central Committee did however establish a “leading group” within the Party to oversee the economic reforms, with the suggestion it will be chaired by a close associate of Party Chairman (and President) Xi Jinping, or perhaps even by Xi himself. This will assure that if some of the reforms end up not being pursued, it will be due not to neglect, but rather to serious disagreement among senior leaders.
In a recent essay on China’s economic future, Joffe states, “History shows that every economic miracle eventually loses its magic. How much longer can China sustain such astounding growth?” Joffe’s reference to what “history shows” is an attempt to convince readers that the law of diminishing returns predicts that China’s growth rate will decline as the ratio of physical capital to labor increases over time. In addition to the diminishing marginal product of capital, skeptics of China’s ability to maintain its trend growth rate of the past 30 years point to the end of surplus labor and to the environmental damage wrought by three decades of rapid industrial expansion. At the same time, Joffe’s article raises a separate and critical question: are China’s institutions compatible with long-term growth?
China’s demographic policy limiting the number of children per family combined with greater life expectancy has begun a shift toward a reduced overall labor force participation rate. In addition, the return to capital in China, while still high by global standards, has fallen since reforms began in 1978. As the returns to physical factors fall, maintaining productivity—offsetting the law of diminish returns—will hinge upon China’s capacity for technological innovation.

Ever since Solow, the growth of “technology” has been understood as a critical determinant of living standards in modern economies. Also known as multifactor productivity, technology was initially viewed as an exogenous parameter, and measured as a residual: the (growth of) output of goods and services not attributed to (growth of) labor or capital. Economists quickly recognized that this measure only reflected the magnitude of our ignorance of the growth process and have since updated the theory to explain the level of technology as a result of endogenous investments by private and public actors. A complementary empirical literature has begun to measure these endogenous investments in terms of “intangible capital” (IC), i.e. computerized information, innovative property, and economic competencies. This literature has identified IC as a large share of total national wealth, and as a major driver of economic growth.

We will try to draw these strands together and summarize our view of China’s prospects for maintaining its progress toward rising above middle-income status among the world’s economies.

**IC Investments in China**

A number of researchers have investigated the role intangible investment has played in China’s recent economic growth. Some IC investment in China is newsworthy. For example, Wall Street Journal recently reported a technological breakthrough in China which has reduced the cost of processing nickel pig iron by almost 40%. The result has been a decline in nickel prices, which has started closing traditional nickel mines worldwide. Hulten and Hao show that investment in these types of intangible assets has been increased over the past two decades. IC investment accounted for 7.47% of China’s GDP in 2006, compared to 3.79% in 1990. This upward trend largely reflects rapid growth in investments in computerized information and innovative properties (specifically, designs and R&D). They also find that investment in IC accounted for approximately 1/6th of GDP growth for the period 2000 to 2008.

While concerns over the quality of Chinese data complicate international comparisons, Hulten and Hao (2012) also compare China’s share of intangibles in the total output of the market sector vs. a set of developed countries. The results indicate that China’s stock of IC is low relative to developed countries. While investment in IC accounted for 7.06% of the output of China’s market sector, this falls below what we observe in technologically developed countries like the U.S. (10.35%), Japan (10.19%) or the U.K. (9.67%). China also lags in terms of the share of labor productivity growth derived from IC. Only 17% of the growth in labor productivity between 2000 and 2006 was accounted for by investment in intangibles. This is well below the levels in the U.S. (30%) and the U.K. (26%), but compares favorably with Japan (16%). Again, data constraints make cross-country comparisons difficult, but these results suggest that China has not yet entered a stage of IC-driven growth.

**Is IC Productive in China?**

An extensive literature exists documenting the firm- and industry-level evidence on the productivity of investments in IC in China. Hu and Jefferson (2009) report that applications for invention patents (those associated with new technology rather than more superficial product characteristics) surged about the time that China’s accession to WTO and adoption of TRIPS became very likely. The annual growth rate of invention applications submitted by domestic enterprises more than doubled after the year 2000, and growth rate of applications submitted by foreign-owned enterprises nearly doubled. Hu and Jefferson show that the surge in domestic patent applications was associated with a similar growth in the proportion of R&D expenditures in GDP.

“The annual growth rate of invention applications submitted by domestic enterprises more than doubled after the year 2000, and growth rate of applications submitted by foreign-owned enterprises nearly doubled.”

“The importance of the institutional framework has become as basic to our understanding of the fundamentals of economic development (North, 1991) as have the law of diminishing returns and the role of technology for understanding economic growth. It is not clear that China has adopted the intuitions necessary to encourage IC-driven growth.”
and to the ratio of patent applications to R&D expenditures. The increased "yield" of patents per unit R&D expenditure is consistent with the hypothesis that the perception that improved IPR protection changed the tradeoff between revealing technical and trade secrets in return for patent protection and seeking to hide the nature of new technology by creating barriers to reverse engineering. Nevertheless, as Hu and Jefferson estimate, the elasticity of patent activity in China in relationship to R&D expenditure remains small compared to OECD economies.

Hu, Jefferson, and Qian (2005) [HJQ] and Fleisher, et al. (2013) provide estimates of the impact of investments in innovative properties on the value of output in. HJQ use detailed, firm-level data of China’s large and medium enterprises for the period 1995 to 1999 and show that holding constant conventional inputs of labor and physical capital, accumulated and depreciated R&D expenditure—a measure of the R&D capital stock—is significantly related to output per unit of labor. Fleisher, et al. (2013b) use the published aggregates of the data used in HJQ. The aggregated data cover the period from 1998 through 2007 and thus cover a much longer period after China adopted TRIPS. They represent investments in innovative properties with capitalized and appropriately depreciated expenditure on scientific and technology (S&T) and report a large and statistically significant elasticity of firm value added with respect to the domestic S&T stock. However they find no significant relationship between value added and the S&T stock of foreign-invested enterprises. Fleisher et al. estimate a larger elasticity of value-added output than obtained by HJQ, which they conjecture results from their use of industry aggregated data, which would subsume inter-firm spillovers difficult to capture with the firm-level data used by HJQ. Another reason would be that the time period covered in the data used by Fleisher et al. includes six years after China accessed WTO and adopted TRIPS. The combined effects of improved IPR protection and increased access to the global economy may have contributed to adoption of more productive investments in innovative properties.

The Role of Institutions in China’s Growth

While China has accumulated a substantial stock of IC, the data show that it continues to lag behind developed countries. A crucial implication of the roles of IC and Schumpeterian competition in economic growth is that institutions must create a political economic environment that permits the competitive process to operate, even if it results in the destruction of vested interests. Moreover, those individuals with the imagination and training who are able to create new inventions and innovations must be incentivized to direct their efforts toward these activities. The importance of the institutional framework has become as basic to our understanding of the fundamentals of economic development (North, 1991) as have the law of diminishing returns and the role of technology for understanding economic growth. It is not clear that China has adopted the intuitions necessary to encourage IC-driven growth.

The “Needham Puzzle” offers a striking example of the critical role of institutions in China’s economic development. By the end of the 14th century, China had developed many of the technologies underpinning the Industrial Revolution, which propelled the “West” into sharply accelerated growth in the 19th century, but bypassed China. Lin (1995 and 2008) offers an explanation of why China failed to participate in the Industrial Revolution, and by the mid-20th century lagged far behind the world’s technology frontier. Lin’s solution to this “Needham Puzzle” or “Weber Question” is that the methods necessary for technological advance changed by the 18th century and that China’s institutions and incentive structure diverted those who could have participated in modern science and developed modern technology toward other pursuits. Lin describes China’s early technological advances as resulting from the interac-
tion of trial and error experimentation in agriculture, a well-developed profit motive, and increasing population pressure on available land. The existence of an educated elite facilitated the development of technology breakthroughs in non-agricultural areas, but the experimentation, mathematization, and systematization of hypotheses and hypothesis testing necessary for developing and applying new technology was absent. This “scientific human capital” required considerable formal education. Although China had a well-educated intelligentsia, the political institutions created an incentive structure that directed scholars toward studying (memorizing) Confucian philosophy, political, and historical works to achieve admission to the government bureaucracy. The path to economic and social advance was not seen to be through business and the profits achieved through innovation facilitated by science, experimentation, and invention of new technology. Modern science and the correlated abilities to develop and adapt technological advance did not emerge in China.

Acemoglu and Robinson (2012) employ similar reasoning on a global scale to explain why some nations grow while others have failed. They argue that nations will fail to grow if they have “extractive” as opposed to “inclusive” institutions. Extractive institutions (political or economic) protect vested interests. Property rights tend to be insecure, and regulations along with high barriers to entry protect incumbent economic actors. Inclusive institutions allow free entry, enforce contracts, and provide opportunities for education and entrepreneurship. Inclusive institutions encourage growth by facilitating “creative destruction,” which leads to innovation and growth.

China’s political and economic institutions supported China’s technological leadership prior to the end of the fourteenth century, but they tended to be extractive rather than inclusive. This directed investments in human capital away from invention and innovation, delaying the Industrial Revolution. The questions implied by the essays of Joffe and of Coase and Wang cited above suggest a concern that China may once again be entering a phase where its institutions adversely affect growth. Innovation threatens to destroy the profits enjoyed by politically powerful vested interests through Schumpeterian creative destruction. Despite 35 years of reforms, China’s political institutions still tend to favor the incumbent. Coase and Wang (2012) provide a cogent and concise statement of the urgency for policies that assure a “marketplace of ideas” for China. Specifically, China’s future growth will depend on the steps it takes to protect domestic innovators and encourage entrepreneurship.


In 1992 and 2002, prior to its accession to the World Trade Organization in 2002, China modified its patent laws to bring them up to standards specified in the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Fleisher, et al.(2013a) report research on these changes in China’s patent laws and their relationship to productivity, inward FDI, and domestic R&D activity. There is a very large body of theoretical research showing that strong intellectual property rights (IPR) can actually harm developing economies, which are much more likely to benefit from copying existing technology than from developing new technology. Of course, strong IPR legislation does not automatically translate into effectively enforced protection, and there is a considerable body of investigating whether the reduced ability to copy existing technology (or benefiting from “spillovers”) is offset by increased incentives to innovate. Fleisher, et al find no evidence that FDI, R&D expenditure, or productivity growth were negatively impacted by China’s adopting the TRIPS standards. Whether this is because the TRIPS regulations have been poorly enforced remains an open question, although Zhang et al. (2013) note that patent in-
fringement by domestic enterprises on foreign patents is high in China.

The Possibility for Creative Destruction in China. A critical institution interacting with IPR protection is whether entrepreneurs with new ideas and innovations are allowed to compete with, and possibly destroy, established enterprises. One aspect of this ability to compete is whether entrants and incumbents have equal access to intellectual property protections. In their survey of the business environment in China, Witt and Redding (2013) point out that venture capitalism is weak in China; to the extent that entrenched interests, particularly SOE’s and politically-connected elite can limit potential competitors’ access to needed finance, they can protect themselves from the competition of potentially destroying innovators. Witt and Redding (2013) point out that poor training and corruptibility of judges and other members of the legal profession facilitate government interference in court cases, which one may presume often occurs to protect members of the established business and government hierarchy. Liegsalz and Wagner (2013) analyze over 400,000 patent applications from 1990 to 2002 and find that domestic (Chinese) applicants receive their patent grants significantly sooner than do foreign applicants, holding constant other determinants of the lag between patent application and final outcome. The internationally recognized expert on China’s legal system, Donald Clarke, notes that “Local political leadership controls personal and finances at same administrative level, and this naturally makes...[them]...listen to local political leaders...[regardless]...of what the law might require.” In his essay, China: Creating a Legal System for a Market Economy (Clarke, 2007), Clarke cites China’s distrust of civil-society solutions to market problems limits the role of competition compared to societies with less formalistic legal structures.

Hsieh and Klenow (2009) estimate the aggregate effects of these distortions on China’s economy. Using the U.S. as a benchmark, they find that, absent the observed distortions in the allocation of resources across firms, China’s TFP would have been 30%-50% higher in the period 1998-2005. While reforms have eliminated some of these distortions (and therefore gains to reallocation), the authors point to the continued presence of state owned enterprises as a major source of misallocation. As long as these firms enjoy special regulatory treatment and preferential access to credit, there will be little incentive for entrants to innovate.

Conclusions

Academic research and investigative journalism raise serious questions regarding whether the reforms initiated under Deng Xiaoping have been sufficient to maximize growth. As China’s moves from its position as the world’s manufacturer of labor-intensive goods to a position closer to the world’s manufacturer of labor-intensive goods, further growth will require radical institutional change.

If China wishes to sustain its “growth miracle,” it will need to take further steps to reform the state-owned sector, lower barriers to trade and to entry, and protect intellectual property.

Schumpeterian growth through investment in IC cannot occur as long as extractive institutions continue to favor incumbents and the politically well-connected. If China wishes to sustain its “growth miracle,” it will need to take further steps to reform the state-owned sector, lower barriers to trade and to entry, and protect intellectual property. Absent these reforms, it is difficult to see how China can escape its “middle income” status.
Editorial: The Botched Asian Growth Strategy

In recent years, many Asian economic powerhouses have seen declines in their GDP growth rates, pushing these nations to respond by declaring specific plans to restore their erstwhile robust development. This piece examines four such nations – Japan, Singapore, China, and India – and argues that in all cases, Asian growth strategies will be ineffective at achieving their goals because they all fail to identify and confront the core of each nation's economic struggles.

Justin Katiraei
Japan

Let us begin with Japan, which has experienced a series of unfortunate adverse economic developments largely since the collapse of their real estate and stock market bubbles in 1990. Hamada and Okada (2009), Jorgenson and Nomura (2007), and Ito and Patrick (2005) identify real and domestic failures, such as lackluster total factor productivity, non-performing loans and poor governance, as well as monetary and international factors such as the Plaza Accord of 1985, for this stagnation. Japanese real GDP growth has sat at just 0.8% per annum for the past 20 years, and nominal production has declined due to deflationary monetary policy, the worst growth performance among OECD states. The declining Japanese labor force since 1995, falling overall population since 2007, and large future government expenditures to support social security commitments to the elderly all serve to compound these problems. The current Japanese government, led by Prime Minister Shinzo Abe, has responded to this economic malaise with its Three Arrows plan, constituting (1) aggressive monetary policy, (2) flexible fiscal policy, and (3) a new growth strategy. This growth strategy, the third arrow of the government’s grand initiative, is designed to increase labor productivity, bolster the public’s purchasing power, promote private investment by shifting the tax burden from investment to consumption, and revitalize regional economies through the creation of special economic zones with eased regulations. However, Japan’s growth strategy notably does not include the crucial relaxing of rules for firing workers, and actually moves in the opposite direction by extending contract lengths for part-time workers in an effort to increase job security. The Kafkaesque labor market currently in place in Japan all but freezes labor mobility through seniority-based salaries and lifetime employment schemes, forsaking the blessings of having the highest quality labor force in the world. Japan’s growth strategy furthermore fails to end the economically absurd prohibition on private companies entering the agricultural sector, which Hatta (2013) aptly notes has enormous social costs because private firms are the main drivers of competition for technological innovation. As long as Japan lacks the political will to take tough action and battle the established industries impairing economic metabolism, it is unlikely the nation’s current strategy for growth will yield substantially different results from the failed efforts of the past two decades.
The economic dilemma and growth strategies facing Singapore are analogous insofar as the city-state hesitates to take the aggressive action necessary to restore robust growth. Labor productivity in Singapore, which had been growing at over 3.0% per annum since the 1970s, declined sharply to just 0.5% in the latter half of the 2000s, translating into GDP growth declines. The Economic Strategies Committee of Singapore has responded with a growth plan targeting average labor productivity (ALP) growth between 2.3% and GDP growth between 3-4%, intending to achieve such targets by (1) increasing the Foreign Worker Levy and (2) bolstering further the nation’s human capital and IT investment. However, Nomura and Amano (2012) correctly find this logic to be erroneous, because while the policies may increase ALP growth to target levels, they will also decrease overall hours worked by an estimated 0.84%, which largely offsets the effect of ALP increases on GDP growth. As such, even under successful implementation of the economic strategy, Singapore’s GDP growth will languish at 3.2% in the 2010s and 2.1% in the 2020s, below the 8.7% witnessed from 1966-1990 and almost at the estimated levels if there were no growth strategy in place at all. The growth strategy, like that of Japan, fails because it does not make impactful enough of a change to the economy. Youn (1995), in his growth decomposition of Singapore, finds that nearly all of the nation’s growth from 1966-1990 was due to input growth, discovering that total factor productivity was nearly non-existent at 0.2%. One-time changes such as increasing the labor force participation rate from 27% to 51%, the secondary education attainment rate from 16% to 66%, and the investment to GDP ratio from 10% to 47% explain most of Singapore’s recent growth. To continue robust output into the future, Singapore must bolster its TFP growth, as there is little room to continue ALP growth through evermore labor quality improvements and capital deepening. The nation’s growth strategy is doomed to fail as in Japan because it refuses to recognize that a more fundamental economic shift is needed than simply continuing the tired policies of yesterday.

We find yet a similar story in China. While Chinese GDP growth averaged nearly 10% per annum from 1989-2008, it has recently fallen to 7.8% last year. Just this past month, the Third Plenary Session of the Community Party of China met to adopt a growth strategy spread across eight key areas: (1) streamline administrative approvals, (2) open basic industries to competition by lowering barriers to entry, (3) launch land reform with greater rights for farmers, (4) liberalize deposit and exchange rates, (5) reform fiscal/tax systems to create basic social security for all, (6) separate administration and management of state-owned enterprises, (7) promote green development, and (8) liberalize the service sector. Encouragingly, these eight reform areas largely encompass a list of six reform areas devised by the World Bank in their extensive China 2030 report. Furthermore, China’s 12th Five Year Plan, inaugurated in 2011, is taking the necessary steps to rebalance the economy away from its unsustainablely high investment and export levels (today a majority of GDP) and towards greater private consumption. Yet it is still unlikely we will see the same degree of growth in the future that we saw in recent decades. For one, many of the aspects of China’s growth strategy take time, such as building a national pension system to decrease the savings rate. Perkins (2012) furthermore notes that China somewhat followed the Asian growth model of Young (1995), relying on one-time changes such as increased investment and educational attainment for past growth. Because after 2015 the labor force will begin to decline in China, TFP must accelerate to an unprecedented 4.9% to maintain 9% GDP growth, which is unlikely especially when considering the productivity boost following the reforms of Deng Xiaoping is largely complete.
India

Continuing the trend, the situation in India is not too dissimilar from that of Japan, Singapore, and China. While Indian growth stood at 8% from 2005-2010, it has decelerated in the past 18 months to nearly 5%, and new investment projects are down tenfold. The path forward for Indian growth, according to Bank of India Governor Raghuram Rajan, lies in containing the fiscal deficit by cutting subsidies, improving land acquisition procedures, increasing access to quality infrastructure, scaling back the Licence-Raj-esque regulatory complex that keeps small businesses tiny, reducing barriers to entry, promoting foreign direct investment, and improving financial intermediation. The opportunity for India to implement these reforms will remain open and can spur high growth rates for decades to come, yet will first require the political will we have yet to see from India. The government’s recent September decision to increase subsidies does not indicate Indian growth strategy is on the right track. It seems clear that if India and the other Asian powerhouses of recent history are to retain their strong performance into the future, these nations’ growth strategies will need to be rethought and matched with a redoubled political commitment for change.

New Delhi

The Harvard Economics Review
Robert Lucas, on the subject of what determines economic growth and prosperity, once said “The consequences for human welfare involved in questions like these are simply staggering: once one starts to think about them, it is hard to think about anything else.” The same facts that astounded Lucas in the late 1980s continue to challenge economists today. How do we reconcile models that predict convergence of growth rates across countries with what we observe in the world – large variations in growth rates and high levels of inequality? Accompanying the poor growth of many countries are a series of other ills: for example, one in 23 mothers dies during pregnancy in Sierra Leone, children in DRC face an under-five mortality rate of 14% and the WHO estimates that a child dies of malaria every minute in Africa. These observations leave development economists, and anyone interested in improving the welfare of vast portions of humanity, with a daunting agenda.

Over the past several decades, there has been an exciting expansion in the methods, tools and approaches used by development economists to meet these challenges. These new approaches, in particular those that emphasize incorporating insights from other disciplines, offer a promising path forward. I think that economists should (and increasingly do) care about the perspectives of other disciplines, such as anthropology, psychology, history, political science and even evolutionary biology and genetics. By combining perspectives from multiple disciplines, development economists can make even greater strides toward tackling big problems in development.

Before launching into more interdisciplinary approaches to studying development, I would like to discuss the contributions of randomized controlled trials (RCTs) to development economics. RCTs are increasingly popular approach to evaluate development programs and policy interventions. RCTs are the development economics equivalent of medical trials – by randomly assigning some groups to receive development interventions and others to not receive them, economists are able to measure the effects of the intervention. More importantly, they are able to attribute any measured effect as a causal impact of the intervention. Researchers such as Michael Kremer, an economist at Harvard, and Esther Duflo, an economist at MIT, have used RCTs to address a variety of questions in health, education, agriculture and technology adoption in developing countries.

MIT is home to the Jeeves Poverty Action Lab (JPAL), an organization devoted to designing, implementing and disseminating results from RCTs. As JPAL celebrates its 10 year anniversary this December, we can acknowledge the remarkable contributions the organization has made to
increasing focus on measurement and to
determining what is effective in improv-
ing development outcomes. Innovations
for Poverty Action (IPA), J-PAL sister or-
ganization, has been cited as a top effective
charity by GiveWell. Organizations such as
J-PAL and IPA have made important
strides in connecting development re-
search with policy recommendations and
making development research actionable.

RCTs are not the only tool in-
spired by other disciplines. Lab experi-
ments, a tool frequently used in psychol-
ogy, have been adopted by economists to
shed light on the psychological channels
of decision-making. Experimental and
behavioral economists design lab exper-
iments to test how individuals make de-
cisions in a controlled environment. This
approach has been used to examine how
altruism, reciprocity, risk aversion and
other social and time preferences affect decision-
making. A promising avenue for
development research focuses
on how psychological factors
interact with poverty. Harvard
economist Sendhil Mullain-
athan’s recent book “Scarcity:
Why Having So Little Means So
Much” seeks to explain why it
seems that the poor often make bad decisions. He suggests that a
mentality of scarcity fundamen-
tally alters how individuals make
decisions, often for the worse. In
effect, the conditions of poverty
can perpetuate poverty.

Intrigued by this hy-
pothesis and how scarcity might
affect discrimination in devel-
oping country labor markets, I
decided to bring the lab to the field. I conducted
a pilot lab experiment in the Democratic
Republic of Congo in which experimen-
tal subjects were asked to make a hiring
decision. In DRC ethnic discrimination is
widely prevalent, particularly in the labor
market. To examine how cognitive load
affects discrimination, experimental sub-
jects were asked to choose among co-eth-
nics and non co-ethnics in their hiring
decisions. To induce a condition of mental
scarcity, half of the subjects were asked to
remember a 7-digit number while making
their hiring decision while the other half
only had to remember a 2-digit number.

Surprisingly, those subjects making deci-
sions under high cognitive load exhib-
ted systematically better decision making
than those under low cognitive load. They
were significantly more likely to choose
the most productive job candidate and
much less likely to discriminate in favor
of a co-ethnic in their hiring choice. The
results suggest that cognitive load matters
decision-making and that further work
needs to be done to clarify when cognitive
load will improve or worsen decisions.

While lab and field experiments
are powerful tools, not every policy or de-
velopment question can or should be ad-
dressed using RCTs. For instance, it is not
possible to randomize civil wars or insti-
tutional quality. For this reason, develop-
ment economists have increasingly turned
to insights and approaches from other
fields. The field of economic history uses
history to address economic questions. By looking to history, economic histori-
ans try to understand how past events can
have persistent and meaningful effects on
outcomes today. History offers the benefit
of a long-term perspective and the advan-
tage of being able to observe how econom-
ies adjust to shocks. Nathan Nunn, a
professor in the Economics department,
has examined the effects of the African
slave trade on the subsequent develop-
ment of African nations. He finds that
those countries more exposed to the slave
trade are now more underdeveloped. He
suggests that the channel through which
the effects of slavery have persisted is trust.

A project I am currently working on exam-
ines the long-term effects of colonial med-
ical campaigns in Western and Central Af-
rica. French and Belgian colonial regimes
used public health campaigns aimed at
controlling tropical diseases between the
1920s and 1950s in their African colonies.
While the campaigns followed standard
campaigns affect health-seeking behavior
and social preferences, such as trust, to-
day. As these research projects
suggest, current development
outcomes did not arise in a vac-
uum. Historical events, institu-
tions and cultural practices can
help explain why some countries
continue to be underde-
veloped and can shed light on
how to improve outcomes in the future.

Understanding pov-
erty and the conditions that
cause poverty is complex and
challenging. It demands our at-
tention precisely because it is so
challenging. Development econ-
omists have greatly benefited
from the insights and approach-
es used by other fields such as
medicine, psychology and
history. I believe that the study of
economic development can only
be enhanced by greater communication
with other disciplines. Albert Hirschman
was an economist who believed that great
challenges had the counter-intuitive effect
of inspiring ingenuity beyond our own
expectations. He once wrote, “Creativity
always comes as a surprise to us; therefore
we can never count on it and we dare not
believe in it until it has happened.” In a
similar spirit, while the challenges posed
by development loom large, the possibil-
ities from interdisciplinary engagement
expands the set of opportunities and ques-
tions we can answer, perhaps more than
we can imagine.

"Historical events, institutions
and cultural practices can
help explain why some coun-
tries continue to be underde-
veloped and can shed light on
how to improve outcomes in
the future."
The currency market has many players and it is considered one of the most efficient markets in the world. When the value of a country’s currency decreases unexpectedly, the production sector of the economy has to endure higher prices of imported inputs and higher costs of production. While many companies in developed countries use the hedging instruments available in the market to plan against such risk, many companies in developing countries lack access to such instruments since the financial market has not matured in their home country and their access to global financial markets is somehow limited. In such circumstances companies rely on government subsidies – either a direct production subsidy or a guaranteed exchange rate – against other major currencies in the world.

In Iran, like some other developing countries, the central bank makes foreign currencies available to importers at a pre-determined rate. Historically, Iran, like other oil-producing countries, has pegged its currency to the U.S. dollar in order to stabilize oil revenues in the government budget. Even though Iran had formally abandoned the peg in 1992, the evidence points to significant interventions by the central bank to manage the exchange rate relative to the US dollar. Like many developing commodity-producing countries, Iran shares high dependency on oil exports and exposure to external shocks. Moreover, Iran is highly dependent on imports and has maintained an informal relatively stable target of the rial to the US dollar to insulate oil resources from currency fluctuations. By fixing the exchange rate, Iran
also guarantees the stability of their currency to gain investor confidence. When a country fixes its currency against another currency, officially or unofficially, the country has to intervene in the foreign exchange market actively to keep the value on the pre-determined or target rate. Iran, like other countries with fixed exchange rates, has to hold a reserve of foreign currencies. When there is a downward pressure on the value of the currency, the central bank uses its foreign currency reserve to buy rial in foreign exchange market in order to prevent depreciation. Alternatively, they will sell their own currency in foreign exchange markets if market forces push the value of their currencies higher than their targets. In this case, the country will accumulate more foreign currency reserves.

**Exchange Rate and Dutch Disease**

However, when higher oil prices lead to higher oil income and consequently higher inflow of foreign currencies to the domestic economy, in the absence of exchange rate adjustment, the impact is absorbed by higher prices and inflation in the country. This phenomenon is known as Dutch disease. As a result, while nominal exchange rates are fixed, the domestic currency appreciates in real terms as domestic inflation increases compared to inflation abroad. Higher inflation not only leads to appreciation of real exchange rate and hurts competitiveness of Iran’s non-oil export in the global economy, but also creates high inflationary expectation among general public which feeds into even higher prices or hyperinflation. As we can see in graph 1, consumer prices and producer prices have increased continuously since the 1990s.

If we look at the rate of change in consumer price index since the 70s, we observe that the inflation rate is increasing in Iran after a period of decline.

**Bypassing Dutch Disease**

To reduce the dependence on oil, Iran like some other oil producing countries has aimed at boosting the competitiveness of its non-oil exports. In order to keep the competitiveness of non-oil production and remedy Dutch disease, many oil producing countries including Iran has created wealth funds to accumulate an additional inflow of funds during high oil prices and use them when oil prices decrease. The wealth funds are expected to neutralize the impact of fluctuations of oil price on the domestic economy by keeping the extra flow of foreign currency to domestic economy during high oil prices and also by using it as a cushion during oil price and revenue decreases.

A policy of fixed exchange rates, when successfully implemented, creates investor and broader public...
confidence, but when it fails, it can lead to an economic crisis. Specifically, if the fixed predetermined value is substantially higher than market equilibrium, the country risks running out of foreign currency reserves which will lead to currency crisis. In the era of high oil prices and before the recent global financial sanction against Iran, Iran’s central bank had enough available foreign reserves to hold the value of rial not only stable but also above its long run trend that corresponds to inflation differentials among countries. As a result of appreciation of the rial against its major trading partners, Iranian industries lost their competitiveness in the global market. However, the truth is that while currency appreciation makes Iranian goods more expensive abroad, at the same time, it will make it cheaper to import raw materials and intermediate goods, taking away some of inflationary pressure of increased liquidity.

**Government Policy and Inflation**

Higher oil price and higher oil revenue increases government revenues and domestic liquidity, resulting in demand expansion and higher inflation. An increase in government spending has reinforced the inflationary effects of higher oil prices through higher demand for goods. When the government uses expansionary monetary policy to finance its deficit, and at the same time uses the foreign currency reserves to defend the fixed exchange rate, the public expects depletion of reserves and eventual currency depreciation in future, and that leads to further inflationary pressure.

Iran’s public consumption expenditure accounts for 11.2 percent of GNP in 2010. At the same time, the shares of private consumption expenditure and gross fixed capital formation of GDP are 41, and 26.7 respectively. Private investment is less than 50 percent of total investment, reflecting the high share of public spending on capital. The government size has fluctuated with the oil price, booming during periods of higher oil revenues and shrinking during economic stagnation. Higher government spending on subsidies, wages and salaries, as well as on goods and services is likely to exert persistent inflationary pressures. In contrast, spending aimed at relaxing capacity constraints will ease structural bottlenecks and mitigate inflationary pressures. The recent removal of government subsidies on energy has also increased prices, generating higher inflation.

**Impact of International Sanction**

In the past, Iran’s ability to access financing for trade and investment has been limited due to investors’ lack of confidence. While the poor domestic business environment has been the main reason for capital outflow and lack of adequate foreign investment, the sanctions levied against Iran by Western powers have also been a contributing factor. For example, Iran’s oil production is suffering from inadequate investment. However, in the past few years, when financial sanctions were enforced on Iran, Iran’s access to global financial market was reduced dramatically; in some cases access to Western financial markets has been completely eliminated.

When global financial sanctions made it difficult for Iran to access its oil revenue, Iran experienced a currency crisis that led to sharp devaluation of rial. The graph below represents the number of rials that can buy one U.S. dollar. Increase in the value represents depreciation of the currency. As we can see, whenever Iran’s central bank was not able to supply enough foreign currency to the market to keep the value stable, an informal market was created for the currency at a higher rate.

As we can see, whenever Iran’s central bank was not able to supply enough foreign currency to the market to keep the value stable, an informal market was created for the currency at a higher rate.

![Graph 3: Iranian Rial’s Exchange Rate Against the U.S. Dollar, 1978 - 2012](image-url)
Currently, the Iranian government is gaining public confidence in taming inflation, by attempting to reach an agreement on nuclear issues to remove sanctions. As a result, the value of the rial in the free market and the government set rate are coming closer.

Stabilization of Iran's Rial

A sharp decline of the value of the Iranian rial since 2012 led to a surge of inflation. In order to stop the free fall of rial, Iranian government has implemented capital controls on one hand and also restricted availability of foreign currency at a preferred rate only to imports of essential goods. For everything else, importers have to rely on the free market where the value is determined competitively. By maintaining multiple exchange rates, the government has introduced more flexibility in the exchange rate. They are also aligning their domestic policies to restrain demand growth. Containing credit growth and government spending would limit excess demand and upward pressure on prices.

Even having a fixed exchange rate via government intervention may not be desirable; achieving exchange rate stability has tremendous benefits. Predictability of the currency value increases confidence of domestic business and foreign investors. However, in Iran, years of high inflation because of expansionary monetary policy along with the recent removal of government subsidies on energy have been the main driving factor bringing the economy to current crisis while recent financial section worked as a detonator. Public confidence was at its all-time low when government reduced its supply of foreign currency to the market.

Currently, the Iranian government is gaining public confidence in taming inflation, by attempting to reach an agreement on nuclear issues to remove sanctions. As a result, the value of the rial in the free market and the government set rate are coming closer.
The Big Split: Why Did Output Trajectories in the ASEAN-4 Diverge after the Global Financial Crisis?

Agnes Isnawangsih, Vladimir Klyuev and Longmei Zhang

The global financial crisis originated in advanced economies, but had a major effect on emerging markets. Its impact, however, was not uniform. Even in such a relatively homogenous and highly integrated group of countries as ASEAN-4 (Indonesia, Malaysia, the Philippines and Thailand), there are considerable differences both in terms of the instantaneous impact of the crisis and in terms of output performance relative to the precrisis trends. Having grown at nearly identical rates between 2000 and 2007, the four countries set out on clearly divergent paths after the crisis. What explains these cross-country differences in performance? Several broad categories of factors could be at play. Given the context, it is natural first to look at the size of the external shock. The magnitudes of trade or financial shocks could have varied across countries. Next, the transmission of shocks to domestic economy depends on the degree of trade openness, the composition of exports, the degree of financial development, and the strength of bank, corporate and household balance sheets. Third, policy responses may also have played an important role in post-crisis recovery. Countries that had stronger fiscal and monetary stimulus may have weathered the crisis better. Lastly, idiosyncratic factors could have contributed to the differences.
THE MAGNITUDE OF EXTERNAL SHOCKS

Trade Shocks

The four countries in this study are located in the same geographic region and share trade linkages with broadly the same group of partners. Hence, it is not surprising that they experienced external demand shocks of very similar magnitude. Figure 2 shows the deviation of trading partner GDP from its precrisis trend for each country. The index for trading partner GDP is a weighted average based on export shares. The lines are nearly indistinguishable for the four countries implying an identical deterioration of the external environment on the real side. Deviations of domestic demand in the trading partners—which arguably serve as a better representation of external demand shocks for the four ASEAN economies than GDP deviations—are also aligned very closely (Figure 3).

Financial Shocks

ASEAN countries experienced a large decline or even reversal in capital flows (Figure 4). The sudden stop was the most pronounced in Malaysia, where foreign investors sold government bonds and got almost completely out of central bank securities. In the Philippines, the capital flight was less pronounced in 2008, but it took until 2010 for capital inflows to bounce back. Thailand had two years of subdued inflows. In contrast, Indonesia experienced only a mild moderation compared to precrisis numbers, although the base was smaller than in the other countries.

STRUCTURAL CHARACTERISTICS AND TRANSMISSION OF SHOCKS

Transmission of Trade Shocks

While the four countries experienced external demand shocks of similar magnitude from trading partners, the extent to which such shocks translate into output movements depends on the degree of trade openness. Malaysia is the most open economy in the group, with the export-to-GDP ratio above 100 percent (Table 1). Next to it is Thailand, where exports account for about 70 percent of GDP. The decline in exports therefore disproportionately affected these two economies. Indonesia and the Philippines are much more closed, with the export-to-GDP ratios in the 30–40 percent range.

Figure 5 shows for each country individually the deviation of its trading partner GDP from trend (in red); and then those deviations scaled by the countries’ export to GDP ratios (green). In a hypothetical case where the elasticity of exports to trading partner GDP is one, the slowdown in partner growth is the only shock affecting the economy, and there are no other exacerbating or mitigating factors, the deviations of domestic GDP from trend would align with scaled partner deviations, i.e. with the green line. Finally, we show actual domestic deviations in blue. This demonstrates that differences in trade openness go a long way toward explaining why some countries were affected more by the crisis than others, but clearly that is not the whole story.

Differences in exchange rate movements may help explain why exports fared better in Indonesia and the Philippines than in Malaysia and Thailand. The Indonesian rupiah depreciated considerably more than the other three currencies during the crisis, which might have offset the negative demand shocks to some extent and helped exports to recover (Figure 6). It should be noted that the
spike in inflation—partly induced by depreciation—was larger in Indonesia and the Philippines than in Malaysia and Thailand, so the differences in real depreciation were less pronounced, but still substantial (Figure 7).

Transmission of Financial Shocks

Reflecting capital flight and confidence spillovers, the financial shocks led to some turmoil in the financial market across the ASEAN-4. Over the course of 2008, the stock market index fell nearly 40 percent in Malaysia and by about 50 percent in the other three countries (Figure 8). Government bond yields also jumped at the beginning of the crisis, especially in Indonesia and the Philippines. However, the turmoil in the financial market was relatively short-lived, as both stock markets and bond yields recovered strongly after the introduction of quantitative easing by the Fed. The impact of financial shocks on credit growth was also temporary and relatively mild.

The real impact of financial shocks may have been larger in countries with greater financial depth. As shown in Table 2, both the credit to GDP ratio and market capitalization of bond and stocks are much higher in Malaysia and Thailand. This implies the wealth effect from the financial turmoil may have therefore been larger in these two countries. In contrast, the significant drop of private credit growth in Indonesia may not have translated into a major shock for the real economy because the credit to GDP ratio was rather low.

POLICY RESPONSES

Exchange Rate Policy—Immediate Reaction to Financial Shocks

In the early stages of the crisis, the shock was largely financial. Capital outflows put pressure on the exchange rates. All countries leaned against the wind, intervening in foreign exchange markets. Malaysia spent by far the most reserves (Figure 9). Intervention was more modest in the other three economies, although Thailand reduced its net forward position substantially (Figure 10). These differences likely contributed to the fact that the Philippine peso and particularly the Indonesian rupiah depreciated substantially more than the Malaysian ringgit and the Thai baht—thus supporting the exports in the Philippines and Indonesia.

Monetary Easing—Reaction to Real Shocks

As financial pressures subsided and the demand shock (both external and domestic) became the main concern, the policy rates were lowered significantly in all four countries in late 2009 and early 2010, all moving to historically low levels (Figures 11). The difference from the precrisis rate was the largest in Indonesia and Thailand, while Malaysia had the least easing and was the first to start normalizing rates.

All four countries took steps to maintain liquidity provision, although some were more aggressive than others. For example, all but Thailand lowered reserve requirements (Figure 12); Indonesia and the Philippines also undertook foreign exchange liquidity injections. All four supported their financial systems (e.g., via increases in deposit insurance limits). It is difficult to compare the magnitude of these measures across countries. It does appear, however, that Indonesia provided the most support to exporters via depreciation and was the most aggressive in both convention-
al and unconventional monetary easing, but these outcomes reflect not only policy choices, but also external pressures.

**Fiscal Stimulus**

Fiscal policy reaction differed considerably among the four countries. Initially, they all responded with a significant loosening of the fiscal stance, as measured by the decline in the ratio of the cyclically-adjusted general government primary balance to potential GDP in 2009 (Figure 13). On that measure, the fiscal impulse ranged from 1.2 percentage points in Malaysia to 1.9 percentage points in the Philippines. However, Thailand and particularly Malaysia were much quicker to withdraw fiscal stimulus than the other two countries. In Thailand the turn toward consolidation may have been triggered by concerns about running out of fiscal space, with government debt and deficits noticeably higher than in the other three countries. In Thailand plans for a second round of fiscal stimulus (that was supposed to center on infrastructure projects as opposed to income support in the first round) were shelved amid political turmoil that marked the year 2010. In contrast, Indonesia was able to roll out its fiscal stimulus particularly swiftly because first, a corporate income tax had already been planned for 2009, and second, large election-related spending in early 2009, which otherwise would have exacerbated overheating, turned out fortuitously timed to offset a decline in external demand.

**OTHER FACTORS**

In addition to the real and financial shocks associated with the global financial crisis, the ASEAN-4 countries were subject to various other external and domestic shocks and influences. In this subsection we focus on Indonesia and Thailand, given that the trajectories of their output deviated the most from what could be attributed to the crisis.

In Indonesia, more important than the timely but temporary fiscal stimulus were structural reforms implemented in the mid-2000s. These wide-ranging reforms aimed at improving the investment climate and facilitating foreign direct investment. Figure 14 is a testament to the success of those reforms. Between 2005 and 2011 the ratio of investment to GDP surged in Indonesia, while it moved broadly sideways in Malaysia and the Philippines, and declined in Thailand. A considerable part of the Indonesian surge was foreign direct investment in the commodity sector (prompted, of course, by buoyant prices in addition to an improved business environment), which slowed but did not stop during the crisis.

In Thailand, on the other hand, investment growth slowed after 2005. Indeed, while the other three countries were accelerating just before the crisis hit, with output about one percent above trend in 2007, Thailand was already slowing. Even though the reasons are difficult to pinpoint exactly, political uncertainty and, at times, turmoil (e.g., in 2010) that took toll on private sector confidence is likely among them.

In addition, in 2011 Thailand suffered from two major shocks that delayed its recovery further. In the first half of the year Japan was broadsided by a devastating earthquake accompanied by a tsunami. Among Japan’s trading partners, Thailand was affected disproportionately because of the integration of its automobile industry with that of Japan. Thus, Thailand suffered not only because it could not sell its output to Japan, but also because its access to key inputs into production

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**Table 1. International Trade Exposure, 2007**

<table>
<thead>
<tr>
<th></th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Philippines</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>International trade</td>
<td>54.7</td>
<td>192.5</td>
<td>83.5</td>
<td>139.3</td>
</tr>
<tr>
<td>Exports</td>
<td>29.3</td>
<td>106.2</td>
<td>39.7</td>
<td>73.4</td>
</tr>
<tr>
<td>Imports</td>
<td>25.4</td>
<td>86.3</td>
<td>43.8</td>
<td>65.9</td>
</tr>
<tr>
<td>Domestic value added induced by exports 1/</td>
<td>23.6</td>
<td>59.5</td>
<td>20.5</td>
<td>45.7</td>
</tr>
</tbody>
</table>

Sources: IMF, World Economic Outlook, Direction of Trade Statistics; World Bank, World Integrated Trade Solution; OECD.Stat; and IMF staff calculations.

1/ 2008 data; value added by each country in the production of goods and services that are consumed worldwide.
was disrupted. And in the second half of the year Thailand itself was hit by its worst floods in half a century, resulting in major destruction of life and property and bringing production to a halt in many parts of the country.

The importance of temporary shocks should not be underestimated, particularly in a fast-growing economy. An output decline caused by a temporary shock could be reversed relatively easily, but it is much harder to make up for lost growth. Emerging markets grow fast because of high rates of capital accumulation, technology absorption or development, and human capital upgrading, including through learning-by-doing. All these processes are stalled or slowed during a crisis, and with limited absorptive capacity, the lost time cannot be regained fully. For that reason, unless the drop in output is very short-lived, emerging markets do not tend to bounce all the way back to their earlier trajectories. In other words, temporary shocks have permanent level effects, as documented in Aguiar and Gopinath (2007).

CONCLUSION

This article highlights the differences in the performance of four emerging ASEAN economies in the aftermath of the global financial crisis. Before the crisis they were broadly on similar trajectories. After the crisis Indonesia accelerated relative to the earlier trend; the Philippines rebounded to the precrisis trend; Malaysia started growing parallel to, but below the trend; and Thailand drifted considerably below its precrisis trajectory.

Exploring the reasons for the divergence, we find that the trade shock was similar for the four countries, but had a bigger impact on GDP in Malaysia and Thailand because of their higher degree of trade openness. On the financial side, despite larger capital outflows from Malaysia, subsequent financial turmoil was more pronounced in less liquid financial markets, such as those of Indonesia and the Philippines. At the same time, the spillover of the financial turmoil to the real economy was dampened in the latter countries by the much lower financial depth.

On the policy front, fiscal stimulus was considerably shorter in duration and somewhat smaller in Malaysia and Thailand than in Indonesia and the Philippines. The reduction in policy rates was the smallest and most short-lived in Malaysia. Thailand also started normalizing its monetary policy stance relatively early, and it was the only country in the group to have lowered reserve requirements. More sizable foreign exchange interventions in Malaysia and Thailand limited depreciation of their currencies, reducing the support provided to exports by that automatic stabilizer. Indonesia had the largest reduction in policy rates and the broadest array of other measures aimed at supporting liquidity provision.

In addition, structural reforms taken prior to the crisis in Indonesia had improved investment climate, which together with commodity boom fueled investment and contributed to the acceleration of growth (but also led to falling current account balances). On the other hand, political instability in Thailand negatively affected private demand, while the natural disasters of 2011 brought growth to a halt that year.

While it is difficult to quantify the contribution of each factor, we believe that the degree of trade openness and the strength of policy response (particularly the magnitude and duration of fiscal stimulus) primarily account for the differences between Indonesia and the Philippines, on the one hand and Malaysia and Thailand on the other. Within these two groups, Indonesia’s superior growth is mostly due to investment-friendly structural reforms introduced in the mid-2000s, while Thailand’s underperformance can be explained by a battery of negative shocks that hit the country in 2010 and 2011.

References


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