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HARVARD ECONOMICS REVIEW

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Make Empire Great Again! Ideologies, Institutions, & Reforms[1]

by Murat Iyigun[2] & Jared Rubin[3]

1 Introduction

The last two decades have witnessed the widespread acceptance of institutions as the primal cause of sustained economic and political development in vindication of Douglass North's (1990) seminal ideas.[4]

The core of North's ideas revolves around formal institutions and the political as well as economic "rules of the game". But his functionalist take on what constitutes institutions that potentially impinge upon sustained economic growth and development is much broader. It not only acknowledges that social norms, beliefs, and informal organizations matter for economic development, but also that formal political institutions could be malleable, with the softer—and harder to measure—institutional determinants coming to bear on the formal rules of the game.

In fact, the interplay between technological changes on the one hand and ideologies, social norms, and beliefs on the other may well account for the causal channels through which a society's formal institutions evolve and come to impinge upon its economic development. In our ongoing research project, we ask why so many societies fail to adopt political or economic institutions that are commensurate with a changing technological and economic landscape. In large part, our motivation stems from the fact that history is replete with instances of societies cognizant of, but failing to adopt, advanced market structures, legal codes, and organizational forms.

Even more curiously, we find that the rejection of more efficient institutions against the backdrop of rapidly changing economic conditions is frequently coupled with vative social and political backlashes and revivals. Contemporary examples of such backlashes abound, including the widely expressed desire among some segments of the U.S. population to "return to the 1950s" and the ubiquitous Middle Eastern trope of "re-

turning to the Golden Age of Islam." Such traditional values are often incompatible with advanced technologies and institutions because they were formed when the technological and institutional environment was drastically different. So why do such conservative sociopolitical movements so often go hand-in-hand with institutional stagnation?

2 The Analytical Framework

In Iyigun and Rubin (2017), we present a model that addresses these puzzles and show how the interactions between productivity shocks (via technology, immigration, or otherwise) and ideologies can influence a country's political institutions. In particular, we illustrate that the degree of uncertainty inherent in newly-adopted production processes could drive individuals to emphasize the intergenerational transmission of their prevailing ideologies at the expense of investing in a new cognitive framework for their children. This occurs despite the fact that education is the channel through which ideologies would evolve to remain compatible with new technologies. In turn, political rulers fail to adopt "better" and more efficient institutions even if—and despite the fact that—doing so would be a first-order economic improvement.

The more uncertain the new production processes, the more likely that ideologies and institutions stagnate. In fact, even when adopting "better" institutions is unambiguously a first-order improvement for the society, as it is under our formulation, both the existing (backward) state of economic development and the society's ideological beliefs would be unlikely to change despite the fact that a change in either ideology or institutions might trigger a positive response in the other. But this is precisely the point; in an uncertain world, such change is too risky and thus does not happen in equilibrium. In other words, conservatism is an outcome; it is not a root cause of failure to adopt more efficient institutions and technologies.[5]

Our second insight follows from the fact that technological progress (and, more generally, production processes) and uncertainty about new technologies often arise together. New technologies can represent a fundamentally new way of producing or consuming at the expense of what one knows and is comfortable with. Moreover, new technologies—especially those with a foreign origin—may not be compatible with the existing resource, institutional, or ideological bases. Our model indicates that when uncertainty dominates, institutions and ideologies are unlikely to respond to technological change. Hence, a "catch-22" arises where ideologies do not evolve, and as a consequence institutions fail to upgrade. Meanwhile, it is precisely because institutions do not evolve that ideologies stagnate. In such a case, the conservative backlash is all the more pronounced as the traditional ideology is ascribed to in spite of a rapidly changing world ill-suited for old ideologies.

We next support the insights of our model with historical analytical narratives from three countries. Each of these narratives highlights the ideological and institutional reaction of non-Western societies when first confronted with Western institutions and technologies.

3 The Ottoman Empire

It was by no means obvious in the 16th century that the Ottoman Empire would eventually fall behind its Western European rivals. The Empire expanded throughout the century and it repeatedly threatened the great powers of central and southern Europe—Spain, Venice, and the Holy Roman Empire. Yet, by the end of the 17th century, the Ottomans had clearly fallen behind. Even prior to the Industrial Revolution, this reversal of fortune was especially apparent with respect to tech-

-nology (Mokyr 1990).

The Ottomans were hardly unaware that the tables began to turn in the seventeenth century, when reformist sultans such as Osman II and Murad IV reigned. Nonetheless, while these prototype Ottoman reformers recognized that change was occurring in the West, their operating premise was the inferiority of anything Western, and their instincts typically involved a stronger emphasis on the Muslim-Ottoman fundamentals (Iyigun 2015). Shaw (1976, p. 175) labels this initial wave of reforms as the traditionalistic reform period: "Even the most intelligent and perceptive of Ottoman reformers [of the 17th and 18th centuries] adhered to the basic premise that the Ottoman system was far superior to anything that the infidel might develop, an attitude that had considerable justification only when it first evolved in the sixteenth century. According to this idea, the reason for Ottoman decline was a failure to apply the techniques and forms of organization that had achieved success at the peak of Ottoman power, normally equated with the reign of Süleyman the Magnificent. To the traditionalistic reformers of the seventeenth and eighteenth centuries, then, reform could be achieved by making the system work as it had previously."

It was not until the 19th century unveiling of the Tanzimat Decree by Sultan Abdul Mecid (1839) that the Ottomans began to adopt Western institutions. The Tanzimat was the earliest constitutional document in any Islamic country and culminated with the establishment of the first ever House of Parliament in the Muslim world, the Meclisi Mebusan, in 1876 (Kinross, 1979, p. 474). It encompassed a series of reforms promulgated in the Ottoman Empire between 1839 and 1876 under the reigns of the sultans Abdülmecid I and Abdülaziz. But these reforms came too late. By the late 19th century, the Ottoman Empire was known as the "sick man of Europe", and its remnants were carved up by the victors of the First World War. What was a once powerful empire fell behind and could not catch up—not because it was incapable of adopting Western institutions, but because the beliefs of its people were incompatible with the adoption of Western techniques.

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4 The Road to Modern Japan

Eighteenth and nineteenth century Japan, which witnessed the decline and fall of the Tokugawa Shogun followed by the Meiji Restoration, is another relevant case that highlights the key dynamics of our hypothesis. In particular, the last few decades of the Tokugawa era were exemplified by a number of reformist movements, almost all of which had a conservative spirit. By contrast, the Meiji Restoration was an initiative aimed at transforming Japanese society, economy, and institutions based on an acknowledgment of Western superiority.

The contrast between the Tokugawa era and the Meiji Restoration, as it relates to our hypothesis, is perhaps best expressed by Jensen (2000, p. 237) "In many respects, it would be more meaningful to refer to the [Tokugawa] 'reforms' as attempted 'restorations,' since each of them tried to bring about a return to the remembered fiscal and administrative health and vigor of the seventeenth century. The Meiji changes, on the other hand, better deserve the term 'revolution,' for they brought permanent change to Japan's institutional life. Not one of the 'reforms' succeeded in its goals, but each added institutional innovations in its attempts to deal with the increasingly complex problems of Japanese society." In other words, the reform attempts during the Tokugawa Shogunate in the 18th and 19 centuries were practical innovations undertaken in response to the rise of Japanese commercialism (Jensen 2000, pp. 238-9).

By stark contrast, and in defiance of its official title, the Meiji Restoration was a wholesale reform initiative driven in large part by an acknowledgment that the traditional social, political, and economic organization of Japanese society was inadequate to deal with the modern challenges of adopting Western technologies and methods of production. Based on our hypothesis, it was driven by an eventual recognition that Western technologies and institutional organizations involved a degree of superiority that was significantly more advanced than those in Japan and, thus, that their adoption at the expense of Japanese traditional ways were worth the risk. The Meiji Restoration Government recognized that Japan's military weakness and economic backwardness might make it vulnerable to the West. In response, reformers pushed for the rapid adoption of Western methods in war and industry, and they abolished most of the remaining restrictions on freedom of movement and enterprise that had been a legacy of the old regime (Allen 1981, pp. 32, 33). The key features that emerged as marks of the Meiji Restoration were the consolidation of political authority and power with the central government; the conscription law as the basis of the modern Japanese military (paving the way for the eventual fall of the samurai); an active industrial policy funded, in large part, by a more efficient tax collection system made possible by the greater powers of the centralized government; and, last but not least, the introduction of a system of universal education (Duus 1976, pp. 76-86; Allen, 1981, p. 2).

5 Qing China

Qing China (1644-1912) presents a particularly illuminating example of a "conservative revival" in response to

foreign technological and institutional innovations. Prior to the Qing, it was not obvious that the West had pulled ahead economically and technologically. Indeed, prior to the fifteenth century, China far surpassed Europe in technological capability. In this period, the transfer of technologies overwhelmingly flowed from East to West—inventions such as paper, the compass, printing, gunpowder, iron plow, blast furnace, water clock, crossbow, and trebuchet were made in China centuries before their adoption in Europe (Mokyr 1990). However, by the dawn of the sixteenth century, numerous Western European technologies surpassed that of China.

It was not until the mid-nineteenth century that China modernized its military technology, rapidly accepting Western technological advances in the face of the Taiping Rebellion (1851-1864) (Needham 1986; Mokyr 1990). And it was in the face of two contemporaneous crises—the rapid decimation of Chinese forces by the British in the First Opium War (1839-42) and numerous internal revolts, with the Taiping Rebellion being the most bloody and dangerous to the regime's future—that the Qing realized the need to modernize their economy and military.

The Qing responded to these crises with a set of policies known as the "Tongzhi Restoration" (1862-74), a period in which modernizing policies were enacted. These policies were implemented via the old, conservative bureaucratic institutions, led by scholars steeped in conservative Confucian ideology (Wright 1957). Instead of adopting Western governance, fiscal, or tax-collecting institutions, the Qing attempted to apply practical or rational Western knowledge without adopting the Western institutions that made this knowledge useful in the first place. This "borrowing" of Western know-how and technology but not institutions is summarized nicely by Wright (1957, p. 1): "Chinese conservatism, ... aimed at the preservation of the Confucian, rationalist, gentry, and non-feudal strains of pre-Taiping and pre-Opium War Chinese society. Chinese conservatives, unlike Chinese radicals, have not been interested in Western political or philosophical ideas. When they have been interested in the West at all, their interest has been solely in terms of the famous formula: 'Chineses learning as the basis; Western learning for practical use.'"

The Qing responses to Western advancement and its own internal troubles is a particularly straight-forward example of what we mean by a society undergoing a "conservative revival". In the face of a rapidly changing and uncertain world—a world that was obviously much more efficient than the world of previous Chinese glory—the Qing refrained from adopting the institutions that were responsible for Western economic success. The uncertainty related to how Western institutions, ideologies, and technologies would interact with prevailing Chinese institutions and ideological beliefs. It was only after China's failure to modernize became all the more obvious during the Sino-Japanese War (1894-95) that the failure of the empire's bureaucrats and leaders to grasp the obvious became inevitable: China had fallen behind.

6 Summary

Why do some societies fail to adopt more efficient institutions in response to changing economic conditions? And why do such conditions sometimes generate ideological backlashes and at other times lead to transformative socio-political movements?

We propose an explanation that highlights the interplay—or lack thereof—between productivity shocks, ideologies, and institutions. When productivity shocks arise, uncertainty results from a lack of understanding how the more productive environment will fit with prevailing ideologies and institutions. This uncertainty discourages investment in institutions and the cultural capital necessary to take advantage of new, more productive, means of production. Accordingly, increased uncertainty during times of rapid technological change may generate an ideological backlash that puts a higher premium on traditional values.

Special Notes:

[1]We are grateful for comments received from the participants at workshops at Stanford (AALIMS), Chapman (ASREC), The Ostrom Workshop at Indiana University, University of Colorado, the Washington Area Economic History Seminar and the 2017 AEA Meetings. Eric Alston, Lee Alston, Cihan Artunç, Lisa Blaydes, Randall Calvert, Jean-Paul Carvalho, Jeffry Frieden, Avner Greif, Anna Harvey, Tonja Jacobi, Saumitra Jha, Asim Khwaja, Mark Koyama, Timur Kuran, Trevon Logan, Debin Ma, Luis Martinez, Victor Menaldo, John Patty, Tom Pepinsky, Eitan Regev, Kenneth Shepsle, Tuan Hwee Sng, Jeffrey Staton, Melissa Thomasson, John Wallis, and Hye Young You provided extremely useful comments. All errors are ours.

[2]University of Colorado at Boulder.

[3]Chapman University.

[4]North (1981; 1990) and North and Weingast (1989). Two of the most often cited empirical contributions on the topic include Acemoglu, Johnson and Robinson (2001) and Rodrik, Subramanian, Trebbi (2004).

References:

Acemoglu, Daron, Simon Johnson, and James Robinson. 2001. "The Colonial Origins of Comparative Development," American Economic Review, 91.

Allen, G. C. 1981. A Short Economic History of Modern Japan. (New York, NY: Saint Martin's Press).

Duus, Peter. 1976. The Rise of Modern Japan. New York. (New York, NY: Houghton Mi¬fflin Company).

Iyigun, Murat. 2015. War, Peace and Prosperity in the Name of God. (Chicago, IL: University of Chicago Press).

Iyigun, Murat and Jared Rubin. 2017. "The Ideological Roots of Institutional Change," IZA Working Paper, No: 10703, April.

Jansen, Marius, B. 2000. The Making of Modern Japan. (Cambridge, MA: The Belknap Press of Harvard University Press).

Kinross, Partick. 1979. The Ottoman Centuries: The Rise & Fall of the Turkish Empire. (New York, NY: Harper Perennial).

Mokyr, Joel. 1990. The Lever of Riches. (Oxford, UK: Oxford University Press).

Needham, Joseph. 1986. Science and Civilization in China, Vol. 5. (Cambridge, UK: Cambridge University Press).

North, Douglass. 1981. Structure and Change in Economic History. (New York, NY: Norton).

North, Douglass. 1990. Institutions, Institutional Change, and Economic Performance. (Cambridge, UK: Cambridge University Press).

North, Douglass C. and Barry R. Weingast. (1989). "Constitutions and Commitment: The Evolution of Institutional Governing Public Choice in Seventeenth-Century England." Journal of Economic History, 49(4): 803-32.

Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi. (2004). "Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development." Journal of Economic Growth, 9: 131-165.

Rubin, Jared. (2017). Rulers, Religion, and Riches: Why the West Got Rich and the Middle East Did Not. (Cambridge: Cambridge University Press).

Shaw, Stanford. (1976). History of the Ottoman Empire and Modern Turkey. (Cambridge, UK: Cambridge University Press).

Wright, Mary C. The Last Stand of Chinese Conservatism: The T'ung-Chih Restoration, 1862-1874. (New York, NY: Atheneum).

The Complicated, Tempting Economics of Geoengineering

by Patrick Taylor Smith

The economic story of climate change appears, at first glance, to be a simple one.[1] Most conventional economic activity generates a significant negative externality in the form of greenhouse gas emissions. These externalities will be especially costly to those who have not yet been born, and there are a variety of public policy responses, such as a carbon tax or a cap-and-trade system, that could price the externalities. These responses will, presumably, motivate agents to reduce their emissions and thereby decrease negative climate change impacts or to provide financial resources that can then be used for adaptation measures that help others respond effectively to the impacts that do occur. Once the social costs of our emissions behavior are properly priced, we can mostly rely on individuals, corporations, and states to decide voluntarily on the optimal combination of adaptation and mitigation. Such a regime will be, despite its economic costs to the present, more efficient than business as usual, driving large welfare gains across generations.

Of course, this comfortable picture appears almost naïvely optimistic. As is true of many negative externalities driven by the exploitation of the commons, everyone currently benefits from their emissions behavior and would much prefer that the sacrifices be made by everyone else. In the absence of a truly effective global governance regime that can optimally coordinate the various actors within the system, everyone has an incentive to free-ride by continuing their emissions behavior while everyone else mitigates. This tendency to free-ride is exacerbated by global inequality: not every country will suffer equally from negative climate impacts. Unfortunately, many states who have the highest total and per-capita emissions will get off relatively lightly while many states, such as Bangladesh, that bear almost no responsibility for climate change will suffer greatly. As

a consequence, there is even less incentive to coordinate on the issue, and we have seen very little concrete action by the global community to take the necessary steps to keep global temperature increases below the 2 degree Celsius 'guardrail'.

Garrett Hardin[2], when discussing these sorts of dilemmas, argued that they cannot be solved through technology improvement. They must be resolved by changing the underlying incentive structure that generated them. However, geoengineers want to suggest that a technological fix, or at least an amelioration, is possible with climate change. Geoengineering is the intentional, large-scale intervention into the climate system in order to reduce or block the negative impacts of climate change. Some geoengineering strategies, such as attempts to scrub the atmosphere of carbon dioxide, are relatively uncontroversial and even widely regarded as necessary. I want to focus, however, on a more controversial set of strategies: solar radiation management (SRM) through atmospheric aerosol injection. The basic idea, based upon the scientific examination of volcanic eruptions, is to insert large amounts of tiny particles into the atmosphere. These particles will reflect sunlight back into space; since less energy will remain in the atmosphere, the planet will cool. While a variety of technical issues need to be solved, significant outdoor experimentation is in the planning stages and a focused development program could potentially create deployable technology in only a few years.

The economic benefits of SRM seem straightforward.[3] First, SRM is cheap, costing in the low billions of dollars or roughly one percent of the expected economic costs of mitigation and adaptation. Second, SRM can operate quickly. Upon large scale deployment of reflective aerosols, cooling can be expected within months. This feature makes it possible to treat SRM as a kind of 'insurance' against catastrophic impacts that no other climate change response can prevent. Third, SRM can be dialed up or down: we can choose how much to cool the planet. For example, suppose we anticipate that the world will warm roughly 2.5 degrees Celsius. We can decide to deploy enough reflective aerosols to cool the planet only a half degree, a full degree, or somewhere in between. What's more, we can increase and then taper off the amount of reflective aerosols such that a similar amount of warming occurs over a longer timescale. And this can be important: the economic costs of climate change are driven by the rate of temperature change as much as its magnitude. Slower change allows social and biological systems to adapt with less disruption and the costs of adaptation and mitigation are distributed over a longer time period. This gives rise to the metaphor of SRM as a kind of 'global thermostat' where we can set global temperature in ways that are most beneficial.

SRM is cheap, fast, and surgical. Yet, SRM is also imperfect, uncertain, and politically risky.[4] It is imperfect because while SRM will reduce some climate impacts by reducing average temperatures, others will remain unaffected. For example, SRM will not reduce the potentially catastrophic consequences of ocean acidification. What's more, we have good reason to think that SRM will have serious, unintended consequences—including and especially upon global precipitation levels—that will cause their own economic costs and dislocations. So, whether SRM is ultimately justified on economic grounds will depend upon a careful weighing of its costs and benefits. Less intrusive SRM that only shaves climate change down a bit will likely be less dangerous, but its benefits will be less significant and vice versa for more dramatic interventions. Yet, the uncertainty that surrounds SRM makes this kind of cost-benefit analysis quite

difficult.[5]

The uncertainty exists at several levels. There exists scientific uncertainty about the effectiveness of SRM and its potential consequences: what precisely will happen with this unprecedented intervention into the climate system? Yet, in some ways, the evaluative uncertainties are greater. Even if we knew precisely what the environmental effects of SRM were likely to be, it would still be difficult to anticipate—or even conceptualize—the potential social costs of SRM that follow from those environmental consequences. To take one controversial example, suppose that SRM changes how the sky appears to us. What might be the final economic consequences of the ways in which SRM creates a fundamentally different relationship between humanity and nature? It is hard to say. But the biggest risks and uncertainties, I would suggest, lie with the political consequences of SRM deployment. The low deployment cost of SRM means that wealthy individuals or foundations could, at least in theory, decide to unilaterally cool our planet on their own. This could lead to serious political conflict since unilateral SRM deployment will very likely impose serious negative consequences on agents that decided against geoengineering. As a consequence, it seems unlikely that SRM will be deployed effectively or responsibly without a substantial regulatory regime. Otherwise, the same incentives that drive some states to free-ride upon the attempts of others to mitigate greenhouse gas emissions will lead some states to engage in solar radiation management when the free-riding leads to an unacceptable consumption of the commons.

The bigger issue, however, is that SRM may generate a kind of moral hazard. This is precisely why Hardin argued that tragedies of the commons cannot be solved through technological means. Any attempt to increase the resilience of the commons incentivizes even greater consumption. SRM makes it possible for the same level of greenhouse gas emissions to result in lower global average temperatures. Some have suggested that this creates an opportunity to develop a less costly adaptation and mitigation regime.[6] However, Hardin would argue that, unless we change the underlying incentive structure, many agents will be tempted to engage in SRM instead of mitigation and adaptation. Why engage in the difficult and painful process of de-carbonizing one's economy when an imperfect but far cheaper policy substitute is available? These incentives could generate a kind of spiral: SRM permits us to engage in greater emissions behavior which requires more intense SRM which then permits further emissions and so on. This argument suggests that even if we granted that limited use of SRM—perhaps as an emergency measure or as a way to shave down the worst of the warming—was justified, it would be very difficult to confine the use of SRM to just those limited uses once the technology became widely available. The temptation to allow for greater exploitation of the commons or to more cheaply hedge against our emissions behavior would be too great. SRM deployment could therefore displace other, more sustainable responses to climate change.

But what would be the problem with SRM playing the primary, as opposed to an emergency or supplementary, role in our response to climate change? Aside from its imperfection, which might be solvable with other kinds of interventions, the uncertainty about impacts and 'termination shock' make SRM unattractive as a long-term, sustainable solution. As far as we can tell, the negative impacts of SRM increase as we increase the amount of reflective aerosols into the atmosphere and generate greater cooling. Eventually, these impacts can become very serious, disrupting weather patterns that billions rely upon. What's more, if we do not engage in sufficient emissions mitigation, then we will need to inject more and more reflective aerosols into the atmosphere to maintain the same temperature. Yet, suppose a political crisis or the discovery of an unforeseen catastrophic impact forces us to terminate our aerosol injections. If greenhouse gas emissions have continued unmitigated, then the cessation of SRM could lead to rapid and extreme temperature increases, creating a shock to the system far worse than the climate change it was trying to prevent. Hence, termination shock. The combination of the moral hazard with substantial political and scientific uncertainty creates an escalating probability of disaster if the deployment of SRM becomes the primary or sole mechanism for reducing atmospheric temperatures. However, since SRM is cheap and easy, we might worry about our ability to limit SRM use to a supplementary or secondary role.

Thus, SRM is the subject of a policy dilemma. Mitigation through de-carbonization is undeniably the best way to deal with climate change over the long-term. Yet, de-carbonization will be very expensive, works slowly, and has been delayed by the difficult problem of creating a free-rider proof system of governance. SRM, at least potentially, may provide either an emergency backup plan or it may buy the world more time to coordinate around an effective emissions regime. On the other hand, SRM will be a risky endeavor that may ultimately exacerbate the problematic incentive structure that has generated climate change in the first place. Ultimately, the public policy challenge, setting aside some truly sticky ethical problems associated with geoengineering[7], is to structure the political and economic incentives such that we can take advantage of the benefits of SRM while minimizing the risks. And we should take very seriously the possibility that, in spite of its low expense and high speed, there is no way to use SRM safely. Yet, conclusions in either direction—that SRM is a good idea or impossibly dangerous—are probably premature; it is undeniable, however, that it is much better and more effective to think critically about the role that SRM should play in climate change before it begins to play it.

Special Notes:

[1] John Broome, Climate Matters (W.W. Norton, 2012)

[2] Garret Hardin. "The Tragedy of the Commons," Science 162: 1243–1248 (1968)

[3] Paul Crutzen, "Albedo Enhancement by Stratospheric Sulfur Injections: A Contribution to Resolve a Policy Dilemma?" Climatic Change 77: 211 (2006). Also, see Scott Barrett, "The Incredible Economics of Geoengineering," Environmental Resource Economics 39: 45–54 (2008)

[4] Anthony Harding. and Juan Moreno-Cruz, "Solar Geoengineering Economics: From Incredible to Inevitable and Half-Way Back," Earth's Future, 4: 569–577 (2016)

[5] Marlos Goes, Nancy Tuana, and Klaus Keller, "The Economics (or lack thereof) of Aerosol Geoengineering," Climactic Change, 109, 719–744. (2011)

[6] David Keith, The Case for Geoengineering, (MIT Press, 2013)

[7] Christopher Preston (editor), Engineering the Climate: The Ethics of Solar Radiation Management (Rowan and Littlefield, 2012)

Stolper-Samuelson and Anti-Globalization Populism

by Robert J. Franzese, Jr.

To understand the political-economic underpinnings of the anti-globalization populism sweeping the western world, one needs only consider some basic theories, empirically substantiated, of international economics. First, all trade theory and empirics show that trade benefits all economies, developed and underdeveloped, regardless of their comparative advantages, in the aggregate, on net, and on average. Second, from the same theory and empirics: as trade becomes freer, a nation's comparatively advantaged industries expand and their comparatively disadvantaged industries contract. Indeed, the gains from trade cannot materialize unless the comparatively disadvantaged industries contract because, unless the disadvantaged industries shrink, the capital and labor used in them cannot relocate to comparatively advantaged industries, and so the advantaged industries will be hampered from what would be their greater-valued expansion. Global economic integration enhances global economic efficiency from which enhancements all economies across the globe gain, on net, on average, and in aggregate, but in each country the comparatively advantaged gain & grow and the comparatively disadvantaged lose & shrink. And if the losers are shielded from shrinking, the necessarily greater aggregate gains of the winners are prevented also.

Now, one source of comparative advantage is relative production-factor resource-richness. Factors include labor and human/physical/financial capital (and land/natural resources). Economies with labor abundant relative to capital compared to that same ratio on average in the rest of the world, have a comparative advantage in industries that use labor intensively, i.e. in high ratio to capital compared to all other industries. The developed world is relatively (to the world average) rich in human, physical, and financial capital relative to unskilled labor (and, to varying extents, land/resource—some developed countries are relatively resource-rich and some are relatively resource-poor). Thus, as global economic integration advances, the industries in the developed world that employ capital intensively (i.e., in higher ratio to labor than do other industries) expand and their intensely employed factors (human/physical/financial capital) gain in real economic terms (jobs and income). And industries that use intensively the locally relatively scarce factors, i.e. (low-skilled and unskilled labor, contract and those factors, i.e. those workers, lose in real terms (jobs and income). And remember: the latter losses to workers must occur for the former, necessarily larger, gains to physical capital (industrialists and entrepreneurs), human capital (the highly skilled and educated), and financial capital (financiers) to materialize. In land & resource rich/poor developed nations, of course, those interests too will be among the winners/losers. So the nation gains as a whole from globalization, but (and because) some sectors lose and shrink while other sectors gain and grow.

The mirror-image, meanwhile, holds for the developing world: overall, developing economies gain; and this happens because the locally relatively scarce resource, which is human/physical/financial capital in the developing-world case, loses and the abundant resource, which is labor, win. Again, land and natural resources are with the winners if locally relatively abundant and with the losers if locally relatively scarce. Interestingly, then, globalization is a democratizing force in the developing world in that it enriches and presumably therefore empowers the "common peasant" worker, whereas globalization empowers "elites" in the developed world and so may not be.

Thus, for those in the developed world who value both democracy and the global prosperity and peace brought by the postwar 20th- into 21st-century internationalization, there is a challenge inherent in these truths. Namely: notwithstanding the overall gains and the local relative scarcity of unskilled labor, i.e. "workers", and in some places land and resources, e.g., rural, agricultural, and mining interests, people deriving their livelihoods from those factors and so who would lose economically from globalization numerically exceed those primarily owning other factors who gain. That is, even though they are locally the relatively scarce factors, manual, farming, and mining workers are a majority of the population. Therefore, for the grand postwar project of global peace and prosperity through international economic integration to succeed consistently with Western democracy, the losers from globalization would need assurances—generous social-safety nets and/or relocation and retraining assistance—and/or to be converted into winners—by enhancing capital investments in them, meaning: converting unskilled labor into human capitalists and/or increasing the physical-capital content of their work processes (more machines & robots tended by fewer workers).

The rise of anti-globalization populism in the western world—and, indeed, why it is linked to a broader anti-elite uprising of laborers and rural interests against urban financial and educated interests—can, to this extent, be linked to the political-economic failure of accompanying "adjustment assistance" policies to materialize adequately and/or prove effective enough to support the overall peace and prosperity brought by international economic integration. This may help explain, too, why the backlash breaks through first in the Anglo-American former leaders of that enormously successful internationalism, being the least effective providers of the kinds of assistance which could assuage majority concerns adequately to render their noble global-

globalization project democratically sustainable. (Perhaps, too, the flip side of all this explains the readiness of extremely labor-rich east and south Asian political economies to rise to replace whatever global spaces the West vacates.)

In summary, in light of fundamental and empirically well-substantiated international economics theory (namely, basic Ricardian and Stolper-Samuelson trade theory): we can understand: 1) the political-economic underpinnings of the anti-globalization backlash; 2) why that backlash breaks through first, ironically, in globalization's Anglo-American former leaders; 3) that, insofar as anti-globalization forces take Western government and begin implementing policies to reverse economic internationalization, comparatively disadvantaged industries and factors will experience relative gains (perhaps meaning only smaller losses and slower shrinking) even while the overall economy loses and the comparatively advantaged sectors and factors lose especially sharply; and/but 4) that this protectionist-nationalist muting of the cost, or perhaps even modest gains, among the anti-globalists' support bases curtails any notions that the economic costs of anti-globalization policies will suffice political-economically to bring their self-correction. Those who would desire to reinvigorate in the West the economic, democratic, and pacific gains from globalization need to refocus on accompanying assistance for and reinvestment in its losers, who outnumber, but perhaps could come by such strategies and policies to join, its winners.

A Praetorian View of Pakistan's Military Economy

by Yash Saxena (Christ University)

Modern Pakistan has emerged from post-colonial developments, the end product of seven decades of debate, articulation, and religious enthusiasm, which gathered pace in the public sphere of pre-independent India during its last few years under British colonial rule. It didn't emerge as a vague idea, but was rather popularly imagined as a sovereign Islamic nation, a "new Medina" of sorts.[1] With these notions providing its ideological foundation, Pakistan was "envisaged as the harbinger of Islam's renewal and rise in the twentieth century, the new leader and protector of the global community of Muslims, and a worthy successor to the defunct Turkish Caliphate".[2]

The beginning of nationhood was largely catalyzed by forces driven by Indian-Muslim elites that led Pakistan in its formative years and gradually oriented its military's philosophy to create a unique Pakistani identity. Islam and Islamic unity were the principal drivers of this ideological appeal, which fit in with the leaders' conviction that Islam could eventually become a substitute for nationalism as the basis of Pakistani identity and their intention of distinguishing itself from its Indian roots.[3]

In some ways, Pakistan has been trying to escape its Indian legacy – historic, geographic and civilizational – and attempting to find security in a virtual relocation through ideology.[4] This doctrine eventually propagated the need for a military-led anti-India sentiment in the nation, and the hybrid economic and administrative ecosystem was created to counter its perceived Indian existential threat.

It can be said that Pakistan suffers from the weak state syndrome. The fundamental source of the problem is "the geo-strategic curse that Pakistan is afflicted with and the hyper realpolitik ideas that the country's elite hold in creating and maintaining a semi-feudal society."[5] The Pakistani military, at least in

the South Asian sub regional context, perpetuates a predatory political doctrine that aims to connect ideological and economic ends by using institutional and sometimes unconventional unconstitutional means to gain an greater foothold in the nation's diplomatic and financial endeavours.

The Garisson-State

The nation of post-independent Pakistan has grown in such a military-centric manner that it has developed a massive dependence on its military to provide a panacea for the crisis in state and civil machinery. Although it cannot be stated that the military of Pakistan rules the country and that the overall constitutional provisions operate to a functional extent, the government repeatedly seeks heavy military participation in the hegemony of the nation's political and economic administration, which has resulted in the creation of an "armed bureaucracy" over time.
The driving role of the military and its allied institutions is caused by their increasing involvement in a plethora of unorthodox domains, from managing schools and essential citizen services to conducting the census and from building roads to organizing democratic elections. Today, the Pakistani military, under the aegis of a democratically elected government, has greater participation and deeper penetration in the nation's economy and civil administration than it had had during the martial law regimes. [6]

The extent of the military's involvement can be compared to the times of intervention in the political processes as witnessed in the immediate aftermath of the Coup of 1999, led by General Musharraf. Moreover, the expanding involvement of the armed forces in foreign policy and the national mainstream, including the realms of business and state media, brings into focus the role of the military in a garrison-state.

Its staggering task in both the economy and civil administration is substantially distinct from interventions in the past, because in the contemporary scenario, the government requires unprecedented military character out of the absolute necessity to maintain law and order among various other development issues that plague the region.

Military Monopolization

Pakistan is perplexing indeed. To be perceived as powerful, governments often allocate greater than necessary resources to the defense budget especially for purposes of deterrence. However, this disproportional military budget is just one part of Pakistan's political economy. Commercial and profit-making ventures conducted by the military, with the involvement of armed forces personnel or the personal economic stakes of members of the defense establishment, constitute a major part of the political economy that has not been analyzed systematically.[7]

'Milbus' as defined by Ayesha Siddiqa, refers to "military capital that is used for the personal benefit of the military fraternity, especially the officer cadre, but is neither recorded nor part of the defence budget. It is a completely independent genre of capital"[8]. In Pakistan, the existence of such capital is strongly indicated by military run entrepreneurial activities that do not fall under the standard accounting procedures of the State. Moreover, such activities manage to bypass all bookkeeping records, and exist mainly for the gratification of military personnel and their cronies. Inevitably, this process is dominantly conducted by the military or functions under its implicit or explicit patronage.

Because military capital is masked from the citizenry at large, it is also referred to as the Military's "internal economy" and rarely gathers public attention from the intellectual community. Its analysis is vital because it forces the officer cadre to be personally interested in enhancing their direct influence in the state's policy and decision making processes.

The case of Pakistan provides an opportunity to understand the issues that emerge from the financial autonomy of a politically powerful military. Although it is not possible to give a definitive number to the military's internal economy, primarily due to the lack of transparency, the estimated worth was about $20 billion a decade ago (Siddiqa, 2007). In Pakistan's $200 billion economy, that worth amounts to 10% of productive capital, wealth, and assets. Therefore, there is little doubt that Pakistan is indeed an army with a state.

Furthermore, the military's two major business groups – the Fauji ("Soldier") Foundation and the Army Welfare Trust – are the largest business conglomerates in the country. Money transfers and remittance succeed through multiple channels, many of which operate as Hawala Networks, through which the military sometimes illicitly acquires and transfers national capital and resources. Some of this capital, in the absence of judicial oversight, monetary machinery and financial regulation, ends up sponsoring terrorism and cross-border infiltration.

Foreign and Economic Relations

The core of Pakistan's ideological evolution rests on a particular perception of its threat assessment regarding its immediate security environment. The nation's relations with its neighbours (Afghanistan and India) and its allies (the United States, China, and the Muslim world) reflect both an Islam-centered worldview and a security dilemma resulting from a perceived Indian fear. Although U.S.-Pakistan relations were stronger than ever after the former named Pakistan as a non-NATO ally and provided billions of dollars in economic and military aid, the long-standing diplomatic synergy has shown signs of strain under the Trump administration with the U.S. questioning Pakistan's commitment toward halting state-sponsored terrorism and eradicating the Taliban from Afghanistan.
From a normative perspective, Pakistan would be better off advocating for cooperation with India. However, only a small number of such vocal groups exist in Pakistan. They have previously supported giving India access to Afghanistan and Central Asia through the city of Lahore to enable trade normalization. They have also called for cooperation on projects like the Iran-Pakistan Gas pipeline, the China-Pakistan Economic Corridor (CPEC) and the Central Asia-South Asia energy transmission line (CASA), which leads us to the premise that Pakistan's citizenry has existing elements that intend on bridging the trust deficit between both nations. By serving as a regional connectivity center, trade could pave the way for prosperity in the impoverished South Asian region. Unfortunately, the military refuses to budge on its hardened external security approach and prefers to construct relations based on security and ideological concerns alone.
It is often believed that China-Pakistan relations are a strategic masterstroke to counter India's growing presence in the region. However, this time-tested partnership only exists in the first place because of a convergence of security interests with respect to Indian hostility toward both nations, and not because of any successful diplomatic manoeuvres in the international relations sphere. Even though Pakistan would greatly benefit from the growth and development trajectory that the CPEC is likely to provide, the corridor is not a gift to Pakistan; rather, it is part of China's comprehensive network of infrastructure proj-

ects to increase its trade and commerce outreach.

China-Pakistan cooperation on CPEC is also a validation of the ongoing paradigm shift in the genre of foreign relations that now heavily relies upon the economic value that is attached to certain geographical factors and demonstrates the importance of building regional and global value chains. Subsequently, overcoming the security stigma would go a long way in helping the dismal state of intra-regional trade facilitation in the SAARC region and could also liberalize the Pakistan economy to exhibit more free-market dynamics. Of course, Keynesians have taught us the importance of regulation. But unfortunately in Pakistan, the regulation only counterintuitively guarantees the preservation of private military interests and public support along religious and ideological lines.

Conclusion

Because crafting a Pakistani identity was considered a matter of national survival, India could not be "allowed" to eliminate Pakistan's distinctiveness. To counter this perceived threat, Pakistan designed its military to construct an ideology-driven identity which demanded a religious nation and a military-economy. Pakistan was the first country to call itself an Islamic Republic, and the 1949 Objectives Resolution of its first constituent assembly emphasized "ordering lives in accordance with the teachings and requirements of Islam". The emergence of a pan-Islamic identity rather than a Pakistani identity has been consistent with the Pakistani ideology that "Islam itself is a nationality". While one group of intellectuals emphasize that promoting the primacy of a pan-islamic identity is essential to maintaining a distinctive identity from India, others argue that the Two-Nation theory has served its purpose in midwifing Pakistan into existence, and that it should now be discarded to allow Pakistan to emerge as a normal nation-state that would rely on market forces to determine economic equilibria.

Pakistan's failure to put a halt to its submissive activities in Kashmir, furthered by Indian retaliation in Balochistan, only builds up the stage for dramatic diplomatic viewpoints towards other strenuous issues like Sir Creek. The inability of the military-state to create a Pakistani perspective around alternative uniting fronts has spurred the India-led attempt to internationally isolate Pakistan. Its continuous attempt to nurture an Islam-centered ideological philosophy of fostering identity-marked distinctiveness from India has only led to an over-centralization of military authority. It is the ecosystem that then necessitates the officer cadre to guard these principles of Pakistani sovereignty and carry out a wide spectrum of roles to build the complex character of the military to shield itself from extremely pressing geopolitical stress points.

Stephen P. Cohen's analysis succinctly outlines the Pakistani Army's multidimensional role: "There are armies that guard their nation's borders, there are those that are concerned with protecting their own position is society, and there are those that defend a cause or idea. The Pakistani Army does all three."[9]

Special Notes:

*Comments from Dr. Venugopal Menon of Christ University are gratefully acknowledged.

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[1] Dhulipala, V. (2015). Creating a New Medina. Cambridge University Press.

[2] Ibid.

[3] Pande, A. (2011). Explaining Pakistan's Foreign Policy: Escaping India. Taylor & Francis.

[4] Ibid.

[5] Paul, T. V. (2014). The warrior state: Pakistan in the contemporary world. Oxford University Press.

[6] Siddiqa, A. (2007). Military Inc.: Inside Pakistan's Military Economy. Penguin.

[7] Siddiqa, A. (2017). Military Inc.: Inside Pakistan's Military Economy. Penguin.

[8] Ibid.

[9] Cohen, S. P. (2004). The idea of Pakistan. Brookings Institution Press.

References:

Ali, T. (1983). Can Pakistan Survive?: The Death of a State. Penguin Books.

Burki, S. J. (1999). Pakistan: fifty years of nationhood. Westview Press.

Samejo, D. H. (2016). Why Pakistan's Foreign Policy is so Confused. The Diplomat.

Syed, A. H. (1974). China & Pakistan: diplomacy of an entente cordiale. University of Massachusetts Press.

Why China's Corruption Crackdown Hurts Bureaucratic Entrepreneurism

by Yuen Yuen Ang*

Businesses and governments around the world are watching as China grows, innovates and extends its influence. We explore how the country got to where it is and what might be in store for its future in our series "Understanding China's Influence."[1]

Guo Yongchang, party secretary of a rural county in China's Henan province, did not fit the stereotype of a corrupt Chinese official. Featured in the documentary, The Transition Period[2], he was revealed as an overworked and genuinely dedicated leader. Every day, he toiled from dawn to dusk, courting investors, inspecting construction projects, and resolving social conflicts, both big and small.

Yet the final seconds of the film reveals a twist: shortly before retiring, Guo was found guilty of taking bribes and sentenced to seven years in prison. Guo's story reflects a broader reality in China: economic development and corruption goes hand-in-hand. Local leaders take on overwhelming responsibilities. They actively seek out growth opportunities for their locales, exercise power, and in the process, profit themselves too.

Once that's understood, it's clear that President Xi Jinping has set himself up with an impossible task: keep the economy humming under state domination, while trying to eradicate corruption.

Xi's sweeping anti-corruption campaign has stalled economic growth not only by dampening the demand for luxury goods.[3] That's just a tiny part of the story.

The larger problem is that the campaign has forced local officials to become highly risk averse and unwilling to attempt policy innovations on the ground. But China's speedy growth in the past decades was precisely fuelled by the bold initiatives and discretionary actions of local leaders.

Take for instance the case of party secretary Cai, the top leader of Blessed County in Zhejiang province, featured in my book:[4] How China Escaped the Poverty Trap. Locals rave about this man's lasting legacy. In the early 2000s, Cai had the foresight and determination to construct a central business district from scratch, which later on spurred industrial clusters and a vibrant services economy. His forceful program, however, did not go without friction. It met with fierce resistance from some and earned him foes.

Hence, a local entrepreneur remarked with admiration: "Such reforms take courageous leaders, who dare to shoulder responsibilities for taking bold steps." The current political climate does not tolerate a maverick like party secretary Cai. Today, it would be career suicide to take the risks and bold steps that he did a decade ago.

In other words, setting aside corrupt dealings, all policy innovations entail political risk. Any attempt to make unpopular decisions, try new policies, or engage with businesses – even by genuinely honest politicians – may incur charges of corruption in the ongoing campaign.

Hence, it is no surprise that China's local officials now prefer to sit on their hands. Doing nothing is the safest strategy. Despite the central government's approval of trillions of yuan worth of investment projects in a bid to stimulate the economy, local officials have dragged their feet on using these funds, for fear of exposing themselves to political risk.[5]

As local officials become paralysed, China is inadvertently becoming increasingly centralised. Awesome as it may seem, Beijing is incapable of promoting growth by itself, let alone innovating.

What does this all mean? It means that if Xi is intent on having a strictly disciplined bureaucracy, with little room for deviance, then he cannot expect the bureaucracy to accomplish much.

In democratic countries, citizens typically complain and poke fun at lazy, paper-pushing bureaucrats. As James Wilson, a guru of the American bureaucracy once noted, the stereotypical bureaucrats are "lethargic, incompetent hacks [who go] to great lengths to avoid the jobs they were hired to do". This description is beginning to fit China's bureaucrats as well.

Crucially, in America, despite complaints and mockery of an unentrepreneurial bureaucracy, the market economy continues to buzz on its own. That's because the people who operate in markets and take risks are primarily private citizens, not bureaucrats. It is sufficient that the government delivers the minimum; they do not need to substitute for entrepreneurs.

In China, however, we see the reverse: while there is a sizeable private sector, state officials have traditionally played a lead role in the economy. Local governments were the primary agents of improvisation and adaptation to changing conditions. They envision, plan, publicise, allocate resources, raise funds, build infrastructure, and personally mediate private conflicts.

In this context of big government, when bureaucratic entrepreneurship is suppressed, it has a serious impact on development and governance.

President Xi's campaign wants to have it all: state control over the economy, bureaucratic entrepreneurship, and at the same time, strict adherence to rules. But in politics as in life, nobody – even the most powerful leader – can have it all. In preparation for the next Party Congress, it's time for the Chinese leadership to ponder what the role of local governments ought to be, and, moving forward, to place realistic demands on its bureaucracy.

Special Notes:

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[1] https://theconversation.com/au/topics/understanding-chinas-influence-32555

[2] https://vimeo.com/44476337

[3] http://www.bbc.com/news/business-37748277

[4] https://www.amazon.com/Escaped-Poverty-Cornell-Studies-Political/dp/1501700200

[5] http://www.scmp.com/news/china/policies-politics/article/1879005/china-stimulus-push-stalls-local-officials-try-avoid

The Uneven Growth of Capitalism in India

by Masoud Movahed

Following the neoliberal reforms of the early 1990s, the Indian economy has consistently witnessed impressive GDP growth rates. The last-half century of the colonial rule—the notorious 'British Raj'—generated an almost zero-growth economy, grinding poverty levels for the population, a stagnant agrarian setting, and a highly uneven industrial base. Once the British Raj was over, the post-independence planning regime (1950-1991) generated mediocre GDP growth rates that hovered around 3.5% in the 1970s, rising to around 5 percent in the 1980s. By the turn of the century, when the reforms had already been implemented—dismantling a vast panoply of state regulations and the "license raj"—India's GDP grew by 8 percent on average. Compared to the dismal record under British colonialism and the lackluster performance of the planning regime, this is indeed a significant achievement that ought not be slighted. The impressive GDP growth rates in the past two decades notwithstanding, the broad trend is unmistakable that the defining vector of India's economic development has been its marked unevenness: the contradiction of high growth rates of GDP on the one hand, and lopsided welfare outcomes and income disparities for the bulk of the population on the other. With more than 90 percent of the workforce employed in the informal sector without access to employment securities and benefits and indeed more likely to bear the brunt of negative economic shocks, with 350 million people still under poverty line, with abysmally low growth of wages for most people and the depressing outlook of income distribution, high GDP growth rates have done little to improve living standards. After all, economists and sociologists agree that development is *not* merely the enhancement of inanimate objects of convenience such as growth in the arithmetic GDP, or the rise of cutting-edge sectors such as information technology; in fact, these are two arenas in

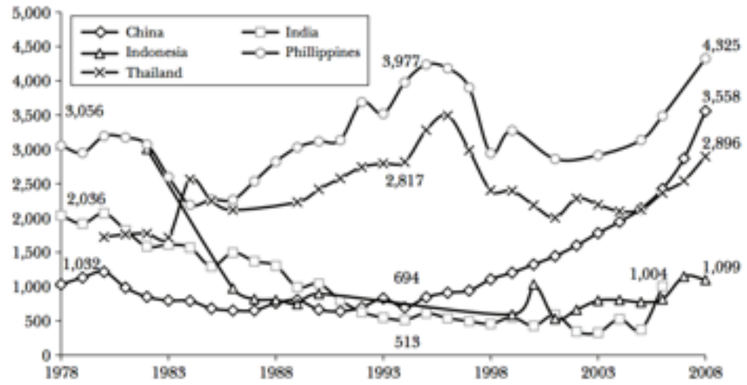
which India does rather well. Development is, ultimately, raising the large-scale living standards and the quality of life –an ability to lead the kind of lives that people have reason to value. Looking through this prism and then assessing India's performance on not just macroeconomic indices (i.e. GDP growth rates), but also crucial social indicators of development such as longevity, health care, literacy, educational attainment, child undernourishment, infant mortality, schooling, social status, immunization, and sanitation, the same growth rates—often celebrated by the proponents of the neoliberal turn—become less impressive; in fact, they are disappointing if we compare them to the tigers of East Asia (i.e. Japan and South Korea) or even some of the faster-growing Latin American countries such as Brazil and Mexico, and indeed, an embarrassing contrast with China in the last quarter of the century.

The contrast with China is particularly striking: while China and India both share comparable characteristics in terms of demography, growth rates, labor force, and the volume of trade with the world, the former has been able to forge by far a more even and systematic development strategy compared to the latter. Perhaps, this is best illustrated in the fact that that China has pulled roughly 700 million out of poverty between 1981-2010[1]; or the fact that the China is currently facing wage inflation and a rising shortage of 'unskilled labor (see Figure 1), and that the informal sector—the sector that is neither taxed, nor monitored by any form of government—in China is much smaller in scale and scope compared to India where it employs 93 percent of the labor force.[2] China also does much better on many other indicators of development enumerated above. India's failure thus to raise standards of living and the quality of life on an aggregate scale based on not just wages and per capita income, but also crucial social indicators of development is not only plain in stark contrast with China. But more strikingly, a comparison of India's performance on those social indicators with poorer countries in South Asia such as Bangladesh reveals a much bleaker picture. Bangladesh, for example, has an income per capita ($3,790), slightly more than half of India ($6,490), yet it does significantly better on infant mortality, schooling, immunization, access to sanitation, and in several other domains.[3] The mortality rate of children under five is sixty-six per thousand in India compared with fifty-two in Bangladesh. In infant mortality, Bangladesh has a similar advantage: it is fifty per thousand in India and forty-one in Bangladesh. Additionally, 94 percent of children in Bangladesh are immunized with DPT vaccine, but only 66 percent of Indian children are. In all these fronts, Bangladesh does better than India, despite having half of India's per capita income.[4]

[See Figure 1: Annual Manufacturing Wages of Asian Emerging Economies]

India's seemingly uneven development thus raises an important question: what explains the contradiction of impressive GDP growth rates and such bleak outcomes in social and welfare outcomes for the vast majority of people? For many influential economists including Nobel Laureate Amartya Sen, the answer lies in corruption and lack of accountability of state incumbents in India.[5] Of course, public services crucial to improving social indices of economic development such as access to education, sanitation, heath care, food support are provided by state and quasi-state agencies, and for adequate delivery, their functionaries must hew to some baseline level of bureaucratic integrity: being accountable in their handling and delivering the resources at their disposal. And the Indian state notoriously fails to meet these tests, where the state has become, in

Figure 1: Annual Manufacturing Wages of Asian Emerging Economies



Bardhan's terms, a "patron-client regime fostered by a flabby and heterogeneous dominant coalition preoccupied in a spree of anarchical grabbing of public resources tends to choke off efficient management and utilization of capital in the public sector."[6]

To remedy this, economists and political scientists alike call for greater participation of ordinary citizens in both policy-making and the way resources are distributed. But the problem in India is not just the fact that its state institutions are vulnerable to capture, or its bureaucrats fail to follow the duties attached to their station in delivering public goods. Even if the bureaucratic paralyses (i.e. corruption, lack of transparency and accountability, etc.) of the Indian state could be resolved with the wave of a wand, there would still remain the question of the actual amounts of spending on social indicators of economic development. As Drèze and Sen detail in Uncertain Glory: Indian and its Contradictions (2013), the sums allocated to health, education, and other services have been among the lowest for countries at comparable levels of development. China, for example, devotes 2.7 per cent of its GDP to government expenditure on health care, whereas India's relatively miserable 1.2 per cent of GDP expenditure on health care. The difference is, of course, conspicuous in the much greater public health achievements of China compared to India, including, for instance, its considerably higher life expectancy (about eight years higher than India's).[7] But that too, cannot in and of itself explain why economic development is so markedly uneven across time and space in India, and that respectable GDP growth rates do not translate into an increase in people's standards of living?

In what follows I argue that the answer to this question lies in the structure and the trajectory of Indian development. As I will demonstrate, the roots of what seems to be the malady of Indian development ought to be investigated in the sectoral composition of the Indian economy as well as its domestic labor market that have rendered economic development so uneven across time and space. In so doing, I will rely on the theoretical underpinnings of the dual-sector model that Arthur Lewis developed with respect to labor markets. I will then examine the model in the contexts of both China and India—and their development trajectories in different sectors—in order to offer a structural explanation for the uneven economic development of the latter.

The Dual-Sector Model

Observing the tremendous economic growth rates that the early developers in the Atlantic world (i.e. the United Kingdom, United States, Germany, France, etc.) achieved during the 19th and 20th centuries, Arthur Lewis—the Nobel Prize Laureate in Economics—argued that the development of an economy is regarded as a process that entails sustained increase in output per capita coupled with structural and system-wide shift in the productive capacities and employment patterns within an economy. This structural shift in modern economic development includes the sectoral relocation of the workforce from a subsistence, informal, low-productivity sector (i.e. agriculture) to a modern, formal, high-productivity sector (i.e. manufacturing). The transition from the former to the latter is often concomitant with a massive migration of the workforce from rural to urban settings. This trend posits a *trade-off* between growth in GDP per capita and the reduction of shares of the labor force in less productive sectors; namely, agriculture, forestry, fishing, mining and animal husbandry. The same structural transformation in the pattern of employment can also be clearly observed in the successful cases of late development in the post-World War II era such as Japan, South Korea, Taiwan and recently the Chinese behemoth. The causal relationship between the increase of productivity in the labor-intensive industries of an economy and the process of capital accumulation that drives economic growth and dynamism was first captured in Lewis's seminal book *Economic Development with Unlimited Supplies of Labor* (1954). Specifically, Lewis argued that the transition from agricultural to industrial economy as the steppingstone of increasing system-wide productivity is accompanied with a *shift* in the balance of labor demand and supply. In the initial stage of this transition, the labor force, once remained in rural areas and engaged primarily in agricultural production will gradually move to the industrial cities as the pattern of employment changes in favor of manufacturing, albeit, with no pressure to raise wages. However, as the industrial sector develops to the point where the supply of labor from the agricultural sector becomes limited, industrial wages begin to rise quickly, which will increase the rates of saving and investment. The defining nature of this structural shift in the sectoral composition of the economy entails a transition period from agriculture to labor-intensive manufacturing—which is to say, from an excess supply of labor—or what Lewis coined the "unlimited supply of labor"—to one of labor shortage. This phenomenon is often referred to as the "Lewisian turning point" which signifies a success in rendering large scale productivity and growth.

In the Chinese labor market, this Lewisian turning point was achieved. Following the 1979 economic reforms, China in just three decades has experienced one of the world's most stunning economic transformations—a titanic shift from a predominately agrarian to a modern *manufacturing-for-exports* economy. Also, China's success in rural reforms in the late 1970s and early 1980s greatly improved agricultural productivity and simultaneously released a tremendous amount of surplus labor from the farmland.[8] As a result, a large number of laborers moved from the agricultural sector to mostly industrial—but also to the service—sectors. For more than two decades following the 1979 economic reforms the supply of labor seemed to be unlimited, thus enabling China to maintain a comparative advantage to manufacture-for-export goods that were already being produced for the world market, but at 'China price.' It was this seem-

-ingly unlimited supply of cheap labor that allowed the Chinese manufacturing to become so competitive in the world market. However, starting in 2005, the "labor shortage" phenomenon began to turn up in coastal cities, with the labor market becoming tighter and with industrial firms facing shortages of "unskilled labor." This is a fact of enormous significance in debates around the trajectory of Chinese economic development given the demographic composition and the massive population of the country. So how can the dual-sector model and the Lewisian turning point explain China's ability to raise wages and incomes, and hence its ability to demonstrate far better performance in raising living standards on aggregate scale? And how can the dual-sector model and the Lewisian turning point explain the *failure* of India to follow the same path while embarking on economic development?

The Lewisian Turning Point

For simplicity, if we assume that an economy has an agricultural and an industrial sector, and that there is an oversupply of labor for agricultural production in the rural areas (see Figure 2 below), then the marginal product of labor is equal to the subsistence wage, m, whereas in the industrial sector, employers have to pay a higher wage, w, for various reasons. First, the cost of living in cities, where most industrial activity occurs, is usually higher than in rural areas. Second, because migrant workers in the industrial sector must bear the psychological cost of separation from their families, higher wages must be offered to compensate them.[9] L is the total size of the labor force, with OR and OM origins representing the workforce in the rural and urban areas respectively. The curve CD indicates the marginal product of labor in the agricultural sector, and the marginal product of labor in the industrial sector is represented by AB, which is higher than that of the agricultural sector and exhibits a downward slope.

Given the Figure below, the process of economic development can be divided into three phases. Points B_1 and B_2 signify the first phase, with the initial marginal output of labor in the urban sector being represented as A_1 B_1. With profit maximization being the premise and the ultimate goal of the capitalist mode of production, the marginal output of labor will be set equal to the wage level, w, which can be represented at equilibrium of B_1. Total urban employment is also demonstrated as O_m L_1, whereas the rural labor force is represented by O_R L_1 at the subsistence wage level, m. As entrepreneurs maximize profit and reinvest some of it again in the production processes, the total stock of capital increases, and more capital stock means higher marginal product of labor. This is reflected by the rightward shift of the marginal product of labor in the urban sector from A_1 B_1 to A_2 B_2. The movement from rural to urban areas is composed only of surplus rural labor, which has no impact on wage levels. The rural workers are paid at fixed subsistence wage level, m, and the urban wage remains constant at w. This phase is one in which there is an unlimited supply of rural labor.

[See Figure 2: The Lewisian Turning Point]

At point B_2, the marginal product of rural labor starts to surpass the subsistence wage level, m; from then on, therefore, the rural wage rises. The urban wage will remain at w until the marginal product of urban labor shifts to B_2, and the distance from B_2 to B_3 signifies the second phase. In this phase, only the rural wage rises while urban wage remains constant. Once at B_3, economic development enters the third phase: the shortage of labor becomes a pressing issue, with wage levels going up in tandem in both sectors.

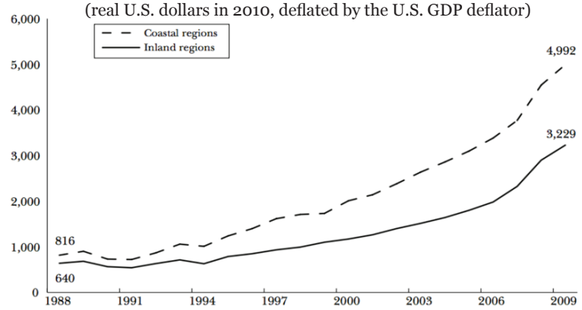
For the rural labor force, the Lewisian turning point is at B_2, but for the aggregate economy, the turning point occurs later at B_3. According to this model, the real wage rate rises first in rural areas and then in urban areas. A sudden upward shift in the rural wages is therefore, likely to foreshadow a looming national labor shortage. This conceptual model—and indeed wages as the key barometer—offers some useful insights into the measurement of the Lewis turning point. The conspicuous cases of success of the Lewisian turning point in the past five decades are Japan, Taiwan, and South Korea, which witnessed a structural shift in the patterns of employment from less productive agricultural to high productive manufacturing sector. China is, of course, an addition to this list, which sets another benchmark standard to test the Lewisian turning point.[10]

China's Labor Market and the Lewisian Turning Point: A Success

This successful structural shift in favor of the productive sector of the Chinese economy namely, labor-intensive manufacturing and the subsequent shortages in the domestic labor market has important implications with respect to income distribution. The shortages in the labor market have granted workers more bargaining power, and therefore, resulting in a significant rise in wages, and hence the saving rates. Higher wages have also narrowed the enormous rural–urban income gap from the past.[11] Part of this rising income will eventually translate into higher domestic consumption and part of it into investment; both which are the two key components of system-wide economic growth and dynamism.

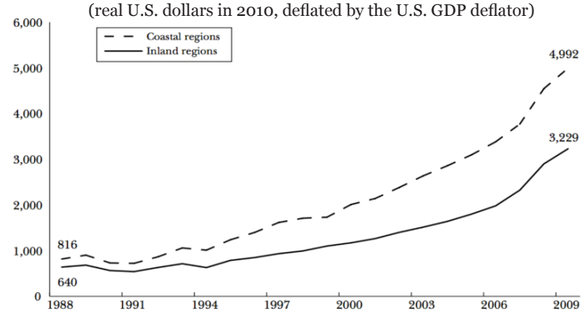
A few studies have examined China's position along the Lewisian continuum through various surveys of wage rates.[12] Their results show a clear rising trend in real wages since 2003, and the acceleration of this rising trend, even in slack seasons, indicates that the era of surplus labor is over. The fact that China has recently faced shortages of unskilled labor, wage inflation and an increase in labor disputes are all harbingers of meeting the Lewisian turning point (see the Figures below).

Figure 3: Annual Wages of Urban Workers by Region
(real U.S. dollars in 2010, deflated by the U.S. GDP deflator)



Source: Wages by regions are from the Urban Household Survey data in nine provinces, 1988–2009

Figure 4: Annual Wages of Urban Workers by Education
(real U.S. dollars in 2010, deflated by the U.S. GDP deflator)



Source: The Urban Household Survey data in 9 provinces, 1988 –2009. Notes: Education levels: "low" refers to junior high school and below, "medium" refers to academic/technical high school, and "high" refers to college and above. "Low-education beginners" are low-education workers with working experience less than 5 years. Hongbin Li, Lei Li, Binzhen Wu and Yanyan Xiong. 2012. The End of Cheap Chinese Labor. Journal of Economic Perspectives. Vol. 26, No. 4 (Fall 2012), pp. 57-74.

India's Labor Market and the Lewisian Turning Point: A Failure

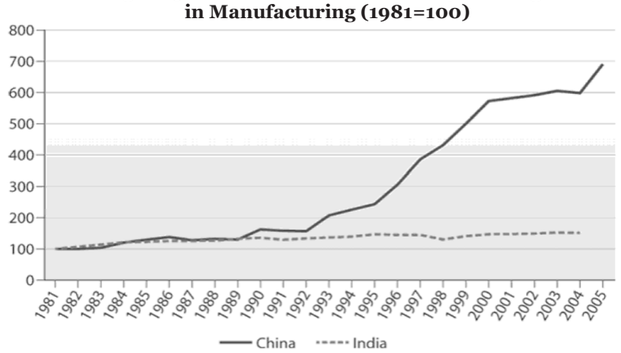
The most pressing issue with respect to economic development in India is its marked unevenness, both in the narrow sense of income distribution and also the broad developmental and distributive outcomes. Which is to say, high GDP growth rates have failed to translate themselves into increases in the wages and earnings of the workforce, and subsequently, higher living standards for the bulk of the population. Concomitant with India respectable GDP growth rates over the past two decades, there has been a major and persistent slowdown in the growth of real agricultural wages in the post-reform era: from about 5 per cent per year in the 1980s to 2 per cent or so in the 1990s and virtually zero in the early 2000s. The growth of real wages in the manufacturing sector has also been relatively slow; not just for 'unskilled' laborers, but also for skilled industrial workers. The contrast with China again in this respect is really striking. According to the data from the International Labor Organization, real wages in manufacturing in China grew at an astonishing 12 per cent per year in the first decade of this century, whereas in India, real wage growth has hovered around 2.5 percent per year over the same period (see Figures 5 and 6 below). Clearly the growth rate of real wages in India has been much lower than that of per capita GDP over the past two decades. Per capita expenditure, too, has been excruciatingly slow, barely altering the abysmal living conditions for the bulk of the population. The most telling evidence for this can be found in the Indian National Sample Survey data: average per capita expenditure in rural areas rose at the exceedingly low rate of about 1 per cent per year between 1993–4 and 2009–10, and even in urban areas, average per capita expenditure grew at only 2 per cent per year in this period.[13] Adding to the sense of drama is the widespread undernourishment in general and child undernutrition in particular—India is among the world's worst performers in this respect (even compared with many countries that are considerably poorer in terms of real GDP per head).[14] For instance, according to National Family Health Survey, 48 per cent of children under the age of five, are stunted due to chronic undernutrition, with 70 per cent being anemic. This inexorably high rate of undernutrition in India stands in shocking contrast with other emerging economies that have successfully addressed their nutrition challenge. China, for example, reduced child undernutrition by more than half (from 25% to 8%) between 1990 and 2002; Brazil did the same by 60 percent (from 18% to 7%) from 1975 to 1989; and even Vietnam, which is one of the poorest countries outside of the Sub-Saharan Africa, reduced child undernutrition by 40 percent between 1990 and 2006. And there is also the continuing scandal of a quarter of the population (including nearly half the women) remaining effectively illiterate in a country with such high-tech achievements in education based on excellent specialized training and practice.[15]

These depressing facts may surprise some of those who are used to looking at official poverty estimates to assess development indices and how poor people are doing in India. For instance, the Indian Planning Commission has declared that the proportion of the rural population below the poverty line declined from about 50 per cent in 1993–4 to 34 per cent in 2009–10. This suggests a significant improvement, but how does it square with the fact that the growth of real per capita expenditure has been so low? As Drèze and Sen demonstrate, the answer lies in the so-called 'density effect': the

fact that many people are just a little below the official poverty line that is already set in such a low rate, so that a small increase in per capita expenditure is enough to 'lift' them above the line. But even if we take the officially declared poverty line as abysmally low as 32 Indian Rupees per person per day in urban areas and 26 Rupees per person per day in rural areas for sufficient access to 'food, education, and health', at June 2011 prices—which does not cover the barest necessities—a full 30 per cent of the population in 2010, or more than 350 million people are under extreme poverty line.[16]

So why has economic growth in India led to so little increase in wages and incomes—and also living conditions in general–for the large segment of the population? And why have the similar growth rates in China led to substantial increases in living standards virtually based on every index of development compared to India? The answer to this question cannot ignore the fact that the post-reform economic boom happened first in agriculture and then in labor-intensive manufacturing, whereas India's rapid economic growth during the last twenty years or so has been driven mainly by 'services,' which is a very heterogeneous sector. There is growing evidence that a good deal of the growth in services has been heavily concentrated in skill-intensive sectors (such as software development, financial services and other specialized work); and not in productive and labor-intensive industrial and manufacturing sector. While the growth of the service sector, especially the IT and finance, has enabled the more skillful and educated segments of the labor force to earn much higher wages and salaries, the bulk of the workforce is marooned in agriculture and less productive sectors within services—and indeed, in the vast 'informal sector,' which employs more than 90 per cent of India's workforce where wages and productivity are very low. In other words, the very Lewisian tuning point—absorption of the crux of the workforce in dynamic and productive manufacturing sector—which if it occurs in an economy will lead to higher wages and saving rates, and hence higher living standards on aggregate scale was not achieved in India. Instead, persistent wage disparities—subsistence rate for most people—coupled with scant growth of income per capita became the endemic property of India's economic development.

Figure 5: Index of Workers' Monthly Earnings in Manufacturing (1981=100)



Source: Calculated from Tao Yang et al. (2010), Figure 5(a). See Jean Drèze, Amartya Sen. 2013. "An Uncertain Glory: India and its Contradictions." Princeton University Press, pp 30-31

Figure 6: Real Wages in India's Manufacturing, 1990-2010

Source: Handbook of Statistics on the Indian Economy, Tables 33 and 40 (Reserve Bank of India, 2012). Money wages have been deflated using the Consumer Price Index for Industrial Workers, from the same source. The left-hand vertical axis applies to real wages, and the right-hand axis to the share of wages in value added. See Jean Drèze, Amartya Sen. 2013. "An Uncertain Glory: India and its Contradictions." Princeton University Press, pp 30-31.

Conclusion

The critics of India's massive social inequalities and persistent wage disparities take the maladies and bureaucratic paralyses of the state as their point of departure in the prognoses of the uneven economic development. They also find—I believe rightly so—something callous and uncouth in the selfish and inward-looking preoccupations of the small and yet dominant and prosperous minority class in India as an impediment for translating economic growth into better living conditions for the majority of people. After all, economists working on India have observed that the deviation of the state agencies and incumbents from the tasks assigned to them is not arbitrary: laws are broken and favors are dispensed to the benefit of the rich and the detriment of the poor. But my intention in this essay was to draw attention to what seems to be an important cause of the malaise in delivering developmental and distributive outcomes (i.e. higher incomes and living standards) for the large segment of the Indian population. I suggest that the cause of uneven development ought to be investigated in the sectoral composition and the way that the workforce is distributed among those sectors in the Indian economy. India would, of course, be better off with more rule-following and transparent state institutions and a more inclusive public discourse. But a more effective and egalitarian distribution of income and wealth, which will surely lead to higher standards of living for the crux of the population does not just depend on the bureaucratic integrity of the state. What I tried to show in this essay was rather more structural in the trajectory of Indian development (i.e. the rapid growth of the heterogeneous service sector as opposed to labor-intensive manufacturing), which has led to such lopsided outcomes in not just income distribution, but also the social indicators of economic development. As I demonstrated, India's rapid economic growth during the last twenty years or so has been driven mainly by services; and not labor-intensive manufacturing. The service sector is extremely heterogeneous: it rewards the highly skillful workers in the IT or finance sector by granting them higher wages and saving rates. But it also punishes the vast majority of workforce in the less productive sectors—especially the decisive majority of workers who are employed in the vast informal sector, where wages and productivity are—and tend to remain—very low. So if India's impressive GDP growth rates have not translated into better quality of life for the majority of people, and that economic development has been starkly uneven across time and space, it can partly be attributed to the trajectory of economic development itself: the fact that growth has occurred in the heterogeneous services, and not in the productive and labor-intensive manufacturing sector. The very Lewisian turning point, which heralded that the industrial, modern, formal, and high-productivity sector of the economy would take over the subsistence, informal, low-productivity sector and will inevitably lead to higher wages and incomes on aggregate scale was not achieved in India.

Special Notes:

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[1] Research on poverty reduction in China is copious. See Chunni, Zhang Qi Xu, Xiang Zhoh Xiaobo Zhang, Yu Xie. 2014. Are poverty rates underestimated in China? New evidence from four recent surveys. China Economic Review. Also see the Economist's report: https://www.economist.com/news/leaders/21578665-nearly-1-billion-people-have-been-taken-out-extreme-poverty-20-years-world-should-aim, accessed July 17, 2017.

[2] For detailed discussion on India's large informal sector see, Rina Agarwala, 2013. Informal Labor, Formal Politics, and Dignified Discontent in India, Cambridge University Press.

[3] Chaudhury, N., Hammer, J., Kremer, M., Muralidharan, K. and Rogers, F. H. (2006), 'Missing in Action: Teacher and Health Worker Absence in Developing Countries', Journal of Economic Perspectives, 20., with reference to health facilities "Osmani, Siddiq R. (2010), 'Towards Achieving the Right to Health', Bangladesh Development Studies; "Osmani, Siddiq R. (ed.) (1992), Nutrition and Poverty (Oxford: Oxford University Press); "Mahmud, Simeen (2003), 'Is Bangladesh Experiencing a Feminization of the Labor Force?', Bangladesh Development Studies, 29. World Bank Report (2007), "Mahmud, Wahiduddin (2008), 'Social Development in Bangladesh: Pathways, Surprises and Challenges', Indian Journal of Human Development.

[4] For useful contributions to a better understanding of these achievements, "Chaudhury, N. and Hammer, J. (2004), 'Ghost Doctors: Absenteeism in Rural Bangladeshi Health Facilities', World Bank Economic Review.

[5] See Jean Drèze & Amartya Sen, 2013, An Uncertain Glory: India and its Contradictions, Princeton University Press.

[6] For more discussion on the characteristics of the Indian state see: Pranab Bardhan, 1984. The Political Economy of Development in India, Oxford: Basil Blackwell, pp 70-71. Also, Vivek Chibber, 2003, Locked in Place: State-Building and Late Industrialization in India, Princeton University Press.

[7] See World Bank and United Nations Reports on life expectancy (2015).

[8] For more discussion see Du, Runsheng. 2006. The Course of China's Rural Reform. Washington DC: International Food Policy Research Institute.

[9] See Arthur Lewis (1954) Economic Development with Unlimited Supplies of Labour. Manchester School, 22, 139–191.

[10] See the analysis provided by Cai, Fang, & Wang, Meiyan (2008). A Couterfactual Analysis on Unlimited Surplus Labor in Rural China. China & World Economy, 16(1), 51–65; Du, R. (2006).

[11] See Zhanzg Xiaobo, Yang Jin, Wang Shenglin, 2011, China has reached the Lewis turning point, China Economic Review.

[12] For further discussion see Basu, Kaushik (2000). Analytical Development Economics: The Less Developed Economy Revisited. Cambridge and London: MIT Press; The Course of China's Rural Reform. Washington DC: International Food Policy Research Institute.

[13] For detailed statistics see Chapters 2 and 3 of Jean Drèze & Amartya Sen, 2013, An Uncertain Glory: India and its Contradictions, Princeton University Press.

[14] See Angus Deaton, Jean Drèze, 2009. "Food and Nutrition in India: Facts and Interpretations." Special Article, Princeton University's Department of Economics.

[15] See UNISEF's recent report on India: http://unicef.in/Story/108/Child-Undernutrition-in-India-A-Gender-Issue, accessed July 7, 2017.

[16] See Chpaters 2 and 3 of Jean Drèze & Amartya Sen, 2013, An Uncertain Glory: India and its Contradictions, Princeton University Press.

Acknowledging the Minority's Voice: Power-sharing via voting rules

by Alessandra Casella

When we think of democracy, we think immediately of the majoritarian principle—the normative idea that decisions should follow the will of the majority of citizens rather than being the expression of a small power-holding elite. Yet democracy is much more than majority rule – it is the full constellation of institutions that guarantee that all citizens have a voice, their basic rights are protected, and representatives act within constitutional bounds.

The unqualified dominance of the majority group, as of any group, is expression not of democracy but of oppression and runs counter to fundamental principles of representation. In situations of high polarization, where the composition of the majority and the minority groups remains essentially constant over time—for example, in the presence of religious or racial differences that harden into political opposition—the disenfranchisement brought by pure majority rule is evident. Political theorists refer to the *tyranny of the majority* and argue that in such situations majority rule lacks legitimacy and can be seriously destabilizing.[1]

In modern democracies, the main tool for power-sharing is representation. However, majoritarian systems assign the full representation of a political district to the party that wins a majority of the district's votes. A group with shared interests but scattered across districts so as to be everywhere in the minority is effectively without a voice. It is this concern, expressed especially by civil rights scholars and at times seconded by the courts, that has called attention to semi-proportional voting systems, and in particular to Cumulative Voting.

Cumulative Voting

Cumulative voting has the explicit goal of protecting the minority in a multi-seat election with opposite candidate lists. It works by granting each voter a specified number of votes, and letting the

voter cumulate as many votes as desired on any individual candidate.

Consider, for example, an election to a five-seat body, where all seats are up to be filled. Suppose that two candidates' lists are presented, with one list proposed by the party that represents a majority of the electorate, and the second list proposed by the party representing the interests of the minority. Each voter is granted five votes, and the five candidates with most votes win the election. If voters are limited to a single vote per candidate, the majority party controls all five appointments: each majority candidate receives a number of votes equal to the majority size, and thus the five candidates with most votes all come from the majority list. With Cumulative Voting, on the other hand, each voter still holds five votes but can choose to cast them for fewer than five candidates. The voter can cumulate all votes on a single candidate, for example, or give two votes to one candidate, and one each to three others, or choose any other combination of votes, as long as the total number of votes cast is five. In this case, a cohesive minority amounting to as little as 17 percent of the electorate and coordinating its votes can *guarantee* itself at least one seat. If such a minority cumulates all votes (all five votes of all minority members) on a single candidate, that candidate will receive a number of votes equal to 17 x 5 = 85 percent of the size of the electorate. To be elected, the minority candidate must beat the weakest of the majority candidates. If none of the majority voters cumulates votes, then all majority candidates receive the same number of votes, equal to 83 (=100-17) percent of the electorate. If some majority voters do cumulate votes on some of the majority candidates, that must leave one or more candidates, the weakest ones, with fewer votes. Thus, the weakest majority candidate cannot receive more votes than 83 percent of the electorate—and is then certainly beaten.

Cumulative voting has a long historical tradition—it was the voting system electing the Illinois House of Representatives from 1870 to 1982[2]—and a current presence in both local jurisdictions and corporate elections. It is emerging as a desirable remedy to violations of the Voting Rights Act. Although the unfamiliar voting rule is often resisted initially, follow-up studies suggest that it indeed works as expected, leading not only to the election of minority candidates, often for the first time, but substantially increasing the expenditure in public goods in minority neighborhoods.[3]

This latter effect is interesting and not obvious. Note that however successful Cumulative Voting may be, the representatives chosen by the minority group would almost certainly remain a minority within the decision-making body. When preferences are polarized and the power of a cohesive majority bloc is secure, semi-proportional electoral rules like Cumulative Voting, or in fact fully proportional representation, need not result in effective power-sharing: the minority may well remain disenfranchised, even with a few of its representatives sitting at the table.[4] The concern is taken very seriously in societies sharply divided along ethnic or religious grounds. In some instances, power-sharing is then imposed directly: the constitution specifies the allocation of executive positions to different groups, typically on the basis of their identity.[5]

Yet, this is hardly an ideal solution. Constitutional provisions of this type are difficult to enforce and heavy-handed, unsuited to changing realities. One possible answer is to again exploit the design of the voting rule. The idea of cumulating votes need not be restricted to the election of representatives. If applied to decision-making itself, to the passing or blocking of proposals, the possibility to cumulate

votes becomes a *direct* instrument for power-sharing.

Storable Votes

Imagine going to a meeting where a number of proposals will be put to a vote. Each will pass if the majority of the votes it receives is in favor, and fail otherwise. As typically happens, only some of the proposals interest you. Storable Votes allow you to save the votes that you choose not to spend on some proposals for use on others. For example, you may choose to abstain on the first two proposals and then, when the third is up for a vote, cast three votes on it. More generally, you have one vote per proposal, but can distribute your votes freely over the different proposals in any way you want.

The central idea is the possibility of shifting one's votes from one decision to another, to *store* votes not spent on low priority decisions for use over decisions that matter more—hence the name. The idea can be applied to many different situations. The number of voters may be small, as in the case of specialized committees, or it may be large, as in the case of a popular vote. The different proposals may be voted upon over time, as in the case of committees that meet on a regular schedule, or presented simultaneously, as in the example of multiple propositions submitted to referendum. The agenda may be known, as in the case of multiple referendums or a committee with a fixed, recurrent task, or unknown, if the committee's role is sufficiently wide that new questions can arise. But the essence remains the same: several proposals can pass or fail; each is decided according to the majority of votes cast; and voters, each endowed with a fixed total number of votes, can choose how to distribute their votes over the various proposals.

Storable Votes work by linking multiple binary decisions through a single budget constraint—the fixed number of votes that individuals can shift across the different decisions. Because casting more votes translates, on average, into exercising more influence, individuals distribute the votes at their disposal according to the relative strength of their preferences, and the number of votes cast becomes the observable measure of preference intensity.

The voting rule is a simple, apparently minor deviation from majority voting. Yet, it has a number of desirable properties. As in the case of Cumulative Voting, a smaller group can prevail if its members cumulate votes on that proposal. And as in the case of Cumulative Voting, minority victories are compatible with every voter being treated identically: every voter has the same total number of votes over the full set of decisions, and every vote has the same weight regardless of the identity of the voter. Note, however, that the framework is different from Cumulative Voting: now each proposal is considered on its own terms, and the proposal's approval competes only with its own rejection. There is no fixed number of total proposals to be approved, as opposed to the fixed number of open seats to be filled in a Cumulative Voting election. This means that the minority can win a proposal when it considers it important enough to spend multiple votes on it, *and*, at the same time, the majority does not. There is no a priori guarantee that the minority will ever win. And yet, if it wins, it wins those decisions over which the minority feels strongly and the majority feels weakly, that is, exactly those decisions that normative criteria suggest the minority *should* win.

Because each voter is constrained by a fixed budget of votes, Storable Votes encourage the truthful revelation of each voter's priorities: everything else equal, a voter is incentivized to cast more votes when the voter's preferences are most intense. As a result, Storable Votes have desirable properties regardless of whether the minority has

a fixed composition on any given decision. By allowing each voter to cast more votes on decisions that matter more, Storable Votes increase the probability of winning decisions a voter considers important, at the cost of a lower probability of winning when it matters less. Thus in a body of voters homogeneous enough that all expect to be in the minority with similar frequency, an individual will expect to fare better, on average, than he would under majority rule (even though he also expects to be on the losing side more often than he would with majority voting).

Conclusion

Desirable as they may be, neither Cumulative Voting nor Storable Votes, nor any voting rule, can substitute for the set of institutions that democracy demands—a competent executive, a strong but accountable legislature, an independent judiciary, and a free press. Even within the more limited ambitions of desirable mechanisms for eliciting preferences, they are too simple to have ambitions of full optimality. They have a more modest but pragmatic purpose: they are simple, intuitive rules that can protect the minority and easily be implemented in practice.

[1] See for example Robert Dahl, 1956, A Preface to Democratic Theory, Chicago: University of Chicago Press (third edition in 2006), Lani Guinier, 1994, The Tyranny of the Majority. New York: Free Press, or P. J. Emerson, 1999, From Belfast to the Balkans: Was Democracy Part of the Problem?, Belfast: The de Borda Institute.

[2] It fell in 1982 in a voters-approved constitutional amendment aimed at reducing the size of the House, after representatives had voted themselves a large and unpopular salary increase.

[3] Richard Pildes and Kristen Donoghue, 1995, "Cumulative Voting in the United States", The University of Chicago Legal Forum, pp. 241-313, is a fascinating case study of the introduction of Cumulative Voting in Chilton County, Alabama, and takes the reader through initial reactions, parties' strategies, voters' education campaign, and final outcomes.

[4] The give-and-take of coalition building plays no role when one side is consistently in the minority. And note that the problem cannot be solved either by vetoes or supermajority requirements, or by logrolling. If on each issue there is a fixed majority of, say, 60 percent, versus a fixed minority of 40 percent, then vetoes and supermajorities stall all voting, and logrolling has no role because the majority is always winning.

[5] See for example the discussion by Arend Lijphart, 2004, "Constitutional design for divided societies," Journal of democracy, 15, 96-109.

[6] The ideas that follow are discussed in detail in Alessandra Casella, 2012, Storable Votes, Oxford and New York: Oxford University Press.