



Daron Acemoglu

The scope, depth and sheer volume of Daron Acemoglu's scholarship are nothing short of breathtaking, verging on implausible. A co-author jokingly complained, "He can write faster than I can digest his research." Another economist suggests that his extraordinary productivity can only be explained by existence of an identical twin.

Through omnivorous curiosity, apparently boundless energy and profound intellect, Acemoglu has produced seminal work in diverse, yet interrelated areas such as skills acquisition, technological change, trends in inequality, unemployment and directed job search, climate change economics, network economics, intellectual property rights and innovation. (Not to mention the occasional technical article: "Generalized Poincaré-Hopf Theorem for Compact Nonsmooth Regions," for example.) His key focus in recent years: institutions and economic growth, and the dynamics of political economy.

The MIT economist's gifts were recognized early. "I can say with some degree of certainty that [his] was the best thesis that I had ever examined," remarked Christopher Pissarides, the 2010 Nobel laureate, of Acemoglu's 1992 doctoral dissertation. "Original, full of important ideas and massive, without superfluous material." Acemoglu received the 2005 John Bates Clark Medal, given to that year's most-promising economist under 40. He's been honored with numerous other awards as well, including fellowships in the American Academy of Arts and Sciences and the Econometric Society.

But Acemoglu is not one to rest on his laurels, if indeed, he rests at all. In the six years since the Clark Medal, he has written—along with scores of journal articles—two massive books: an award-winning collaboration with political scientist James Robinson on dictatorship and democracy, and a 1,000-page graduate text on economic growth. Next year, he and Robinson will publish *Why Nations Fail*. Four more books are in preparation. And he fits in dozens of speeches around the world: In the first half of 2011 alone, he delivered five keynote lectures, including one in Istanbul, his birthplace.

Predictably, given his body of work, this *Region* interview went overtime. (Portions are web-only.) Even Acemoglu's energy seemed to flag. But when asked about the political economy of the Arab Spring, his eyes widened and he was off on an eloquent oral essay. As it happens, the preface of his newest book is titled: "Why Egyptians filled Tahrir Square to bring down Mubarak." He pointed to the voice recorder, and said, "I know we're running long, but please don't cut this part."

Not a word.

Photographs by Peter Tenzer

JOB MARKETS

Region: You've done a great deal of research on labor market imperfections, looking at search frictions and asymmetric information, as well as important work on directed job search, matching efficiency and the impact of unemployment insurance. What's your sense of the impact those factors are having on the current U.S. job market?

Acemoglu: I pondered exactly that question over the last few years. Who hasn't, I suppose? [Laughs.] And I guess I have a two-layered answer. I tend to think that there are serious structural problems with the U.S. labor market that will keep the economy down more and more over the next decade. They're related to the fact that our workforce, especially the male half, hasn't really made an adjustment to the new technologies and types of skills that are required.

Labor market imperfections play a role in that, in the sense that I think most people are not sufficiently informed about the sort of skills that they will require. They get their understanding of the labor market through word of mouth, from their parents and their neighborhoods, and there isn't quite enough of an understanding that most U.S. workers who don't have college degrees are not going to be able to get good-paying manufacturing jobs.

Those types of bread-and-butter jobs of previous decades have gone; now those tasks are being performed by robots and computers, and instead we have an explosion of demand in the service sector, in middle- and low-skill services, for example, in health care, clerical occupations or customer service. These are jobs that workers with high school or two-year college degrees can perform. But for the most part, U.S. workers, especially U.S. males, haven't really made the transition to performing them.

Bread-and-butter jobs of previous decades have gone; now those tasks are being performed by robots and computers, and instead we have an explosion of demand in the service sector, in middle- and low-skill services. ... But for the most part, U.S. workers, especially U.S. males, haven't really made the transition to performing them. ... Another important aspect is that social insurance programs, while not very generous, have really relaxed their eligibility requirements. ... These factors have raised the structural rate. But I don't agree that what we are seeing right now in the U.S. labor market is just structural unemployment. The sudden increase in and the composition of joblessness points out that this unemployment experience is really related to the downturn.

Region: So it's asymmetric information about job requirements and necessary education?

Acemoglu: You can say that people aren't fully informed. But there are probably other things going on as well. Perhaps the culture frowns on men doing certain of these jobs, be it in the health care sector, retail or clerical jobs that are complementary to the new technologies. These are not the typical "male jobs," and that might be part of it.

But another important aspect is that social insurance programs, while not very generous, have really relaxed their eligibility requirements. A lot of people who get discouraged because the sort of jobs they were expecting don't exist, drop out of the labor market. So, disability rolls, for example, have exploded, mostly with low-skilled males who are frustrated because they're not finding the sort of jobs they hoped for. This is not to say they are all faking disability; I don't think that's true, but I think people have adapted to thinking



that a much more minor disability is sufficient to get on disability rolls, and the administration of these programs has become much more accommodating.

This is documented, for example, by David Autor and Mark Duggan [“The Rise in Disability Rolls and the Decline in Unemployment,” *Quarterly Journal of Economics* 118, February 2003, pp. 157-205]. Their work on this and related issues over the last decade shows not only the remarkable increase, but how economically elastic this is. If it were just pure disability, you wouldn’t expect it to take place more in places that are more depressed, especially more depressed for low-skill workers, and that’s what’s going on.

Region: Some contend that labor market factors like these have raised the structural rate of unemployment.

Acemoglu: Right, yes. I was just getting to that idea in fact. I would probably agree with the statement that these factors have raised the structural rate. But I don’t agree—and I think it’s hard to agree—with the statement that what we are seeing right now in the U.S. labor market is *just* structural unemployment.

It seems quite clear that the sudden increase in and the composition of joblessness points out that this unemployment experience is really related to the downturn in economic activity. I think it also highlights that at some level, despite decades of very productive work, we economists haven’t really made as much progress in understanding cyclical unemployment as we thought.

At some level, this wasn’t so much of an embarrassment for us because the United States previously had relatively low unemployment, so most labor economists in the United States didn’t really worry about unemployment, and most macroeconomists worried much more about employment than unemployment. Even when search models have been successful in thinking about some

conceptual issues, I don’t think they have been really that useful for thinking about why is it that we have these long periods of unemployment?

I think we probably need sort of a paradigm shift there, to combine some of the elements of the search model, perhaps, with some other ingredients in order to understand these things.

TRENDS IN INEQUALITY

Region: Let me ask a related question about wage distribution and inequality trends. In a 2002 article [“Technical Change, Inequality, and the Labor Market,” *Journal of Economic Literature* 40, March 2002, pp. 7-72], you summarized much of the research in this area. To summarize it still further, if I may, you said that trends in inequality can best be explained and forecasted by understanding interactions of five factors, all of which are constantly evolving in interaction with one another: technology, labor market institutions and policies, how firms organize production, labor market search and matching efficiencies, and international trade.

It’s a tall order, of course, but I wonder if you feel that economists have made some progress over the last decade in understanding those interactions.

Acemoglu: Yes, actually, in my opinion, this is an area where there has been quite a bit of progress in that I think we now have a better theoretical and better empirical understanding of issues such as trade, offshoring and outsourcing. Originally, they were—probably correctly—downplayed relative to other factors, such as technology and labor supply. But I think they have become quite important, even more important, over the last decade.

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example, the work again by my colleague David Autor has been very important. His work with Frank Levy and Richard Murnane has pushed the idea that a very important factor in thinking about this is to recognize that a lot of recent technologies have substituted for routine tasks that workers used to perform [“The Skill Content of Recent Technological Change: An Empirical Exploration,” *Quarterly Journal of Economics* 118, November 2003, pp. 1279-1334].

That really helped us think about the microeconomics of technology within firms, how these new technologies are affecting the way that firms are organized and what types of jobs they offer. It has also been very useful for thinking through the sorts of questions that we started talking about at the beginning, which is about structural unemployment, the demand for certain types of workers disappearing and so on. Now, I think, it is leading toward a better conceptual framework for the analysis of trends in employment and inequality.

For instance, a paper that I have written with David Autor was an attempt in that direction [“Skills, Tasks and Technologies: Implications for Employment and Earnings,” *Handbook of Labor Economics*, Volume 4, Orley Ashenfelter and David E. Card (eds.), Amsterdam: Elsevier, forthcoming]. It tries to provide a task-based framework for labor market analysis and for interpreting changes in inequality and employment patterns. Once you have such a task-based framework, one thing that becomes quite clear is that the sorts of changes that have happened in offshoring and trade over the last 10 years could be very consequential because they are replacing precisely the products and functions that a very narrow group of workers were performing in the U.S. economy.

With this framework, it also starts making more sense that rather than thinking of college graduates versus non-college graduates, which the early literature did focus on (including my own paper in the *JEL* that you mentioned), it’s much better to think of a wider range of skills, because these technological changes have actually hurt the middle of the income distribution, while at the same time helping both the top and the bottom.

That might seem like a strange statement, because most people have a picture that the bottom is actually now doing really badly. But that misconception comes from bunching together the middle and the bottom. If you look at the 1980s, the bottom of the income distribution was indeed doing badly. But if you look at the 1990s and 2000s, what you see is that in terms of employment growth, occupations that are lowest-paying are actually expanding very fast.

Region: Services, for example?

Acemoglu: Personal services, retail, low-skill health care—those are expanding very rapidly—so workers at, say, the 20th percentile or the 10th percentile are actually doing better than, say, the 50th percentile over time. They’re subject to

more positive changes in their earnings than are the middle percentiles. So looking at the world just through two types of workers, high-skill versus low-skill, would mask this. Similarly, getting our picture of what’s going on from looking only at the 1980s would mask this because trends then were very different from the 1990s or the 2000s.

THE FINANCIAL CRISIS: LESSONS FOR REGULATION

Region: Let me jump ahead another decade, to the financial crisis. In 2009, you gave a presentation at the International Monetary Fund/World Bank in which you answered the question, What should we do about the financial crisis? with a three-word answer: I don’t know. I thought that was wonderfully humble. You said, also helpfully, what not to do: Don’t sacrifice long-term growth. Don’t create expectational traps.

But I wonder if, over the last couple of years, you’ve reached greater clarity over how financial crises should be addressed and how they could be limited in the future. What do you think about the Dodd-Frank approach, the Financial Stability Oversight Council and other regulatory initiatives that have been taken?

As an example, in an *Economist* forum a year ago about taxing bank risk, you said that, actually, consideration should be given to regulating the asset side of banking, that creating some “speed bumps” in financial innovation might be worthwhile if the social value of those innovations isn’t so great.

So, more generally, what thoughts have you had about lessons for regulation?

Acemoglu: I’m not sure that I have reached as much clarity as I would have liked. [Laughs.] I’m pretty sure I haven’t. Let me make a somewhat disjointed set of comments.

There is very little doubt in my mind that additional regulation of the financial

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industry was necessary relative to where we were in 2008. It was not a tenable equilibrium for finance to remain as unregulated as it was in 2007-2008 while interconnections in the financial sector—especially those linking a few major financial institutions to the rest of the financial sector—were so great, and there is the implicit guarantee, not primarily from deposit insurance, but from the fact that the policymakers around the world know that you can’t let such an interconnected system fail. So that’s number one.

Unfortunately, I also hold an opinion that runs a little counter to that, which is that, number two, you have to tread very carefully with regulation because you’re dealing with very complex and very profitable institutions, and nobody has great ability to see what the future arrangements are going to be. Many of the regulations might create a lot of inefficiencies; especially bad would be those where the financial sector is able to overcome the intent of the regulation by creating an even more inefficient structure.

The shadow banking system is an example of that. Nobody understood that the few regulatory provisions that existed

in the 2000s would lead to a shadow banking system that would be so big and so dangerous. And we don't know what the next shadow banking will be.

That's the origin of my thinking that a lot of regulations should be in the form of speed bumps, meaning they shouldn't eliminate financial innovation, but they should slow it down. They especially should make sure that the core of the financial system doesn't become mired in new types of assets and new risks before they are properly understood.

As for focusing on the asset side of banking, I think a lot of the emphasis among economists on regulation has been on the leverage side, on the liability side, so if we reduce leverage, that's going to resolve things. Obviously, excessive leverage is a very dangerous thing, but I think that by itself is only half of the problem in the sense that even with limited leverage, there are going to be major interconnections in the system. In fact, you can have a lot of interconnections with-

out having any net leverage; I can just borrow from you and lend to somebody else. In such a situation, there might still be major cascades from the failure of a few financial institutions, but there wouldn't be net leverage. Of course, there are different ways of defining leverage that would deal with gross versus net.

But when there is this interconnected structure (which I think was the reason people were concerned, very rightly, about the collapse of the financial system), you may also want to make sure that these core institutions—those whose failure would be very costly for the system—should be discouraged from holding, or not even allowed to hold, certain assets, especially as the nature of those assets is still uncertain and evolving.

Again, it's all with hindsight, but the allocational costs of excluding most major financial institutions (and it's not clear how you would treat investment banks here), such as Bank of America or Citibank, from holding CDOs [collateralized debt obligations] and CDO-squareds might be quite limited, because these financial instruments might still be available and held by hedge funds, so it's not as if the necessary capital would be totally cut off.

But it would mean that if, in fact, those instruments turn out to be

more risky and much more sensitive to a slowdown or reversal in U.S. house prices than foreseen, that this will bring down a lot of hedge funds, but it wouldn't bring down the core financial institutions.

So those sorts of regulations, I think, ought to be considered. But the difficulty is that you don't want to make those regulations extremely detailed. I think the problem with the Dodd-Frank Act is that the amount of good it contains seems to be dwarfed by the amount of additional minute details it contains. That fails to achieve the intent of the regulation. It also gives better regulation a bad name, because people who are opposed to regulation can easily point to the page after page after page of paperwork and procedural things that Dodd-Frank wants you to do.

And I am not convinced that the Dodd-Frank Act is going to prevent the next financial collapse if the financial system actually continues on its current trajectory. I don't think anybody can claim that they know what's going to happen in the next five years in the financial sector, but the financial sector has become more concentrated. It's very profitable, it is still investing in highly risky assets and, in fact, it hasn't really cleaned up its balance sheet to a great degree. The bonus culture, for example, was one of the elements that contributed to the crisis—not by any means the only one, or the most major one, but it was certainly an important factor. It has remained the same. And the Dodd-Frank Act doesn't really do anything to deal with that. I don't think the Volcker rule does anything to deal with that either.

I think something that's much more effective—and again, I view it as a speed-bump-type of regulation—is to increase capital requirements. This is what Basel III [<http://www.bis.org/publ/bcbs189.htm>] is doing, and the Swiss banking regulations are doing it even beyond Basel III. If you increase capital requirements, you're essentially putting in speed bumps because the rate at which a bank



can expand its balance sheet is going to be limited by the capital it has to a much greater extent than currently required.

Those are the kinds of things that, as long as they're not very detail-oriented, I think hold more promise. When they are detail-oriented, they are easier to overcome and thwart, and they are also much more costly to the daily functioning of banks.

"TOP INEQUALITY" & POLITICAL PROCESSES

Region: Earlier this year, at the American Economic Association meeting, you said that top inequality (the top 99th percentile) and the financial crisis itself might be due to "the peculiar political processes that have been under way in the United States over the last 25 years."

Can you elaborate on what you meant?

Acemoglu: Yes, sure. I think it's useful to put that into perspective, because that was commenting on a well-known thesis, that's become even better known over the last year or so, proposed by Raghuraj Rajan at the University of Chicago. And Raghuraj is a leading financial economist and has written many insightful pieces, including a wonderful book called *Fault Lines*.

Region: *Fault Lines*, right. He gave us a preview in an October 2009 *Region* interview [online at www.minneapolisfed.org].

Acemoglu: I sympathize with 80 percent of the book greatly. But the 20 percent that has perhaps received the most attention, including by Raghuraj himself, I think, in his presentations, is about this new thesis—and I think it is really new, and I applaud that a lot, because new ideas deserve special respect—that the root of the crisis was a regulatory response to the rising inequality experienced in the United States. I think this 20 percent is less compelling.

And the story goes like this: Inequality has been rising in the United States, and I think by that he was referring not to the top 1 percent inequality, but inequality between the bottom quarter and top quarter, or middle and the top quarter. It's been rising for exogenous reasons, for reasons unrelated to finance or to banking regulations and so on. This rise in inequality generated demand for appeasing the bottom of the distribution, and the political process responded by giving them cake instead of bread, so to speak—by giving them housing. And it did so by encouraging the GSEs [government-sponsored enterprises such as Fannie Mae and Freddie Mac] to give lower-income people unsustainably cheap credit or subprime lending and mortgages.

Region: Creating the "ownership society."

Acemoglu: Exactly: the "ownership society." And the house of cards that was created came tumbling down. That would be my summary of the 20 percent of Raghuraj's book that he emphasizes a lot and is the part that I disagree with.

So when I made that comment about top inequality and the crisis being due to the political process, it followed other remarks I made to explain why, in my opinion, this thesis doesn't hold water.

Why not? First, I think evidence that the demand for redistribution from the bottom was strongest in the 2000s is nonexistent. If anything, it was stronger in the 1980s, which was a time when the bottom of the income distribution was falling and, in fact, there was a stronger labor movement to demand such changes. If you look at the 2000s, the bottom of the income distribution is doing well, actually, for the reasons that we just talked about. In fact, the middle is not doing all that badly either in the 2000s, relative to what was going on before. So the 2000s seem to be a particularly peculiar time for people to make those demands.

Second, I actually see no evidence, qualitative or quantitative, that even if people at the bottom *did* make such demands, the political system would respond to it. Over time, the U.S. political system seems to have become much *less* responsive to what's being demanded by the bottom.

And third, I didn't see any evidence that GSEs really played such an important role in this whole thing. They were relatively late arrivals into the subprime scene, which the private sector had fought very hard to carve out away from the GSEs and had successfully done so. Then the GSEs came in because they thought this was a profitable opportunity.

Region: So the demand timing was wrong, the political response wasn't really there and the institutional details weren't quite right either.

Acemoglu: Yes, the details of the institutional process just don't seem to work out. Now, for all of this, we don't have conclusive evidence, but existing evidence doesn't seem to support the thesis.

And at the end, I said that if there was going to be any link between inequality and the financial crisis, I would have put it another way, which is that the financial crisis and the inequality of the top 1 percent, which has a heavy overrepresentation from the financial sector, has been an outcome of the political processes that have removed all of the regulations in finance, and so created the platform for 40 percent of U.S. corporate profits to be in the financial sector—which is just an amazing number. That is where financial sector profits stood at the time.

Region: Really, 40 percent? Wow.

Acemoglu: Exactly, wow. And that's for a sector that doesn't use much capital, so it went to a very few, 20,000 or so people, in a very unequal way—especially in the form of year-end bonuses. They were amazingly overrepresented

in the top 0.1 percent of the income distribution. And the thing is that this was underpinned by a political process, in the sense that it was an outcome of this lack of regulation and the way that we have allowed the laws to be changed for things such as sub-prime, and the relationship between investment banking and regular banking. And those things also played a major role, obviously, in the run-up to the financial crisis.

So it could well be that a political process that responded not to the *bottom* of the income distribution, but to the lobbying, financial and expertise power of the *very top* of the income distribution might have been responsible for these two processes.

DIRECTED TECHNICAL CHANGE & GLOBAL WARMING

Region: I definitely want to ask about your related work with James Robinson on economic and political transformation, but first let me jump to another of your seminal contributions in economics: directed technical change. In brief, the idea is that innovation is directed by two competing forces: the price effect that encourages innovation toward scarce factors and the market size effect that does the opposite, directs it toward abundant factors.

You and your co-authors recently applied this idea to the environment—global warming, in particular—and concluded that because of the externalities involved, sound policy should redirect technical change toward clean technologies without delay, and also that optimal regulation with carbon taxes and research subsidies need not reduce long-term economic growth.

And you compare it to other economic analyses of climate change intervention, such as the Nicholas Stern report and William Nordhaus' work. But could you give a quick primer on directed technical change and how you apply it to climate change?



It could well be that a political process that responded not to the bottom of the income distribution, but to the lobbying, financial and expertise power of the very top of the income distribution might have been responsible for these two processes [of “top inequality” and the financial crisis].

Acemoglu: Sure. It's useful for me to express it the following way, I think. The directed technical change idea really has two layers to it.

The first layer is sort of obvious to economists, but hadn't really been developed and stated. It's that just as we think all other factors go toward more profitable areas, investment in new technology and innovative activities also goes toward more profitable areas. I think in a micro sense, nobody would doubt this. We don't talk of "technological change" in the abstract. We talk of technological change in the pharmaceutical sector, for example. We talk of technological change going after heart disease. We don't just talk of broad technological change. And when we want to understand technological change for heart disease, we ask, What's the market for heart drugs, beta-blockers, ACE inhibitors, statins or whatever?

So, that's the most important part. Directed technical change was pushing this idea at the economywide level. Technology, either across sectors or across different types of factors—factor-augmenting or factor-substituting technologies—is also going to be determined by their profit incentives.

I first tried to develop these ideas in the context of inequality and skill-biased technological change. There the market size and the price effects, which you've mentioned, turn out to be quite important. If you want to understand how this works in a more detailed level, you need to understand how these market size and price effects work. They create countervailing forces, but one of them always dominates, and so on.

When we turn to the environment, I think the bigger picture insights seem to be more important. Market size and price effects come out in the context of the environment, and they're in our paper, of course. But for purposes of our conversation here, I think I can do justice to the main ideas without getting into those details.

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The perspective shouldn't be, How can we slow down economic activity? Instead, it should be, How can we shift the composition of economic activity away from dirty technologies to cleaner technologies? ... We expect there to be a distinctive cumulative aspect to research.

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about how we have to tax economic activity to slow it down so that we don't damage the environment. If you think of a single-sector economy, with one sector that depends on coal, or on gas, that's the only thing you can do: slow down that one sector. If you want to reduce carbon emissions, you just have to slow down that sector. Now, you don't directly slow it down; you change its composition of factors, perhaps, but you can't let that sector take off at a very rapid rate and still, at the same time, limit carbon emissions.

Our perspective was, well, the economy has *several* technologies; some of them are cleaner than others. How should we shift toward the cleaner ones? When you look at the climate science, there's a lot of emphasis precisely on this and on questions such as, When is it that nuclear power will become economical? When will geothermal or wind or solar solve both their cost and their delivery problems?

Therefore, the perspective shouldn't be, How can we slow down economic activity? Instead, it should be, How can we shift the composition of economic activity away from dirty technologies to cleaner technologies?

Now, that's a very directed-technical-change-related question, but it already comes with a very important implication: The focus shouldn't be on slowing down economic activity,



but on changing its composition and changing the type of technological changes that the market generates.

Moreover, and importantly, we expect there to be a distinctive cumulative aspect to research. Different technologies often build on past successes in the same line of technology. So when you're building a new car, you build on the past advances in car technology; you don't as much build on advances in solar technology. In the same way as when you build new solar panels, you're building on the previous solar panels, not on the diesel engine. What that means is that there's going to be strong self-reinforcement in changing the direction of technological change. So when technological change shifts away from the dirty technologies that are so fossil-fuel-dependent to the cleaner technologies, it will *also* make it potentially cheaper to produce these innovations, these cleaner technologies, in the future.

That was the basic observation that I think was most important in the approach. And that's the source of the more optimistic conclusions. Let me explain that in the following way. If you have a Nordhaus-type model—and I don't want to caricaturize it, because Nordhaus in other work has considered richer models—but the seminal contribution that Nordhaus made in the early 1990s, for example, was sort of a neo-classical growth model used for the environment, and reducing carbons is reducing capital accumulation. In a model like that, parameters are going to determine how aggressive you should be in reducing carbon, but when you reduce carbon, you're reducing GDP, you're reducing growth.

The more optimistic aspect of our perspective came from the realization that if what you're doing with environmental policy is "tax one sector, but subsidize another sector," you might actually achieve in the long run quite successful growth, because the other sector is going to pick up the slack. *If* we have

enough technological ingenuity—and that is an if, which I think we tried to make explicit in the paper—and can generate cleaner technologies that avoid the negative environmental consequences of coal and oil, *then* there is no reason for our economy not to grow at a healthy rate in the long run. So that was the optimistic part.

So in that sense, factoring in directed technical change made this conclusion much more optimistic relative to Nordhaus and, of course, more optimistic than Stern's review, which was much more effective, and I believe rightly so, [in warning] of the potential dangers from climate change.

But on the other hand, it also made policy prescriptions much more proactive than Nordhaus and, in that sense, far more similar to Stern. And the logic of that relates very tightly to the directed technical change aspect. In the Nordhaus approach, it's like a ramp-up thing: You don't want to do too much because reducing emissions today is costly, while the future is discounted. If you can cut things in the future, why do it today? Now you can also add, "We don't know where we're going to go, so let's go slowly," a very gradualist approach.

But let's think of the logic of directed technical change with cumulative research. The *less* we do on green technology today, the less knowledge is accumulated in the green sector, so the *bigger* is the gap between fossil-fuel-based technology and energy, and the cleaner energy, so *the harder* it will be in the future to close that gap. With more proactive, decisive action today, we already start closing the gap, and we're making it *easier* to deal with the problem in the future.

GROWTH, INNOVATION & SPILLOVERS

Region: That's great—a very clear explanation. And it leads me to a question about technological innovation as an engine of growth. Supporting innovation

has been a central concern for policy-makers and economists. Many economists have tried to evaluate the effectiveness of different policies, such as R&D funding, to encourage innovation.

But a key question in evaluating these policies is whether or not knowledge spillovers are large. And they've proven very difficult to measure. You've done important research in this arena with Joshua Angrist and others. Can you tell us briefly why these spillovers are difficult to measure and what strategies have proven most successful in gaining a sense of their magnitude? Also, what's your sense as to how large they are, and what factors might influence their magnitude?

Acemoglu: Excellent question. [Pause.] Let me first say why I believe, at kind of a broad level, why such spillovers must exist. And I will cite two sorts of very qualitative evidence. One is that when you think of an innovation such as the iPhone or iPad—just to pick some examples that have been extremely popular—they make a tremendous amount of money for Apple. But still they leave a lot of surplus for consumers, because we are receiving a large amount of consumer surplus above and beyond what we pay for these technologies.

And secondly, they also open the field to competing products that are also profitable. So, Android comes in largely inspired by the innovations of Apple, but the patent protection isn't so strong. There are some patent infringement cases, including one in which Apple won an initial ruling against Taiwan's HTC, a major producer of Android phones.

But this is the exception. There is a whole host of innovations building on these successful products, and the deeper you go in terms of fundamental research, the more true that is. Apple itself was building on a host of innovations that actually took place in academic research labs. A lot of other companies are building on such things. So, at some level, it's clear that spillovers exist.

A second piece of evidence comes from patent citations. Every patent cites hundreds of other patents. It's not really pro forma defensive citation. It's not as if I was sitting in my lab, and I came up with an idea all by myself, and then after I came up with it, I looked around to see which patents it might infringe, and so I cite them defensively.

No, really these people were starting from a knowledge base that these previous patents developed, and in many cases, they were trying to improve on them. That's why they cited them. Again, that's an example of knowledge spillover.

So there's little doubt in my mind that these spillovers are positive, although one can write down models in which you can have overinnovation, but I think there's little doubt that those externality spillovers are positive.

The question is, What's their magnitude? And I think there we have been very unsuccessful in coming up with credible answers. Part of the reason is that it's a very hard question, and part of it is that we haven't tried hard enough.

Go online to minneapolisfed.org for Acemoglu's discussion of difficulties in measuring spillovers, and why intellectual property rights should be stronger for firms with the greatest competitive advantage.

TRANSITIONS IN POLITICAL ECONOMY

Region: There's so much more to ask about, and we haven't even touched on your massive body of research on institutions and on transitions in political economy. Perhaps we could end with that, with your work with James Robinson on transitions in political economy. I wonder if you could share any thoughts you've had about how that research applies to the Arab Spring.

Acemoglu: Yes, for the last 15 years, most of my research is exactly what you could call, broadly, political economy. Why

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don't I talk about that a bit, and then we can kind of transition into transitions.

Region: Perfect.

Acemoglu: My professional research didn't start with political economy, although when I originally began to study economics in high school and college, I was interested in what today you would call political economy—the interaction of politics and economics.

But later in college and graduate school, I started working on issues related to human capital, economic growth and so on. But then after a while, I sort of realized, well, you know, the real problems of economic growth aren't just that some countries are technologically innovative and some aren't, and some countries have high savings rates and some don't. They are really related to the fact that societies have chosen radically different ways of organizing themselves.

So there is much meaningful heterogeneity related to economic outcomes *in the political structures* of societies. And these tend to have different institutions regulating economic life and creating different incentives. And I started believing—and that's reflected in my work—that you wouldn't make enough progress on the problems of economic growth unless you started tackling these institutional foundations of growth at the same time.

That got me onto a path of research that has been trying to understand, theoretically and empirically, how institu-

tions shape economic incentives and why institutions vary across nations. How they evolve over time. And politics of institutions, meaning, not just economically which institutions are better than others, but why is it that certain different types of institutions stick?

What I mean by that is, it wouldn't make sense, in terms of economic growth, to have a set of institutions that ban private property or create private property that is highly insecure, where I can encroach on your rights. But *politically*, it might make a lot of sense.

If I have the political power, and I'm afraid of you becoming rich and challenging me politically, then it makes a lot of sense for me to create a set of institutions that don't give you secure property rights. If I'm afraid of you starting new businesses and attracting my workers away from me, it makes a lot of sense for me to regulate you in such a way that it totally kills your ability to grow or undertake innovations.

So, if I am really afraid of losing political power to you, that really brings me to the politics of institutions, where the logic is not so much the economic consequences, but the political consequences. This means that, say, when considering some reform, what most politicians and powerful elites in society really care about is not whether this reform will make the population at large better off, but whether it will make it easier or harder for them to cling to power.

Those are the sort of issues that become first-order if you want to understand how these things work. And this area is where the majority of my time was devoted over the last 10 years, though I've been working on it for 16 years or more, a lot of it with Jim Robinson. Jim and I have co-authored a couple of papers on the effect of institutions on economic growth. We've written a lot on political processes and transitions, dictatorship, democracy and a series of papers on issues of political power and elites and so on. Some of that underpinned our book *Economic Origins of Dictatorship and Democracy*, which I'll

come back to in the context of your question about the Arab Spring. And some of it led to this new book that we finished—in fact, it's here [lifting a roughly bound manuscript from beneath several papers on his desk] which will come out next year, next calendar year.

Region: *Why Nations Fail?*

Acemoglu: Yes, *Why Nations Fail*. It's sort of a broader take on what are the deep causes, according to us, of this great variety of economic outcomes and economic organizations that you observe around the world, and we try to sort of have a coherent theory of this that is very different from those that are very popular in the media and policy circles. It is also, to some degree, even different from the ones that economists articulate. We put much more emphasis on the politics of it, rather than geography and culture, which is what a lot of policy and media people emphasize, or things related to optimal policy and how we can improve policy at the margin, and how we can design policies better, which is what economists put a lot of emphasis on.

Our take is that the political constraints here are central. And development is all about breaking those political constraints, rather than just thinking within existing political constraints and looking at the optimal tax design or the optimal unemployment insurance design and so on, within those constraints.

Obviously, the two are complementary, but I think this perspective is quite different from what's out there. So that's the major thing that's kept me busy over the last few years.

In this very long, roundabout way, let me come to the question that you asked, which was about the Arab Spring.

Region: Ah, yes. I see that your preface in *Why Nations Fail* is just that: You write, "Why Egyptians filled Tahrir Square [to bring down Hosni Mubarak, and what it

means for our understanding of the causes of prosperity and poverty]."

Acemoglu: Exactly. If you want to think about the Arab Spring, I think a couple of issues are central, and some of them are the focus of this book, and some of them are the focus of both the previous book, *Economic Origins of Dictatorship and Democracy*, and this new book.

The first issue, which we focus on much more in this book, is that these societies weren't dictatorships only in the sense that they banned elections. They were dictatorships of a very particular kind, but a kind that has been quite common around the world, where a narrow segment of the society controls both political power and economic resources.

So if you look at all of these societies from Tunisia to Egypt to Syria to Bahrain or to Libya, a narrow elite controlled political power, limited the ability of almost anybody else in society to have any political voice and used their political power to distribute economic resources of the nation to themselves at the exclusion of anybody else.

In Libya, that's sort of obvious. In Syria, it's also sort of obvious now; the newspapers have explained in great detail how the Alawite minority, for example, commands not only all the economically lucrative positions, but also all the top positions of the bureaucracy and the army. In Bahrain, that's quite clear with the Sunni minority. In Tunisia and Egypt, it was a little in the softer form, in that many business interests that were favored had very strong representation within the group of cronies that Mubarak or Ben Ali had around them. And in those countries, the army and the security forces were effectively keeping any kind of real democracy at bay.

The consequence, perhaps not surprisingly again, is that when you have a system like this when a very narrow group controls political power for its economic ends, it also is quite disappointing for economic growth. It doesn't encourage new technologies to come in;

it doesn't allow people to use their talents; it doesn't allow markets to function; it doesn't give incentives to the vast majority of the population; moreover, it encourages the people who control political power to suppress many forms of innovation and economic change because they fear it will be a threat to their stability.

So the result was large fractions of the population were excluded from political voice, they were excluded from economic power and they also saw their living standards not increase because there wasn't strong enough economic growth.

There are exceptions in the sense that Tunisia and Egypt did have some economic growth. They did have improved education of the population over the last 20 years. But by and large, the majority of the society felt that they weren't getting enough out of this deal, and they also had very little faith that politics as usual was going to serve their interests.

So, what to do? Well, most of the time, nothing, because such a system is structured and survives precisely because it is successful in denying voice and power to the majority. If the majority had real power all the time, such a system wouldn't survive—in the same way that a plantation society wouldn't be able to survive if 90 percent of the slaves really had a political voice.

But the 90 percent have vast numerical advantage if they can get organized—for example, as in Syria, where the Alawites rule society but are a small minority. So it's very difficult to keep the majority at bay all the time. Especially when there is some instability and some spark, as the one that came from Tunisia created in the rest of the Middle East, people are able to organize, they are able to solve their collective action problem and make real demands from those who hold power.

And what are those demands going to be? The people who went to Tahrir Square actually wanted deep, fundamental change. They wanted deep, fundamental change, partly for economic reasons. But also, I think, if you read the

blogs and other things they write, it's also clear that they thought fundamental change could only come from political change. In fact, from the get-go, a lot of the discussion, the debate over "reform or no reform" focused on political change.

So, the first move of the Mubarak regime was to say, "OK, fine, you want reforms? We'll give you reforms. Just go home." And the reaction of the people in Tahrir Square was, "No, you've got to be crazy, because if we go home, you'll just continue the same system as before."

This is the driving framework, the key element of the framework that Jim and I developed in *Economic Origins of Dictatorship and Democracy*. This also features to some degree here [in *Why Nations Fail*]. If you are able to solve the collective action problem and make some demands, then *promises* of change or

economic goodies or political reform *in the future* are not good enough. Because if I go away and stop the collective action that is taking place in Tahrir Square or any other place, tomorrow what are your incentives to actually carry out the economic reform or the political reform?

And that's exactly what the people in Tahrir Square said: "No, we don't believe you. The moment we go home, you're going to re-create the same system." The only way of making those reforms credible is to change the distribution of political power and make the reforms right away. That's exactly what the people in Tahrir Square wanted.

So at some level, therefore, we understand through the lens of this framework, I think, how the dynamics played out, why the demands were made in the way they were made and why people in

power tried to make concessions, but they weren't successful and there were demands for deep political reform.

The big question is, Is this going to be a political revolution in the same way as the Glorious Revolution in England, which unleashed a fundamental process of transformation in the political system with associated economic changes? Ultimately, such political revolutions are fundamental to the growth of nations. That's one of the arguments we make.

Or is it going to be the sort of revolution like the Bolshevik Revolution or the independence movements in much of sub-Saharan Africa in the 1960s, where there was a change in political power, but it went from one group to another, which then re-created the same system and started the same sort of exploitative process as the previous one?

More About Daron Acemoglu

Current Positions

Elizabeth and James Killian Professor of Economics, Massachusetts Institute of Technology, since 2010; Charles P. Kindleberger Professor of Applied Economics, MIT, 2004–10; on MIT faculty since 1993

Previous Positions

Lecturer in Economics, London School of Economics, 1992–93

Affiliations

Research Associate: Canadian Institute of Advanced Research, Centre for Economic Policy Research, National Bureau of Economic Research, Toulouse Information Technology Network

Fellow: American Academy of Arts and Sciences, Bureau of Research and Economic Analysis in Development, Econometric Society, European Economic Association, Society of Labor Economists

Honors and Awards

Honorary Doctorate, University of Utrecht, Netherlands, 2008
John von Neumann Award, Rajk College, Budapest, 2007

Distinguished Science Award, Turkish Sciences Association, 2006

John Bates Clark Medal, American Economic Association, 2005

Sherwin Rosen Award, Society of Labor Economics, 2004

T. W. Shultz Prize, University of Chicago, 2004

Adam Smith Memorial Prize, University of York, 1989

Publications

Prolific author of research on political economy, institutional economics, development and growth, income and wage inequality, human capital and training, technology and labor markets, and network economics. Award-winning author of *Economic Origins of Dictatorship and Democracy* (with James Robinson).

Education

London School of Economics, Ph.D., 1992

London School of Economics, M.Sc., 1990

University of York, B.A., 1989

The Bolsheviks were obviously very different from the Romanovs, but they created an even more exploitative system than the Czarist regime in Russia. Many of the independence leaders in sub-Saharan Africa, from Nkrumah to Mugabe to Kenyatta, were obviously very committed to throwing out the whites. And they had very legitimate demands, just like the Egyptians do today, but the system that they created either degenerated into something as bad or they personally created something even worse, like Mugabe did when he destroyed Ian Smith's terrible racist regime, and he created something even as terrible.

Earlier, in the 1960s, Nkrumah came to power in Ghana, and in Sierra Leone, Margai came to power. Margai re-created a very exploitative system. It was perhaps marginally better than the British system, but then Margai was replaced by his half-brother and then by Siaka Stevens in 1967. Stevens made things so much worse, but all of its roots were in what Margai had done, which was [he had] just taken over the British system and used it for his own political and economic purposes. Under Stevens, the whole system sort of collapsed.

So, there is no guarantee that such movements will translate into a broad-based political revolution, as opposed to sort of a palace coup where one group takes control for another. And again, part of *Why Nations Fail* is, we try to understand the conditions under which one takes place and interpret the long swath of history and the institutional variations that we see around us in light of this.

Region: Thank you. I know we've just scratched the surface. This has been wonderful.

Acemoglu: Oh, thank you.

—Douglas Clement
July 27, 2011



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