

## Jean Tirole

French economist Jean Tirole, recipient of the 2014 Nobel Memorial Prize in Economic Sciences, sees a close similarity between economics and the “caring profession” of medicine. “The economist,” he contended in his recent book *Economics for the Common Good*, “like the oncologist, makes a diagnosis on the basis of the best available (though necessarily imperfect) knowledge, and then either proposes the most suitable treatment on that basis or no treatment at all, if none seems necessary.”

The difference, for Tirole, is that in proposing policies, the economist must take into account the interests of people who aren’t in front of him or her and might not even be readily visible. “So the public sometimes accuses that economist of being indifferent to the sufferings of the visible victims.”

Tirole, who joined the Toulouse School of Economics in 1991 after a seven-year stint on the faculty of MIT, has made significant contributions to a wide array of areas within economics, including industrial organization, finance, banking regulation, and the economics of technology, to name a few. His 1988 textbook on industrial organization and his 2006 textbook on corporate finance are standards. With *Economics for the Common Good* — his first book meant for popular audiences, published initially in French — he seeks to bring the thinking and tools of academic economists to a general readership.

Ideologically, Tirole defies easy categorization. He favors what he calls a “strong state” and a generous social safety net, but also argues for humility on the part of regulators in light of the limited information available to them.

David A. Price interviewed Tirole in Washington, D.C., in November 2017.



**EF: How did you become interested in economics?**

**Tirole:** I was studying mathematics and physics in France. In high school, I liked mathematics and social sciences. But my first class in economics wasn’t until I was 21 or 22 at Ecole Polytechnique, which is an engineering school. It was a general introduction, actually quite a mathematical and theoretical one. Too much so indeed, because intuition and data are important in economics. Teaching economics is difficult — you want it to be rigorous but at the same time very intuitive, and there’s a certain trade-off.

**EF: And that one course was enough to move you in that direction?**

**Tirole:** Yes, because I was attracted to the mix of the human aspect of the social sciences and the rigor of quantitative analysis, a perfect combination for me. But I came late into the game, yes.

I then got an applied math degree also, and finally I moved to MIT for a Ph.D., where I really learned economics.

**EF: You said in your Nobel lecture that when you began studying industrial organization at MIT, you didn’t know what “industrial organization” meant.**

**Tirole:** Yes.

**EF: What started you down that road?**

**Tirole:** It was totally fortuitous. I was once in a corridor with my classmate Drew Fudenberg, who's now a professor at MIT. And one day he said, "Oh, there's this interesting field, industrial organization; you should attend some lectures." So I did. I took an industrial organization class given by Paul Joskow and Dick Schmalensee, but not for credit, and I thought the subject was very interesting indeed.

I had to do my Ph.D. quickly. I was a civil servant in France. I was given two years to do my Ph.D. (I was granted three at the end.) It was kind of crazy.

**EF: You've been credited along with others with creating the first unified, coherent theory of industrial organization. What are the main general policy prescriptions that follow from your work in this area?**

**Tirole:** Both antitrust and regulation are hindered by imperfect information. Regulators don't have the information that managers of firms have. And for that reason, policymakers have to be humble.

This is a much broader lesson, by the way. For example, in France, courts are involved in dismissal decisions, so they have some say on whether the firm needs a given job or not. And of course, the court doesn't have the information. You can make a similar observation with "command-and-control" environmental policies. Both in environmental and labor matters, governments sometimes suffer from hubris. They try to implement policies that they cannot implement efficiently because they don't have the information that's required.

I do believe in a strong state. But it requires regulation to be efficient; for that, governments must be humble and try to avoid intruding into an industry to do things that they simply cannot do.

**EF: One of the areas you address in *Economics for the Common Good* is the economics of online platforms such as Amazon or Uber that bring together buyers and sellers. Do you think these platforms create special issues for antitrust regulation?**

**Tirole:** I think the answer is yes — partly because the new platforms have natural monopoly features, in that they exhibit large network externalities. I am on Facebook because you are on Facebook. I use the Google search engine or Waze because there are many people using it, so the algorithms are built on more data and predict better. Network externalities tend to create monopolies or tight oligopolies.

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So we have to take that into account. Maybe not by breaking them up, because it's hard to break up such firms: Unlike for AT&T or power companies in the past, the technology changes very fast; besides, many of the services are built on data that are common to all services. But to keep the market contestable,

we must prevent the tech giants from swallowing up their future competitors; easier said than done of course, as data are often missing to ascertain that the startup is indeed a competitor. And of course acquisitions are, along with IPOs, one of the standard routes for VCs and entrepreneurs to cash out.

Bundling practices by the tech giants are also of concern. A startup that may become an efficient competitor to such firms generally enters within a market niche; it's very hard to enter all segments at the same time. Therefore, bundling may prevent efficient entrants from entering market segments and collectively challenging the incumbent on the overall technology.

Another issue is that most platforms offer you a best price guarantee, also called a "most favored nation" clause or a price parity clause. You as a consumer are guaranteed to get the lowest price on the platform, as required from the merchants. Sounds good, except that if all or most merchants are listed on the platform and the platform is guaranteed the lowest price, there is no incentive for you to look anywhere else; you have become a "unique" customer, and so the platform can set large fees to the merchant to get access to you. Interestingly, due to price uniformity, these fees are paid by both platform and nonplatform users — so each platform succeeds in taxing its rivals! That can sometimes be quite problematic for competition.

Finally, there is the tricky issue of data ownership, which will be a barrier to entry in AI-driven innovation. There is a current debate between platform ownership (the current state) and the prospect of a user-centric approach. This is an underappreciated subject that economists should take up and try to make progress on.

**EF: You've mentioned bundling, you've mentioned most favored nation clauses — what should regulators do about those things to keep markets contestable?**

**Tirole:** It's always difficult, and we need to make more progress and do more research on simplifying the competition authorities' task. Take bundling, for example. The general lesson that you want to make the market contestable is fine, but sometimes bundling occurs for efficiency reasons. And you have to look into the detail of each case to see whether there's a real efficiency difference or whether the firm is just trying to keep its competitors out.

Another difficulty is that antitrust can be slow and

digital industries are moving very fast; if the authority decides too late, the entrant may already have folded. Another issue is territoriality and possible disagreements among authorities; a national competition authority may create a problem for the incumbent because its decision may force that firm to reconfigure its products worldwide.

We need to invent rules that are not too information intensive. Again, regulators don't always have the required information, so they need to have rules that are robust, that are going to work regardless of the circumstances. We, for example, designed information-light rules for patent pools; such rules enable antitrust authorities to say, "OK, we allow you to form a patent pool if you meet such, such, and such conditions." These rules — (a) patent owners should keep ownership of the patents and thus be able to grant individual, outside-the-pool licenses, and (b) the pool should make unbundled offers for the licenses — require no information from the antitrust authorities.

I think we need to do more rule design to facilitate the antitrust authorities' work, because, even leaving aside the financial cost of collecting, verifying, and analyzing data, authorities cannot afford to spend five or 10 years deciding, right? Besides, products that are complements today may become substitutes tomorrow, or the opposite. Because the usage changes, the competitive pattern changes. The job of antitrust authorities is extremely difficult in the end and we economists have to help them.

**EF: Your research with Jean-Charles Rochet started a whole new literature of two-sided markets. This has been influential on both industry participants and policymakers with regard to platform industries, especially those related to payments. What do you think is the main lesson for people to take away from that research?**

**Tirole:** Both authorities and private decisionmakers must analyze the two sides at the same time. For example, for competition policy in the payment card industry, authorities cannot just look at the merchant side or the cardholder side. They have to look at the interaction between both.

We get a fantastic deal from Google or credit card platforms. Their services are free to consumers. We get cashback bonuses, we get free email, Waze, YouTube,

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### ► Selected Present Positions

Chairman of the Board, Fondation Jean-Jacques Laffont/Toulouse Sciences Economiques; Chairman, Executive Committee, Institute for Advanced Study in Toulouse; Visiting Professor, Massachusetts Institute of Technology

### ► Education

Ph.D. (1981), Massachusetts Institute of Technology; Diplôme d'Etude Approfondie (1976), Docteur de 3ème Cycle (1978), Université Paris-Dauphine; Engineer (1978), Ecole Nationale des Ponts et Chaussées; Engineer (1976), Ecole Polytechnique

### ► Selected Publications

"Deadly Embrace: Sovereign and Financial Balance Sheets Doom Loops," *Review of Economic Studies*, forthcoming (with Emmanuel Farhi); *Economics for the Common Good* (Princeton University Press, 2017); "Efficient Patent Pools," *American Economic Review*, 2004 (with Josh Lerner); "Intrinsic and Extrinsic Motivation," *Review of Economic Studies*, 2003 (with Roland Bénabou); *The Theory of Industrial Organization* (MIT Press, 1988); and numerous other articles and books

efficient search services, and so on. Of course there is a catch on the other side: the huge markups levied on merchants or advertisers. But we cannot just conclude from this observation that Google or Visa are underserving monopolies on one side and are preying against their rivals on the other side. We need to consider the market as a whole.

We have learned also that platforms behave very differently from traditional firms. They tend to be much more protective of consumer interests, for example. Not by philanthropy, but simply because they have a relationship with the consumers and can charge more to them (or attract more of them and cash in on advertising) if they enjoy a higher consumer surplus. That's why they allow competition among applications on a platform, that's why they introduce rating systems, that's why they select out nuisance users (a merchant who wants to be on the platform usually has to satisfy various requirements that are protective of consumers). Those mechanisms — for example, asking collateral from participants to an exchange or putting

the money in an escrow until the consumer is satisfied — screen the merchants. The good merchants find the cost minimal, and the bad ones are screened out.

That's very different from what I call the "vertical model" in which, say, a patent owner just sells a license downstream to a firm and then lets the firm exercise its full monopoly power.

I'm not saying the platform model is always a better model, but it has been growing for good reason as it's more protective of consumer interest. Incidentally, today the seven largest market caps in the world are two-sided platforms.

But there is of course the other side, which is the merchant interest. So the right balance has to be found, and both platforms and antitrust authorities are trying to do so.

**EF: In that respect, it sounds like these platforms can be regulators themselves. Is that a concern?**

**Tirole:** I'm not too worried about that. I see antitrust issues with the platforms — they can do the wrong thing socially — but these regulatory activities don't look so bad because they try to avoid dissipation of total surplus. Without giving them a blank check, I think that this



particular activity of platforms is quite useful for society.

**EF: Predictions of massive unemployment or under-employment from automation have been common for a long time. As the tech industry is creating more dis-intermediation and bringing new kinds of automation to the workplace, are you bullish about the future of jobs that pay good wages?**

**Tirole:** History tells us that there is never a shortage of jobs. People have been predicting for two centuries that there will be, but in the end there are always new jobs to meet new needs for consumers and provide new services that can be supplied. So I'm not concerned, per se, about a shortage of jobs. I'm more concerned about a shortage of jobs that people will want to take. The danger right now is that the jobs that are likely to be created may be low-paying ones.

The losers, not only of globalization, but also of technological progress, either saw their wages stagnate over the last 30 years or ended up being unemployed (in southern Europe), or underemployed, or employed in gig jobs (in the U.S. and the U.K.). Some of my colleagues have documented a polarization between lower-paid people, who have low skills and haven't seen their salaries increase (or have in some cases seen their salaries decrease), and of course the high-skilled people who have benefited greatly from globalization and technological progress.

This may well keep happening. But not only to the low-skilled workers: AI also threatens the jobs of highly skilled people. For example, the role of doctors is going to be different. Here I'm not talking about the MIT biotechnologist or Harvard medical school professor, I'm talking about general practitioners and the like.

It's going to be hard for many. Take teachers. Or lawyers: Algorithms already do part of the lawyer job. Not all of it; writing a convincing legal argument, for example, is still very difficult, but the identification of all the relevant cases and the preparatory work can be done by an algorithm and it can be done very well. So it's not only the low-skill jobs I'm worried about.

Less-developed and emerging countries that are trying to develop markets for their cheap labor — which has done wonders in the past for China and India — will have to adapt their strategy as their flagship jobs, such as those in call centers, are going to become obsolete.

Jobs will be destroyed faster and faster, requiring more worker protection and less job protection. Of course, education and retraining will be key. We are not yet ready for providing it efficiently. I don't have any miracle cure, but it's going to be a big issue.

What are the alternatives? Some propose some form of protectionism against imports of goods and services. That would appear to be the current trend in the U.S.; we'll see. We should however not forget that protectionism can be self-defeating (retaliation by other countries hurts workers in exporting industries) and possibly morally

objectionable (is an American worker really more deserving than an Indian one?), and that it may hurt consumers both directly (reduced access to what the world has to offer) and indirectly (by creating domestic monopolies that will raise prices and slow down innovation).

In Europe, especially southern Europe, protecting jobs would seem the favorite option. But there's only so much you can do to protect jobs: First, you're only slowing down the adjustment, and second, it means that no stable job is created anymore, leaving the scene to gig jobs. If you protect the job too much through labor laws, as in France, what happens of course is that employers respond. So 90 percent of the jobs that are created today in France are temporary jobs. Tomorrow it will be 95 percent if no reform is made. It's inefficient. Temporary jobs are bad jobs. You're employed for a month, three months, and then you go through the unemployment spell, and then you are rehired. And employers don't invest in your human capital — you are perceived as the equivalent of a disposable tissue.

So we can slow down the adjustment, but in the end, we do have to protect workers in a different way. The Scandinavians protect workers through generous unemployment benefits; at the same time, the latter are required to work hard to find a new job. Workers are both protected, as they should be — it's usually not their fault if they lose their job — and they are made accountable, in that they must search hard for a job and take an appropriate job if available. It's a quid pro quo. This Scandinavian contract is no panacea, but it is probably the best we have.

In the U.S., there has not been enough protection of the losers of globalization and technological change. That discontent was reflected in the last election. It's not the only explanation, of course, because we also see in Europe countries that are doing well despite votes for populist movements being high. Populism has broader causes, but discontent and anxiety about the future do not help.

The education system in many countries is not up to scratch. Just to take the example of France, the top 20 percent of students are very well educated, and those will again be the winners in the new world. But the 80 percent below actually don't get a good education. Later on, they will get poor vocational retraining, even though we spend 31 billion euros per year on this. You can understand people being very worried about their future. The growth in inequality is not likely to subside with such policies.

While I'm confident that we'll be overall much richer and healthier, I'm pessimistic about our social compact if we don't react to the challenge.

**EF: If we could shift gears again, you've made important contributions to banking theory. What do you think are the most important lessons of the financial crisis for the further development of banking theory?**

**Tirole:** Some of the lessons of the crisis we knew beforehand. We knew, for example, that large over-the-counter

positions or capital requirement evasion through off-balance-sheet special-purpose vehicles, like the conduits associated with securitization, can be factors of financial instability. But we had no clue about the actual magnitude of these arrangements — at least people in academia didn't. Maybe economists who were closer to banking supervisors and financial institutions may have known.

Better regulatory infrastructure is very important. And I think we have made progress. In the U.S., regulatory forum shopping, where banks could choose their regulator, has been made more difficult. Some regulators were very lenient. So having one player only — the Fed, which has some independence and credibility to do the supervision — was a good thing, in my view. Similarly, increasing the distance between banks and their supervisors through the single supervisory mechanism in Europe was at least in theory a good move.

Did we learn all these things with the crisis? No. But did we start putting more emphasis on them because of the crisis? Yes, I think that's correct. Partly because, as I say, it's not only the regulators who have imperfect information; the economists, at least those in academia, also are imperfectly informed. They can say that a practice is dangerous, but as long as they don't know whether it is widespread or limited, they won't spend that much time warning about it as they can't document a concern; neither will supervisors take the advice seriously.

Let me provide another illustration. Shadow banking is attracting substantial academic attention nowadays. Economists are trying to make progress in understanding the role of shadow banking and what kind of danger it presents. Again, what should we do, taking into account the fact that regulators have limited information? Even if regulators are independent of industry and political power, they still need the information to do a good job. We always come back to the same thing: We have to design rules that are not too intrusive and basically work with the actual information that regulators have.

**EF: One problem that was obviously important in the financial crisis is the so-called “too big to fail” problem. What do you think is the best solution to this problem, where regulators know that the possibility of a bailout will work against the firms’ self-discipline, but regulators may still feel they need to provide a bailout when a crisis occurs to avoid letting it become worse?**

**Tirole:** Well, that's correct. One issue is that “too big to fail” is always difficult to define. Was LTCM [Long-Term Capital Management] truly too big to fail? Was AIG? It's difficult because the potential for financial contagion depends on the troubled institution's balance sheet, on the correlation of exposures, on who is on the other side, and so on.

There are two possible strategies and a lively debate among economists about those two strategies. One is to

regulate anything you deem “too big to fail” or “too systemic to fail.” That's the systemically important financial institution, or SIFI, approach. It's fine, but the question is, as I said, how do you identify “too big to fail”? The size of the balance sheet and the leverage ratio are informative, but imagine that you face a large financial institution that invests only in safe assets. Is it “too big to fail”? No. So size per se is not very informative. One must dig deeper into the risk that it could create for financial stability, not an easy task for a regulated entity and even less so for a previously unregulated one. Conversely, you can have a smaller institution whose failure would create a lot of trouble.

As Emmanuel Farhi and I described in a recent NBER paper, a shadow bank may be bailed out for two reasons. One is the threat of financial contagion that its failure might engender, as we just discussed. The other is that it serves what I call “politically fragile” clients. On the liability side, it will be small depositors; on the asset side, it will be small and medium enterprises. And if those politically fragile clients migrate to the shadow banking sector, as happens in China, for example, and more and more in Europe and the U.S., the state might actually bail out the shadow banks because it wants to protect them.

**EF: When you say “politically fragile,” what do you mean?**

**Tirole:** If small depositors lose their savings, there's a strong temptation to intervene and make sure they don't, because that's all they have. The same goes for small and medium enterprises, which may not be as resilient as larger firms: The state might be concerned that if the SMEs lose their lender, which has specific information about them and engages in relationship banking with them, then economic activity may suffer. That's one reason why shadow banks may be rescued.

The other reason is more related to 2008, in that there might be problematic cross-exposures as I discussed previously. Regulators were worried that with AIG going under, regulated banks or insurance companies that would have lost money through their cross-exposures with AIG might themselves get into trouble.

So there are two ways of addressing the shadow banking problem. As I mentioned, one is to declare X as a systemically important institution and to supervise this financial institution and require capital adequacy from it. The alternative approach is some kind of ring fencing, which is meant to prevent regulated banks from being exposed to the possible failure of a shadow bank: One tries to keep the unregulated sphere away from the regulated one. I think the debate now is between those two competing philosophies, which both have their advocates.

**EF: Many of us in America think of Paris having a role in France similar to that of New York and Washington combined in the United States. Do you feel it's been**

**advantageous for you to be based away from Paris — more or less on the opposite side of the country?**

**Tirole:** That's right, Paris is both the political and economic capital. France is really centered around Paris. And traditionally many of the good schools and universities are in Paris, especially in the human and social sciences.

I had no personal reason to be in Toulouse except for my very charismatic friend, Jean-Jacques Laffont, who started a top economics department there. He was one of the top economists in the world, at the same time he spent much time developing something in what was at the time a rather unlikely place, and I admired that. That's why I went to Toulouse in 1991, and that's why I stayed in Toulouse.

But if you look at the U.S., the top universities may be in remote places. Or they may be in places like Boston or Chicago that are big cities but are not the economic or political capital. In my view, there's no reason to be in the capital unless you want to constantly advise the government.

And even then, I've been on the Council of Economic Advisers of France for almost 20 years. The Council of Economic Advisers is a nonpartisan body, so I've been serving a number of right-wing and left-wing governments. I've also belonged to many committees in Paris. From Toulouse, I can still perform public service at the national level.

But for research and teaching, there's absolutely no reason for why you have to be in the center of political decision-making. It's not the tradition in France, but the U.S. and other countries have shown that you can have really top universities away from the centers of decision.

**EF: Who would you say have been your main influences?**

**Tirole:** You are what your collaborators, and more generally, colleagues, make of you. They bring the best out of you, and they bring their own contribution; it's a collective endeavor. There are two people who have influenced me more directly. One is Jean-Jacques Laffont, both through our joint work and through his being a role model — someone actually working a lot for the common good. He never put his career first, which did not prevent him to have a very distinguished career until cancer took him away in 2004; he was obsessed with building a top institution in Toulouse, helping less-developed countries, and many other things. The other is Eric Maskin, 2007 Nobel Prize laureate, who is similar in many ways and was incidentally a close friend of Jean-Jacques. He was my adviser at MIT, and I owe him a lot.

MIT has been a special institution for me, including the "old guard": Bob Solow, Olivier Blanchard, Stan Fischer, Paul Joskow, Paul Samuelson, Peter Diamond — I'm not going to name all my mentors and friends, but MIT has been a very decisive influence in my career. Learning to work by this combination of both a rigorous approach and intuitive thinking has been important to me as an

economist. I was there as a student, I was there on the faculty, and I've stayed there as a visiting professor for 26 years now. Today there are many new faces, but the culture has been preserved.

I work hard, but everyone works hard. My one merit is to have been with the right people. You meet people who change your life, and they are your eye-openers.

**EF: Your book is written very clearly, very differently from academic economic research. What were you trying to achieve in writing the book?**

**Tirole:** In the past, I had been engaging with experts — in corporations, in government, in regulatory agencies, in central banks, and so on. But I never actually interacted with a wider audience. I defined my mission as research and teaching. But then with the Nobel Prize, people started asking me questions, mostly about the work of economists, what do they do, are they useful, what's their methodology, and so on. So I thought it would be useful to write a book to try to explain.

Now I go to high schools, which I didn't used to do. I talk to people, I give speeches for wider audiences, which again I didn't do before. The prize was the wakeup call. And in retrospect, the timing was right in light of the populist movements we have discussed earlier that are all over the world. At some point, if the population as a whole doesn't take economics, and science more generally, onboard — these thoughts would alternatively apply to medicine, evolution, biology, or climate science — if we don't manage to pass on basic knowledge, it's very hard for democracy to work. We get the policies that we deserve.

So we have to educate people in basic knowledge. Of course we cannot ask people to have a Ph.D. in economics or medicine or biotechnology, but we can provide them with the basic knowledge to think about what is a fact, an empirical test, the difference between a correlation and a causality, the nature of a theory, how to avoid pitfalls in reasoning.

All of those things could be taught in high school to some extent. We academics need to share better knowledge within the population, because in the end, politicians, and I'm not blaming them, tend to focus on reacting to what the electorate wants.

If you can advise governments, that's useful, but at some point, if you don't also have an adoption by the electorate as well, the policies that you'll get won't be the right ones necessarily. We have to rehabilitate, we have to create more trust and faith in experts. Sometimes those experts can be blamed, too. Our judgment may be impaired. But if the population has no respect for experts, anything goes, right? Anything goes, and then you may end up with bad outcomes.

On my small scale, I'm trying to do something. On my small scale. But if we all do that, we can improve things. **EF**