Schumpeter | Professor Dr Robot QC

Once regarded as safe havens, the professions are now in the eye of the storm

IN 1933, as the Depression ground on, two British sociologists, Alexander Carr-Saunders and Paul Wilson, wrote a book celebrating the professions. They describe them as "stable elements" in a turbulent world, which "inherit, preserve and hand on a tradition." They act as "centres of resistance to crude forces which threaten steady and peaceful evolution".

Professions resist these "crude forces" through high barriers to entry. They routinely limit their recruitment to people with degrees. Some, such as medicine or law, require professional licences and sometimes membership in professional bodies. Others demand long periods of apprenticeship: although anybody can call themselves a management consultant, elite firms such as McKinsey and the Boston Consulting Group provide their recruits with extensive training and only promote a minority to partnerships. The oldest professions also emphasise the importance of tradition: professors dress up in medieval gowns on ceremonial occasions and British barristers wear wigs.

But today these islands of security are being battered as never before. Professional-services firms are becoming more business-minded: Accenture now contracts lots of work to people in the emerging world and has abandoned the partnership model to become a public company. Customers are getting fussier: big firms will no longer put up with consultancies that woo them with partners and then send in a team of juniors. But the most important source of instability is information technology, argues "The Future of the Professions", a new book by Richard Susskind, a consultant, and Daniel Susskind, an Oxford don (a father-and-son combo).

Machines are challenging the professions' two most important claims to being special: their ability to advance the frontiers of knowledge and their exclusive licence to apply their expertise to an unordained laity. IBM and the Bayor College of Medicine have developed a system called KNIT ("knowledge integration toolkit") that scans the medical literature and generates new hypotheses for research problems. Computer scientists in Tel Aviv University have invented an algorithm that, using facial-recognition software, is solving a puzzle that has kept Torah scholars busy for decades: piecing together 300,000 ancient Jewish manuscripts that were found, many torn and tattered, in the attic of an old Cairo synagogue. Various bits of software regularly outperform legal experts in predicting the outcome of court decisions from patent disputes to America's Supreme Court.

New technology is enabling machines and para-professionals to take over many routine tasks. Programs developed by Kensho, a startup, provide answers to financial questions such as what happens to technology stocks when there is a privacy scare. Nurses and "physician associates", equipped with computers and diagnostic tools, are doing more and more of the work once reserved for doctors.

Online services and smartphone apps allow the laity to dispense with some professionals entirely, or at the very least to take them down from their pedestals. Every month 190m visit WebMD—more than visit regular doctors in America. Educational apps are the second-most popular category in Apple's app store after games, and MOOCs (massive open online courses) are attracting millions of students. Judges and lawyers are increasingly resolving small claims through "e-adjudication". It is one of the techniques employed by eBay to settle the more than 60m disagreements among its users each year.

How far will this revolution go? Messrs Susskind and Susskind predict that it will go all the way to "a dismantling of the traditional professions". These jobs, they argue, are a solution to the problem that ordinary people have "limited understanding" of specific areas of expertise. But technology is making it easier for them to get the understanding they need when they need it.

The authors deal deftly with some objections to their position. One counter-argument cites complexity: people hand their tax forms over to professionals because they are too complicated to bother with. The authors reply that machines have a bigger capacity for coping with complexity than humans. Another criticism invokes emotion: people would rather be told about death or bankruptcy by a human being. The authors note that expertise and empathy rarely come in the same package. Bad news is better delivered by people who excel in sympathy rather than expertise.

Still, Messrs Susskind and Susskind probably take their case too far. They ignore the fact that, as people get richer, they choose to spend their surplus wealth on the human touch. Students, for instance, compete to get into elite colleges with high teacher-student ratios (and rich parents hire more and more personal tutors for their children to increase their chances of so doing). But the authors are undoubtedly right that the professions will change more in the next quarter-century than they have in the previous three. New sub-disciplines will emerge, such as "knowledge engineers" who encode professional wisdom into software and various groups of para-professionals who work out ways of applying this knowledge.

Professionals of the world, unite!

The gathering storm has profound social implications. The professions represent a big slice of modern society. New occupations such as social work aspire to join them. Professionals are accustomed to wealth and privilege: in 2011 57% of British undergraduates accepted to medical school came from the top three socio-economic groups. There is no doubt that these professionals will have to abandon the idea that, in the words of Messrs Carr-Saunders and Wilson, "nothing is to be achieved in their own sphere by destruction or revolution." The big question is whether the re-ordering of such a vital and stable group will threaten the "steady and peaceful evolution" of society. ■

Free exchange | Reality cheque

Angus Deaton wins the Nobel prize for bringing economics back to the real world

AT 6:10am on October 12th, Angus Deaton, an economist at Princeton University on America's east coast, picked up the phone to a Swedish voice. The voice was so concerned to persuade him that this wasn't a prank call that he started to worry it was precisely that. No need. The Nobel committee had awarded him the Sveriges Riksbank Prize in Economic Sciences, "for his analysis of consumption, poverty, and welfare". The prize celebrated a whole career, in which he has used data to overturn sloppy assumptions, reimagined how we measure the world, and intertwined microeconomics and macroeconomics. He even has a paradox named after him.

The 69-year-old professor was working on issues of poverty and inequality long before the financial crisis made them voguish. As a designer of household surveys, he helped transform development economics from its sorry state in the 1980s, when it was stuck in a rut of murky data and unverifiable theories. He has explored how much more the poor eat when they get more income, how well insured they are when their earnings shrivel and, more broadly, the relationship between health and income growth. His thinking on the topic of inequality is typically textured. He frames it as a product of success—for there to be have-nots, there must be haves—but he is not a cheerleader for the elite. Rather, he thinks that digging into the data reveals how to help the millions of people who have been left behind to catch up.

Although his work on inequality may grab most attention, the Nobel committee also highlighted a couple of his earlier, more wonky contributions. The first was for his work in transforming the way economists estimate demand. Knowing how people respond to price changes is crucial to understanding the effects of governments tweaking taxes, supermarkets promoting products, and the like. Before Mr Deaton arrived on the scene, economists used simple models that made rigid assumptions about people's consumption patterns, But upon closer inspection, it turned out that the assumptions in these models were inconsistent with real-life data on how people respond to changes in prices.

Mr Deaton swooped to the rescue. He suggested that the old models might have failed because their assumptions were too severe. Along with a colleague, John Muellbauer, he proposed a new way of modelling the problem. Their modestly named "Almost Ideal Demand (AID) System" had the beauty of being simple to estimate, but without the rigid assumptions that were the undoing of the old methods. For example, in earlier models, demand was assumed to increase in lock-step with income, regardless of how rich the person was. The new approach allowed for different responses according to the level of income, so that a 1% pay boost might raise porridge demand by 2% for a pauper, but only 0.1% for a prince.

The much-cited paper in which Messrs Deaton and Muellbauer laid out their approach has spawned a family of extensions, devised by other economists. For all its successes, however, the pair have been among the model's harshest critics—as hinted in its name, they had not intended to provide "the" answer but to guide future research.

The second achievement highlighted by the Nobel committee was Mr Deaton's help in bridging the gap between macroeconomics and microeconomics—and in particular in understanding the relationship between consumption and income. This relationship is crucial. The difference between the two is the level of savings; in turn, savings determine how much an economy invests and ultimately society's future wealth.

Before Mr Deaton came along, macroeconomists used models of individual behaviour to explain, why, in aggregate, consumption seemed less volatile than income. One such attempt was Milton Friedman's "permanent income hypothesis", which supposed that people smooth consumption when they face temporary jolts to their income. In response to a one-off pay bump, this theory predicted that people would put aside some of the extra cash for a rainier day. That idea tallied nicely with the observation that in aggregate consumption looked smoother than income.

Milton's paradigm lost

But Mr Deaton's work exposed this as sloppy thinking. First, he noted that the relationship between consumption and income in Friedman's model depended on the kinds of income shocks hitting an economy. If one pay rise acts as a signal that there are more to come, then the "rational" agent in Mr Friedman's model should anticipate future increases, and spend even more than their initial income boost. In this case, consumption should be more volatile than income, not the other way round.

So indeed it proved. Mr Deaton examined the aggregate income data more carefully, and found that it did not seem to support the idea of consumption smoothing. His microeconomic theory, allied with his empirical observations about aggregate income, together implied that income should be smoother than consumption, in contrast to what the macroeconomists had been trying to explain in the first place. This inconsistency was the Deaton paradox.

As well as his specific contributions to our understanding of the world, Mr Deaton offers three lessons to aspiring economists. First, the theory should tally with the data—but if not, then do not despair. Puzzles and inconsistencies help to prompt innovation. Second, the average is rarely good enough. It is only by understanding differences between people that we can understand the whole. Finally, measurement matters. In the words of Mr Deaton, "progress cannot be coherently discussed without definitions and supporting evidence". In the words of Mr Muellbauer, Mr Deaton's win is "a triumph for evidence-based economics". ■

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