



Angus Deaton

Annual Review of Resource Economics

A Conversation with
Angus Deaton

Angus Deaton,^{1,2} Gordon Rausser,³
and David Zilberman⁴

¹Woodrow Wilson School, Princeton University, Princeton, New Jersey 08544, USA;
email: deaton@princeton.edu

²Schaeffer Center for Health Policy and Economics, University of Southern California,
Los Angeles, California 90089, USA

³Rausser College of Natural Resources, University of California, Berkeley,
California 94720, USA

⁴Department of Agricultural and Resource Economics, University of California, Berkeley,
California 94720, USA

ANNUAL
REVIEWS **CONNECT**

www.annualreviews.org

- Download figures
- Navigate cited references
- Keyword search
- Explore related articles
- Share via email or social media

Annu. Rev. Resour. Econ. 2020. 12:1–22

First published as a Review in Advance on
June 15, 2020

The *Annual Review of Resource Economics* is online at
resource.annualreviews.org

<https://doi.org/10.1146/annurev-resource-111219-042601>

Copyright © 2020 by Annual Reviews.
All rights reserved



Watch the interview online.

Keywords

autobiography, development, nutrition, poverty, consumer behavior,
well-being, health, randomized controlled trials, deaths of despair

Abstract

The *Annual Review of Resource Economics* presents Professor Sir Angus Deaton in conversation with economist Dr. Gordon Rausser. Dr. Deaton is Senior Scholar and the Dwight D. Eisenhower Professor of Economics and International Affairs Emeritus at the Woodrow Wilson School of Public and International Affairs and Department of Economics at Princeton University and Presidential Professor of Economics at University of Southern California. An applied economist, Deaton has made seminal contributions to the econometrics and estimation of demand systems, analysis of consumer behavior, understanding of commodity prices, the economics of health, nutrition and poverty, and most recently, deaths of despair and the future of capitalism, focusing on the United States. His work to improve welfare estimation in developing countries contributed to upgrading data collection efforts at the World Bank and other international agencies.

ON THE LIFE AND RESEARCH CONTRIBUTIONS OF ANGUS DEATON

Angus Deaton may well be the greatest applied economist of his generation. He made seminal contributions to the econometrics and estimation of demand systems, analysis of consumer behavior, the economics of health, nutrition, and poverty, and most recently, the deaths of despair and the future of capitalism. His work to improve welfare estimation in developing countries contributed to upgrading data collection efforts at the World Bank and other international agencies. Deaton is a rare economist who has modified methodologies and affected the policy agenda and public debate. He is a brilliant technician and an outstanding public intellectual.

Deaton was born to an impecunious middle-class family in 1945 and grew up in post-World War II Scotland. His father, who grew up in a mining community in Yorkshire, left school at 12, but acquired a technical education through evening classes and, after many years of night school, became a civil engineer. Deaton has spoken fondly about his father's role in developing his lifelong love of learning and, in particular, quantitative analysis. Some of his most influential memories are of his father teaching him to take square roots, taking him to zoos and museums, and introducing him to the riches of the world. Deaton seemingly inherited his narrative ability from his mother, who he recalled as a great storyteller and letter writer. She also instilled in him a love and pride in Scotland and its history and people.

From his childhood, Deaton was often gripped by loneliness, especially when his father was away for work and when he was bedridden with scarlet fever, but he developed a vibrant internal life. He developed the outlets for imagination that inquisitive children invariably find. As a child, he wandered unaccompanied through the libraries and museums of Edinburgh. He spent hours being fascinated by the works of Charles Dickens, Edgar Allan Poe, and in particular, Robert Louis Stevenson, whose stories triggered Deaton's desire to learn about and travel to exotic places. He also acquired fly-fishing skills as a young man, which have been a source of enjoyment throughout his life.

Financial hardships caused stress during Deaton's childhood. He passed the entrance exams to Hawick High School, where he first encountered Latin, French, and algebra. The precision and beauty of Latin appealed to Deaton, and he excelled in this subject. His dedicated high school teachers appreciated his talents and assisted him in preparing for the qualification exams for a scholarship to the prestigious Fettes College. He was one of the few boys with a Scottish accent in the elite College, where he felt like an outsider, a feeling he has carried with him for the rest of his life. "The feeling of being an outsider is one that still comes more easily to me than it should. And it is not without advantages; it helps me not back down when I am trying to argue a position that only I believe" (Nobel Media AB 2015). At Fettes, he specialized in mathematics and physics but also pursued other interests. He played rugby and music and took many English classes. He appreciated the flexibility of Fettes, and there he developed his unique approach to learning. He valued following the topics of his interest, even though they were seemingly unrelated. Much of the knowledge he acquired at Fettes has proven to be surprisingly valuable in setting the foundation for his creativity.

Deaton moved from Fettes to Fitzwilliam College at Cambridge, planning to major in mathematics and play rugby; however, he found that these pursuits were not his long-term interests. His tutor suggested that he try economics. As a result, Deaton has often referred to himself as an "accidental economist," but given his mathematical skills and interest in stories, people, and exotic locations, the tutor made a great recommendation. Deaton has minimal formal training in economics but did complete a (largely unsupervised) PhD, something that was not seen as necessary among the brightest Cambridge students at the time. He mostly learned by doing and he was not shy about asking others for advice and counsel.

His tendency to drift from topic to topic left him unshackled by the preconceptions and prejudices held by others who took a more traditional path (Nobel Media AB 2015). It also allowed embracing with great success the methodologies of the other social sciences, while always coming back to economics as an integrating discipline. A case in point is his later work on well-being that augmented the traditional economic measure of welfare by incorporating psychological, physiological, and societal attributes.

Deaton joined the Cambridge Department of Applied Economics as a junior research officer in 1969 and became a research officer there in 1972; the Department's job was to supply research assistance to the Faculty of Economics. With his first wife, Mary Ann, he had two children, Rebecca and Adam, in an idyllic village near Cambridge. He was mentored by Nobel laureate Richard Stone, a pioneer of research on national accounting (the British Kuznets) and demand analysis. Stone passed on to Deaton his "passion for measurement, for modeling. And clarity and transparency in writing" (Nobel Media AB 2015), and his excitement about demand and consumption analysis. Stone inspired Deaton with his methodological approach. "Although rooted in economics, his vision was of society as a whole, and his work extended beyond economics into demography and sociology. He was also devoted to the history of his subject, especially to the history of measurement in economics. . ." (Br. Acad. 1993, p. 475).

Unfortunately, Mary Ann Deaton died in 1975 and left Angus with two small children. In 1976, he moved to the University of Bristol, where he accepted a professorship in econometrics. His time in Bristol was enjoyable and very productive. Deaton was the first recipient of the Frisch Medal for applied papers in *Econometrica* (Deaton 1974). Deaton and John Muellbauer published their famous article, introducing the almost ideal demand system (Deaton & Muellbauer 1980a). Their seminal work, *Economics of Consumer Behavior*, also appeared during this period (Deaton & Muellbauer 1980b). However, the decline in academic salaries in Britain and cuts in funding implemented by the Thatcher government during this time propelled Deaton to accept an offer to move to Princeton University in 1983.

At Princeton, Deaton became the director of the Research Program in Development Studies, which was founded by Nobel laureate Arthur Lewis. Lewis's approach combined historical knowledge with economic principles and emphasized poverty elimination. Lewis was supportive of Deaton as he changed the direction of the program toward a more quantitative approach. At the same time, Deaton came to appreciate the importance of history in economic analysis and bemoaned the more monolithic approach to graduate school economics in most universities, especially in the United States. As will become apparent, his research took advantage of more abundant data and improved quantitative tools while shifting to address issues of poverty, health, inequality, and human welfare. At Princeton, Deaton established a life partnership with Anne Case, and they were married in 1997. They developed a joint research agenda and shared their enjoyment of music, cooking, and fly fishing. Deaton established several other successful research partnerships at Princeton, including with Christina Paxson and Daniel Kahneman. He became a consultant to the World Bank and the Gallup Organization, and these outside activities had a significant influence on the direction of his research. Deaton provided many services to the economics profession, including serving as president of the American Economic Association (AEA), acting as a member of the US National Academy of Sciences and a fellow of the British Academy, and giving the Keynes Lecture for the British Academy, the keynote lecture for the AEA, and the Galbraith Lecture of the Agricultural and Applied Economics Association (AAEA). Deaton was awarded the Nobel Memorial Prize in Economic Sciences in 2015. He was knighted at Buckingham Palace by Prince William in 2016. In 2019, he was awarded an honorary Doctor of Letters by Cambridge University, perhaps a mark that his undistinguished undergraduate career had been forgiven.

DEATON'S RESEARCH

There are several excellent reviews of Deaton's research achievements, including his superb Nobel Prize lecture (Deaton 2016) and Besley's (2016) recognition of Deaton's remarkable contributions. Here, we provide a short interpretative overview of his research achievements and their impact. These are several of his key contributions to economics.

Emphasis on Policy Relevance

Deaton is the essential applied economist because he recognizes that the primary purpose of policy analysis is information for decision making. He realizes that economic analysis is part of a supply chain of policy-relevant knowledge that starts with data and theory and ends up with new findings that motivate clarifying insights. While his economic work is full of creativity and beauty, it is not an end of itself. Useful results start with high-quality data, and he put much effort into obtaining, assessing, and refining data. About a third of his Nobel lecture "Measuring and Understanding Behavior, Welfare, and Poverty" is dedicated to an overview of the evolution of measurement of data sources on the consumption and well-being of members of society, especially the poor. He documented how small changes in sampling practices and measurements have had substantial implications for policy outcomes. He also demonstrated the different consequences of various measures of poverty, deprivation, and well-being. For example, Africans perform better than South Asians on anthropometrics but not in terms of income and life expectancy (Deaton 2013). He emphasized the continuous challenge of improving measurement methods, especially given budgetary, research, and data collection constraints.

An example of a contribution to improved utilization of data is the creation of pseudo-panel data. Cohort data are valuable in assessing changes in status within populations over time, but most surveys are cross-sectional. A researcher creates pseudo-panel data by combining surveys of households to create time series of cross-sections, and the statistics of the data (means, variances, etc.) are useful measures of the performance of various cohorts (Deaton 1985). Deaton also was an advisor to the International Comparison Program (ICP), which is today hosted by the World Bank. This ambitious undertaking produces purchasing power parity (PPP) estimates for all countries, using the United States as numeraire. Deaton & Heston (2010) provided an overview of the program, its limitations, and the challenges of the use and interpretation of PPP. For example, the more the goods consumed in two countries vary, the less meaningful is the use of PPP for comparison.

The Importance of Heterogeneity and Big Data

Deaton has been a crucial contributor to the transformation of applied economics from relying on "small data" to utilizing "big data." Deaton initiated and supported efforts to expand data availability for economic research, especially in development, motivated by policy considerations (Deaton 2016). While aggregate information may be necessary for macroanalysis, data regarding distributions of income and health status and identifying hotspots of deprivation have significant policy implications. Deaton realized the limitations of analysis based on the notion of a representative consumer. In this regard, he may have been influenced by much of the research in Cambridge while he was there. Deaton was notably associated with Richard Stone and, to a lesser extent, James Meade, two Nobel laureates who were not at the time part of the mainstream of the Cambridge economics department. A key element of Cambridge research at the time was a criticism of the notion of aggregate production functions as part of the famous Cambridge controversy (Cohen & Harcourt 2003). The Cambridge economists were

very critical of assuming representative production functions and homogeneous capital goods in analyses of production. Deaton applied similar logic to consumption problems and recognized the importance of heterogeneity in consumption analysis.

Two of Deaton's significant discoveries were the result of identifying irregular and counterintuitive patterns in data. They led to identifying gaps and needs in both policy and theory. The first is an outcome of his work in India on the relationship between nutrition and income (Subramanian & Deaton 1996) and food puzzles (Deaton & Drèze 2009), which found that average caloric intake declined over time as income increased. One explanation is that as income rises, people spend less energy on physical activity, which leads to reduced energy intake. A second is the result of the outstanding research of Anne Case & Deaton (2015) identifying rising morbidity and mortality among non-Hispanic, middle-aged, white Americans in the late twentieth century and start of the twenty-first century. "This increase for whites was largely accounted for by increasing death rates from drug and alcohol poisonings, suicide, and chronic liver diseases and cirrhosis" (Case & Deaton 2015, p. 15078).

The Coupling of Empirical Work with Theory

Deaton is a remarkable empiricist who values data for their own sake and has invested much effort to improve data quality. Yet he realized that much of the value of empirical analysis is that it allows theoretical advancements and generates insights that improve policy making. Deaton has held a dynamic perspective on scientific research, always aware that hypotheses are subject to Popper's curse, which states that scientific knowledge is based on testable hypotheses and thus one can always reject hypotheses but never confirm them (Popper 2005). This led to Deaton's observation that "we learn most clearly by refutation, not confirmation" (Deaton 2016, p. 1237). Deaton has a gift for developing theoretical models that can be solved explicitly and estimated empirically. He aimed to balance the generality with ease of computation, qualities that he was instrumental in embodying in the almost ideal demand system.

Some of Deaton's most significant contributions have been in refuting eminent hypotheses. Deaton appreciated the life cycle consumption model of Modigliani & Brumberg (1954). Yet, Browning et al. (1985) used pseudo-panel data of English consumers to reject the simple life cycle consumption hypothesis, namely constant consumption over time. The refutation of the original model led to the development of new nuanced life cycle models of consumption (Attanasio & Weber 2010) and, to some extent, its abandonment by behavioral economists. Similarly, Deaton (1987) refuted the predictions of the Permanent Income Hypothesis (PIH), that average consumption should be smoother than the income of a mythical representative consumer; empirical evidence shows the opposite. Deaton (1991) applied the buffer-stock savings framework to explain the greater volatility of consumption relative to the predictions of the permanent income hypothesis. People may save extra income to build a stock of cash to overcome liquidity constraints. This argument is especially pertinent in developing countries with weaker financial institutions and has a significant distributional effect (Deaton & Paxson 1994).

DEATON AS A LEADING GLOBAL INTELLECTUAL

Deaton started as a scholar of consumption and demand, especially in the context of England. He later became interested in issues of development, health, and well-being. By profoundly studying specific problems, he developed general new findings and implications for economic methodology and social policy.

Deaton's early work was inspired by and built on the work of Richard Stone. Stone (1954a) pioneered applications of the linear expenditure system. Deaton's early work aimed to broaden the

theoretical foundation used to derive demand systems to enable greater flexibility. In his Frisch Medal work, Deaton (1974) tested nine specifications of demand systems, showing that the British data seemed to be consistent with demand theory. Still, the empirical analysis rejected many of the more restrictive assumptions on properties of specific demand and utility functions. This finding motivated further work aimed at developing functional forms based on fundamental principles that would better assess the validity of critical assumptions regarding the properties of demand and utility functions. To this end, Deaton's collaboration with Muellbauer resulted in their almost ideal demand system (AIDS) (Deaton & Muellbauer 1980a). Deaton had unique expertise in econometrics and demand analysis. Muellbauer brought expertise in aggregation, heterogeneity, and duality theory (from his Berkeley days); see Muellbauer (1975). They utilized the flexible and general utility functions modeling of Gorman (1968) to produce a system of demand equations that satisfies order assumptions regarding consumer preference, aggregates over consumers without requiring linear Engel curves, and is easy to estimate. It has become a workhorse model for applied economists, both in academia and business. AIDS's flexibility in allowing variable shares of consumption at different income levels enabled a more realistic understanding of consumer choices, especially in the context of development and poverty (Deaton & Muellbauer 1986).

Deaton has been a prolific scholar, which is reflected by the numerous bodies of literature he influenced. Besley's (2016) excellent review of Deaton's research identifies some of the significant topics of Deaton's work, including consumer demand, consumption dynamics and savings behavior, commodity prices, panel data and household composition analysis, optimal commodity taxation, welfare measurement and preference structures, health, inequality and poverty reduction, development, and subjective well-being measurement. The economic and political realities, the literature, consulting assignments, and his own life inspired Deaton's research. An example of the latter is his work involving the impact of inflation on the savings rate. As a young, poorly paid academic, he noticed during the British inflation of the mid-1970s that he often mistook absolute price increases for relative price increases and held back spending. Deaton (1977) presents a model and empirical evidence arguing that risk aversion and an unanticipated rate of inflation led to involuntary savings in England and the United States in the 1970s.

The hallmarks of Deaton's work are economic rigor and relevance. Yet he is aware of the limitation of economic analyses and the value of relying on methods outside the economics profession's mainstream. In particular, in his AEA presidential address (Deaton 2010b) he recognized the limitations of traditional econometric measures of well-being. The use of PPP to compare the well-being of different countries is problematic because people consume different products, and sometimes development may result in counterintuitive outcomes. Therefore, he suggests, "Why don't we just ask the people?" The proposal to rely on stated assessments is incompatible with the economic tradition of "revealed preference," relying on real choice data for evaluation. Deaton presents the findings of his research with Gallup, which demonstrated the value of utilizing interviews to assess well-being.

While Deaton is supportive of the stated use valuation to compare welfare, he is skeptical of the use of randomized controlled experiments and quasi-experiments. Deaton (2010b) identified cases where randomized controlled trials (RCTs) have been beneficial, but they are not superior to other econometric approaches. When they lack a theoretical foundation and a precise economic mechanism that explains their outcomes, they are of limited value. Deaton's criticism of RCTs reflects his firm conviction that (a) applied research should be built on theoretical foundations and used to test theories, and (b) heterogeneity is a significant feature of the economy. It is difficult to generalize from success under specific circumstances. Deaton also suggested that RCTs conducted on behalf of donors in developing countries may smack of neo-colonialism, where researchers from developed countries experiment with the lives of people in developing ones. Throughout his

career Deaton moved across fields, and he is concerned about the homogenization of economic curricula, especially in the United States, and the reduced emphasis on history and the history of economic thought. Although he has criticized RCTs, he appreciates the growing interest in economic development, addition of diversity, and internationalization of economics that have been associated with more fieldwork.

In his most recent book, Deaton, in collaboration with Anne Case, has once again expanded his reach well beyond the core of economics to some of the critical societal issues in the United States, including the future of capitalism. On November 4, 2019, we conducted a video interview at Princeton University and posed the question of what were Deaton's diagnosis and prescription for remedying the identified "deaths of despair" (Case & Deaton 2020). His response focused on labor market conditions, in particular the demise of high-earning blue-collar jobs accompanied by the reduction in compensation of low-skilled workers, both of which have the social consequences of eroding their familial and communal networks. This is exacerbated by the US healthcare system through two channels. First, the cost of employer-based health coverage creates a disincentive to employ low-skilled workers and offer them health insurance when jobs can easily be contracted through third-party manpower independent contractors. The second is the corporate misbehavior by pharmaceutical companies driving the opioid epidemic. In an interview on the epidemic with *The Atlantic* (Lowrey 2017), Deaton argued that the lax regulation of OxyContin reflects the self-interested capture of regulators. Together, this calls for a reform of the healthcare system that provides affordable universal coverage, but the details are a subject for future research.

Deaton's policy-oriented research and thoughtful ideas have taken his career well beyond conventional economics. He and Anne Case are in *Prospect Magazine's* list of 50 top global thinkers of 2019 (Tucker 2019). Much of this public exposure is due to his work on the reduction of life expectancy among whites because of the opioid epidemic, suicides, and alcohol-related disease. The interview also suggests how Deaton's deep economic knowledge combined with a love of people and a capacity to interact with ordinary people led to a deep understanding of the animosity of less-educated Americans toward government and elites. He is able to detect both the resentment against rent-seeking and burdensome regulatory excess. Such an understanding of popular sentiment combined with the capacity to detect new phenomena as they emerge has made Deaton such an extraordinary economist and social critic.

A CONVERSATION WITH ANGUS DEATON

Rausser: Hello, I'm Gordon Rausser, Co-Editor of the *Annual Review of Resource Economics*. Our particular journal focuses on economic development, natural and renewable resources, environmental economics, and agriculture and food economics. I'm here today with Professor Angus Deaton, one of the premier intellectual leaders in three of the focal points of our journal, in particular, research on economic development, food and agricultural economics, and natural resources. I want to begin with how you became an economist—I see references to how you arrived to the economic profession accidentally. How did that happen?

Deaton: Yeah, it's really true. I'm an accidental economist in a kind of way. I think I should take a step back before I tell you about the accident. . . . But I think it was when I was in high school, in a very fancy high school. I was the scholarship boy there. I was a good mathematician and I specialized in mathematics. For me in high school, the great virtue of mathematics was you could do it very quickly. I had lots of time for writing and music and for playing sports and things that I actually cared about a lot more. When I went to Cambridge, that really didn't work anymore. There were a lot of really serious mathematicians there. It's something that we observe in all of

our classes, I think. You get these kids who come in and they've been superstars wherever they were before and suddenly realize they're not such bright superstars compared with some of the other people in the class.

I spent a couple of years not really doing mathematics but playing cards and going to the movies and enjoying myself. Then at some point the authorities, like my tutor, said, "You can't go on like this. You've really got to do something else. The mathematicians don't want you anymore." I said, "Well, I don't really want them either." Then I said, "Well, what should I do?" They said, "Well, there's only one thing for people like you, and it's called economics." I had no idea what it even was. I said, "What's economics?"

Rausser: How old were you at that time?

Deaton: Oh, I would be 21 really. Then I was assigned an economics tutor and some material to read over the summer. I had a summer job working on the Queen Mary and the Queen Elizabeth, going back and forth between Southampton and New York every two weeks. I was selling clothes on board the ships. I remember sitting there with a copy of Samuelson's *Foundations of Economic Analysis* (1947), or not that one, but the textbook.

Rausser: Right.

Deaton: Not the mathematical one. It was the textbook and I thought it was wonderful. It just provided that shove, as it were, that nudge if you like. It was more of a shove than a nudge. It put me in a place that I really liked. Then it really did use the things I'd enjoyed in high school. I could write, which as a mathematician, wasn't called for a lot.

Rausser: Right.

Deaton: Writing and reading and reading history and using mathematics were a very good mix for me.

Rausser: Well, this was at Cambridge.

Deaton: Yeah. My third year at Cambridge was doing economics.

Rausser: I see.

Deaton: I went to a few classes. They didn't take lectures very seriously in Cambridge. The idea was, "There was a library there. What do you need classes for?" Sort of an odd idea, but I did have a tutor who I met with once or twice a week and wrote papers for and was criticized, which was terrific.

Rausser: Yes, that's a lost art in many higher universities in the United States today.

Deaton: Yeah, well, that's true, though the Cambridge program was pretty bad too in some ways. There was a PhD program in Cambridge in those days, and something like 3,000 people who at various points signed up, but no one knew where they were. They were granting almost no degrees because there was no supervision, there were no classes, there was nothing. It worked for a few geniuses, but it really didn't work as a program.

Rausser: I see. Then later, you were mentored in part by Richard Stone.

Deaton: Yes.

Rausser: A remarkable man.

Deaton: A very remarkable man. He was my hero. He's the reason I wear bow ties. Actually, after he died, his daughter bequeathed me a number of his bow ties. This is not one, I'm sorry, I should have worn one for the occasion. To me, he always seemed and still seems this ideal of a British intellectual, and he worked very hard. He had his mathematics, and he could write. He'd lived a life of scholarship and dinner parties, which always seemed like a pretty good combination to me. I loved the way he wrote. He was very curious and into a lot of different things. I followed him in his intellectual interests, which were in demand analysis, which he'd really pioneered. I don't know if you've ever read it. . . He wrote this magnificent 1954 book, I think, on empirical demand analysis (Stone 1954b).

Rausser: I've read it.

Deaton: Not only does it have all this very careful analysis of individual markets like beer and things with a lot of serious information, but it is also an econometric appendix, which basically became Johnson's econometrics text and dominated the way econometrics was taught to your generation.

Rausser: Right. But also I remember distinctly in that book his subsequent work about the aggregation over individuals. At the time, I remember as a young graduate student reading it and thinking, "Gee whiz, this is a serious problem," the aggregation issue, which has occupied much of your work over the years, but his as well.

Deaton: His as well, yeah. The key paper on that was written around that date, which was by Terence Gorman.

Rausser: Oh, yes.

Deaton: But it's incomprehensible.

Rausser: At the time.

Deaton: At the time, right. By that time, I was working with Richard Stone on the Cambridge growth project, and they had a core model. Those were the days of building models as a serious intellectual enterprise, which seems to have vanished—big models that cover the whole economy. My sector was the consumer sector. I was supposed to look into demand and savings behavior and so on. This aggregation problem, as you said, was something we'd all wrestled with. The paper by Terence Gorman, published in *Econometrica*, solved it (Gorman 1953). There was another later paper by Gorman, just a few years later, in 1959, on how you could aggregate over goods, because the goods we worked with in the data were not narrowly and homogeneously defined, not fillet steak, but meat, if you were lucky, or leisure goods or whatever (Gorman 1959). He had another paper on that issue and I remember thinking, "I am going to figure this out." This is a really hard problem. I took that paper away and I didn't come into the office for a week; I locked myself in my little study at home and just read that paper. I played with it. I fiddled with it. I tried to replicate the mathematics and I came out at the end of the week no wiser.

Rausser: No wiser.

Deaton: No wiser. I never did. . . Well, that's not true. I did figure it out, but not until much later and not until I had understood how to use duality, which is the way he thought about things, but it was not the way other people saw them, at least not then.

Rausser: In that description you just made, there are references to your turn to creativity alone, and that there are many instances over the course of your professional career, when creative sparks took place by you closing yourself off, I presume as you described a moment ago.

Deaton: Well, I've often felt sort of closed off either deliberately or because I never trained. I never went to a PhD program. I had that one year of economics as an undergraduate. There were some stars there, like James Mirrlees, a later Nobel laureate, who was teaching. But these lectures were not very comprehensible. I spent a lot of time trying to figure things out for myself. I've often felt that I was right outside the mainstream somehow.

Rausser: I see references in your work and in your own representation that your lack of formal training was a blessing in disguise.

Deaton: Yeah, I think that's right. I was very envious of the superstar kids in my environment, the kids who'd done economics for three years and who were recognized geniuses. Mervyn King, for instance, was almost my exact contemporary—I think he is two years younger than I am. He was very much a superstar and never got a PhD, because in those days, if you were really good, you didn't get a PhD. The PhDs were for the sort of failures who were trying to catch up somehow. I was certainly very envious, but over the years, as you said, I began to realize that the things you really learn are the things you figure out for yourself. Sometimes you make mistakes in figuring those things out by yourself and sometimes those mistakes can be productive.

Rausser: In terms of your own learning.

Deaton: Well, or even in terms of other people's learning too. Mostly, you look at something, you stare at it, you say, "I just don't understand this." Then 999 times out of a thousand, it's because you made an error that you don't understand something. But the one other time is the one when everybody's making an error and it's just not well understood. I think it was quite helpful not to be super well trained in the conventional stuff.

Rausser: Yes, which is a contradiction to most PhD programs today.

Deaton: I think that's right.

Rausser: Yeah, yeah, yeah.

Deaton: I worry about those because I do worry that we're all training them in exactly the same way and there's not enough diversity.

Rausser: Right.

Deaton: All these programs like Harvard and MIT and Princeton and Stanford and Berkeley, they're all competing with each other and sort of teaching the same thing.

Rausser: Yes, they certainly are.

Deaton: Yeah.

Rausser: You've also, over the course of your career, stayed consistent with that same lens on your activities and your choices of topics. You sort of proceed with unconstrained passion. It's where the problems take you.

Deaton: Where the problems take me.

Rausser: It's always been the case.

Deaton: You make it sound very virtuous.

Rausser: It is virtuous.

Deaton: If you talk to my colleague and spouse Anne Case, she'll say I'm just fickle, that I can't stick to any problem for any length of time.

Rausser: But you have.

Deaton: Well, there are certain themes that come back and back.

Rausser: Yes.

Deaton: It's one of these very strange things that the way the history gets written is not necessarily the way it happened.

Rausser: Yes.

Deaton: I always thought that up until 2015, that I would never get the Nobel Prize because I worked on too many different, disparate things. When they called me that morning, four years ago, whenever it was, they had a story of my life which I'd never really thought of. I thought, "Well, it's okay." They made it hang together as a focus on well-being and from different aspects, which I think is fair enough, but it's not the way I'd thought about it.

Rausser: Yes, but that's where you began to think about it, right?

Deaton: Well, who's going to resist those guys?

Rausser: Yes, yes.

Deaton: For me, it felt sort of like meandering. I'd work on one problem for a while and, what you said is passion to me, seemed more like curiosity, that there was this sort of interesting thing there and I didn't really know how it worked. My friend, Tom Sargent, likes to talk about just clearing the mist away a little bit. You come to something you really don't understand, and if you can just make a little progress and you see, "Oh, the land lies like that." It's not like you've really solved the problem, but you may have exposed something that just looks really weird.

Rausser: Yes.

Deaton: I very much like that way of thinking about it.

Rausser: That leads me to your work on food puzzles, particularly in India. It's the same story.

Deaton: Yeah. Well, puzzles are very good things, I think, just because if you can't resolve them, there's a real research agenda there. It means we're either thinking about it wrong or there's just something we haven't come across yet, which resolves the mystery. Yes, India was a great place for me to work, and I worked for many years with Jean Drèze there, who is just the sort of collaborator you would never get in an American university.

Rausser: Yes.

Deaton: One of the smartest people on the planet, but he's out there sharecropping or wandering around the country agitating and causing trouble. That set of insights coupled with a world-class mind has just been fantastic for me.

Rausser: Yes. Can you walk us through your discoveries that took place as a result of those puzzles? I note, in terms of the measurements with regard to statistical reality versus political interest of representing what in fact is the degree of poverty or the measures of poverty.

Deaton: Well, maybe I'll start with some of the more recent stuff. One of the things that puzzled Jean and me—and I think it's not fully resolved and there's quite a lot of work I did on it that I never actually wrote up—is this fact that the consumption of calories has fallen pretty steadily in India over a 20- or 30-year period. I think it stopped now after we stopped working on this issue. It's a very odd situation in which you have a country that, since the economic reforms, had been growing very rapidly. There's argument about how much of that trickled down and how much of it was just at the top, but even the people at the bottom were becoming better off. That's pretty clear and yet at the same time, they were consuming fewer calories, right?

Rausser: Indeed.

Deaton: Food demand was going down. You think, “Here's a population. . .” The way we were taught about this in development economics is that these are very poor people. Some of them don't really have enough to eat and, certainly in India, the diets are awful, meaning they're not getting a balanced enough diet. The first thing you would think of, “As soon as you relax this income constraint, then people begin to eat more,” and they weren't. That caused endless political problems too, because the people on the left said, “Well, all the numbers are wrong. We're actually getting a Marxist immiseration of the working class because calorie consumption is the thing that counts, that measures how well they are doing, and it is falling.” That was a very powerful voice. We spent a lot of time really just drawing pictures. There's a very long paper in *Economic and Political Weekly*, which is very fun though, which really just shows this happening at all income levels (Deaton & Drèze 2009).

The bit that was never really written up because it was sort of contentious—and I'm not sure I ever really persuaded Jean that it was entirely right—is that, indeed, the driving forces are that people are becoming better off, and there are really two uses of food. One use is just as fuel for you as a “vehicle.” If you're working 10 hours a day out in the fields, using an enormous amount of energy, you have to eat an enormous number of calories. So that need eases, because people are becoming better off. You don't have to fetch as much water as you did before, there's more mechanization. There's all that good stuff.

Rausser: Right.

Deaton: While the demand for calories as food and nourishment is going up, for a while, that's swamped by the reduction in the demand for calories as gasoline for your engines. You get the idea, right?

Rausser: Right, for human engines.

Deaton: Yes. There was some evidence that this happened in England as well as during the Industrial Revolution. It's not very good evidence, but it's possible. The way we should think about calories is that first, they decrease if human beings are less having to act like animals. Then when the human beings begin to act like humans, the calories for nourishment begin to pick up and eventually that predominates. I think we're seeing that in India.

Rausser: Wow.

Deaton: It still doesn't resolve the problem if you think of calories and nutrition as the same thing, but I think that is just a mistake. I think many writers in India still think of calories as equivalent

to nutrition. But you can eat a lot of calories and never get well nourished if you are working hard, or if you don't have clean water.

Rausser: Right, certainly.

Deaton: A big problem for the Indian diet, for instance, is there's not enough fat in it. People have had a huge fight to try and get some eggs introduced into schools in India to try and get some protein there; too many people are eating a very monotonous diet. They also have sanitation problems, and women who are pregnant don't get enough to eat. One of my students here at Princeton, Diane Coffey (2015), wrote a lovely paper in the *Proceedings of the National Academy of Sciences (PNAS)* showing that, on average, Indian women are the same weight when they *finish* their pregnancies as are African women when they *start*. They're just not gaining enough weight, and so you've got generations of really small children. The malnourishment comes from discrimination against women. It also comes from very monotonous diets, and vegetarianism doesn't help either when you're not getting enough iron and so forth.

Rausser: Right, right, right.

Deaton: I think that's the root of malnutrition in India—it's not just a matter of getting calories, it's a matter of how women are treated.

Rausser: Yes. Here at Princeton, I've read the descriptions of you working your way into economic development, and Sir Arthur Lewis was very supportive.

Deaton: Wonderfully supportive, and so was Albert Hirschman, who was across the street at the Institute for Advanced Study. Both were supportive in ways that they need not have been.

Rausser: Yes, but they were.

Deaton: Well, they thought I was this strange creature. I was sort of a mathematician turned into an econometrician.

Rausser: Yes, turned into an economic development expert.

Deaton: Well, and I became a development economist really because I needed a summer job and there was one at the World Bank. I spent three months there, and T.N. Srinivasan from Yale was there at the same time, and he too was extremely helpful to me. All through my career, I found people who would listen to me ask questions and didn't mind my ignorance. That's something that the American graduate school experience is very bad at. Students are terrified because they're so competitive and also because they're always frightened of confessing that they don't understand. Part of the benefit to me of not having gone through that education was I was always looking for people who knew stuff, who would tell me.

Arthur was a real gentleman. I think he was pretty depressed by that point in his career because the things that he had thought about all of his life and that were really important to him, poverty and history, had little place in the economics graduate schools in the early 1980s. We had macro-, micro-, and econometrics, and not much else.

There was a sense, which was very nice, that we were all working on parts of the same thing, which was general equilibrium and the econometric and micro parts of that, but people didn't talk about inequality. They didn't talk about poverty. Arthur came from St. Lucia, in the Caribbean, and throughout his life he had been haunted by the question of why the people who worked on the sugar plantations there had stayed poor in spite of technical progress and while the rest of the world was getting rich (Lewis 1954). This was not part of the curriculum anymore—history had sort of vanished. Economists weren't very interested in political economy. I think Arthur felt like

he'd been just pushed aside somehow. I don't know whether he liked me positively or it was just that he was really gentlemanly, but he was always pleased to see me and, for some reason, always called me chief.

Rausser: I noticed that, yes. What was the basis for that?

Deaton: I have no idea! Perhaps it came from his time in Ghana, I don't know. Maybe I reminded him of a large African chief.

Rausser: Yes. But was he still alive when you began to do your serious work on inequality and poverty?

Deaton: I think he was still alive, but I don't think he was around very much.

Rausser: Yes.

Deaton: He would come by occasionally. He died quite young by modern standards, only 76. Albert, I didn't know very well, but again, he was socially very friendly. Also, I read what Arthur wrote, and I read what Albert wrote, which was terrific stuff. I think they appreciated that, and a lot of the more technical economists in my generation would never have had time for that, if you see the point.

Rausser: Or wouldn't have made the time for it.

Deaton: Yes, well wouldn't have made the time for it. You read that stuff and the quality of mind is just terrific. In the back of Arthur's book on economic growth (Lewis 1955), he raises this question, which doesn't get asked enough: "Why? Why do we care about this at all?" Because a lot of people don't. The Pope doesn't really seem to care about economic growth very much. I don't know whether Arthur actually talks about Mozart, but he talks about kids growing up in absolute poverty and how they never have the opportunity to develop what may be extraordinary innate skills. There are these buried talents—lost Mozarts, or lost Einsteins—a great term someone's been talking about recently.

What development does is give people what Amartya Sen would call capabilities, which you just don't have if you're living in grinding poverty. The expressions of human genius and human creativity are going to be stifled and stamped out if you don't have economic development. That's why you should have development. It's just an appendix in that book, but I know other people, such as T.N. Srinivasan, who always used to be very fond of quoting that passage too. . . "Why are we doing this at all?"

Rausser: Yes, exactly. One other major theme in your extraordinary career is the view that economics is an integrating discipline. I think about what that implies about our current training of graduate students. What advice and counsel could you provide to, say, first or second year PhD students, about looking at economics as an integrating discipline, because you've made that work like no one else.

Deaton: I don't know about that, but I'm very sad that we've lost economic history and the history of economic thought; maybe some of that will come back. It's clear that there's something of a revival of history. You get people like Daron Acemoglu, for instance, who's really pressing that, or Joel Mokyr, a great economic historian who's talking to the young theorists. I think being involved across disciplines like that is very good if you can. It's really very, very hard. I just finished this book with Anne Case called *Deaths of Despair and the Future of Capitalism* (Case & Deaton 2020), which we could not have done without talking to other disciplines.

Rausser: A small topic.

Deaton: A small topic, but I think it's really relevant and so sad. One of the things we came to appreciate was our colleagues in sociology and sociologists elsewhere who would talk to us. I spent a lot of time reading Andy Cherlin, for instance, whose work is terrific. And Bob Putnam, who's one of my heroes, who thinks more broadly than economists sometimes do. I think economists have become narrower and narrower, such as this focus on doing randomized controlled trials or doing instrumental variables. They're very good at focusing on something very specific, but there's no big picture there at all. The definition of sociologists somehow is that you have to look beyond the individual and think about the society as a sort of independent thing. That was incredibly important to us in writing this book. Durkheim, the founder of sociology, is one of the heroes of the book; he would not have been surprised by these deaths.

Rausser: Yes. Coming back to that book, I hearken back to our brief time together when you were a senior fellow at the Institute for Policy Reform in Washington, DC. At the time, we saw the collapse of the Soviet Union and many of the communist regimes throughout Eastern Europe. There was huge excitement about the liberal order, capitalism, market reforms, and transition economies.

Deaton: Oh, wasn't that nice.

Rausser: Yeah, it was nice, and we were all very excited about it. We had a major conference in Prague, and the economics profession thought that we were on a course that was consistent with that wonderful piece in *The National Interest* by Francis Fukuyama (1989).

Deaton: Yeah.

Rausser: "The End of History," right?

Deaton: Yes.

Rausser: Gee whiz, look what's happened versus what we expected or what we hoped would happen at that point in time.

Deaton: What hope? I remember I didn't really participate in that part of it, in what was going to happen in Eastern Europe, so I have no idea. I remember being interested because I was going to sessions at meetings on that topic. I remember thinking, "These guys have no idea what they're talking about." It was just wishful thinking.

Rausser: It was certainly, no question about it.

Deaton: They weren't bringing much history to bear. Mind you, it's very easy to be wise in hindsight with those things, and everybody was excited that this would happen.

Rausser: Right.

Deaton: Anyway, we're not doing so well now either.

Rausser: Yes, that's a good point. Let's see if we can transition from what happened there. I remember after Russia in particular attempted to establish a democratic regime, and moreover, the first year after the collapse, their measures, GNP, fell by a third. The other key indicator was that longevity fell dramatically. Life expectancy in Russia collapsed as well. Then if we come forward in the United States, we always thought, "Gee whiz, we're doing many things right," because longevity continues to expand, until it didn't, as described in your work with Anne Case. By the way, I remember being so excited when you won the Nobel Prize and shortly thereafter, but the

popular press wasn't talking about that. They were talking about this work you had done with Anne Case, showing that longevity in the United States is on the decline (Case & Deaton 2015).

Deaton: That was a pretty extraordinary two-week period.

Rausser: Oh my God, it must've been.

Deaton: It was so amazing, because when you win the Nobel Prize, there's enormous press attention. You spend a lot of time in this room (the Princeton studio). I'm talking to the press, but it's also true that our paper got even more attention.

Rausser: More attention than the Nobel Prize, by far.

Deaton: Yes. It was a huge thing. It's interesting, though, what you say about the Soviet Union. There's a parallel there, but there's a big interfering force: the Gorbachev anti-alcohol policy that was in place several years before the Soviet Union ended. After mortality went up and life expectancy collapsed in the Soviet Union, and you compare the post-collapse numbers with those from the 1950s and 1960s, it's pretty much on trend. Really bad things have been happening for a long time. Then Gorbachev had this famous anti-alcohol campaign, which was very unpopular but very effective and which caused a big decrease in mortality rates. But when the Soviet Union collapsed, the anti-alcohol policy collapsed too, causing a big increase in mortality. People, particularly men, started drinking, or went back to drinking, huge amounts. Beyond that, I'm sure there is an effect of the collapse itself. It's interesting now that, if you look at the Soviet Union or the former Soviet Union, life expectancy's doing very well. Suicide rates are coming down while they're going up here in the United States. We're now up with Russia in terms of suicide rates. Anyway, yes, it does teach one to be a little humble about having some superiority about these things.

Rausser: In this recent work with regard to despair and the increased suicides, alcoholism, opioid crisis, etc., what's your prescription, if any?

Deaton: Well, we think that there's this slow rolling catastrophe that has happened to the white working class. Our economic system is just not generating good jobs for people without a college degree. Those are the people who are dying of opioids and who are committing suicide. Those are also the people who are dying of alcoholic liver disease. People with bachelor's degrees are pretty much unaffected by all of this. But the lives of the white working class have come apart. We see the job market as the center of that. As they lose jobs, they're not marriageable anymore. Marriage rates have fallen, and people are not going to church anymore. The pillars of community life are falling apart one by one.

It's not just the material deprivation of losing income, and they're not particularly poor. What is key is having meaning in a life-work-marriage-childbearing system that works for you. We have been seeing this bifurcation between those who do and do not have a four-year college degree. Why is life so hard for less-educated Americans? Well, there's globalization and automation of course, but they have that in Germany and France, and it's not causing people to die in those countries. I think a lot of it is our ludicrous healthcare system. There are two issues here. One is that the pharma manufacturers are killing people for profits. The Sackler family, whose name is on every building in Washington, DC, made US\$12 billion in profits out of the opioid crisis. Johnson & Johnson, just up the road here, who make Band-Aids and baby powder, had a subsidiary that grew opium on farms in Tasmania, where they are supplying the raw material for the opioid epidemic.

There's a lot of corporate misbehavior, but it is not *just* corporate misbehavior. It is also about government regulation. It really failed to stop this crisis and may even have made it worse. Then at the same time, let's say you work for a large corporation; you're a low-skilled guy, probably worth circa \$30,000 a year to the company. You're a large corporation who has to supply health insurance to this guy. A family policy costs \$20,000, right?

Rausser: Yes.

Deaton: Either it comes out of the wages or you just shed those jobs. Now, there are almost no large corporations that are employing janitors or food service workers or security guards. They're all supplied externally.

We don't know the numbers, because they're not really gathered. But if you go to an Amazon warehouse, most people there are not actually working for Amazon—they're working for a manpower supply company. Those kinds of jobs are terrible, they're insecure, and they're often temporary. You're not covered by anything. I think a lot of the problem is just the spiraling cost of healthcare, and these numbers don't look like those anywhere else in the world. I'm really worried about the politicians' unawareness of the cost issue, and how it is a huge incentive to get rid of. . .

Rausser: Employees.

Deaton: . . . low-skilled workers.

Rausser: You're right.

Deaton: If you're earning \$150,000, then \$20,000 is not a big deal. But if you're earning \$30,000, then \$20,000 is the difference between having a job or not. I think the healthcare system has been a huge catastrophe. Also, it's responsible for an enormous amount of income inequality because it's charging people and moving the money up the income distribution. Anyway, you'll get me on a rant.

Rausser: Yeah. Well, but if you go back to some of your wonderful papers in the *Journal of Economic Literature*, the one that I was particularly impressed about was that original paper on health inequality and economic development, back 15, 20 years ago (Deaton 2003).

Deaton: Yes, about 20 years ago.

Rausser: Much of the foundation is there, at least in terms of the analytics.

Deaton: Right.

Rausser: Right?

Deaton: But that came from just talking to a bunch of smart people that I didn't previously know. I worked in a group with Sir George Alleyne, who is another Arthur Lewis-type figure. You probably don't know him, but he was head of the Pan American Health Organization (PAHO) in Washington, DC. He's a medical doctor. I was in a working group with him and a bunch of other people, and he was wonderful. He knew all the history of public health and development.

He came from the Caribbean like Arthur and had been knighted like Arthur. He's in his late 80s now. I don't think he ever met Arthur. Anyway, that paper was written as almost a consultancy document for them at some point, but it was me just trying to get my head straight about the process of development and health and understanding how health worked. Then I started teaching a course on it and it turned into *The Great Escape*, eventually (Deaton 2013).

Rausser: I see. Another unique part of all of your extraordinary contributions goes to measurement, measurement of household surveys, national accounts, and the inconsistencies. You also try to resolve how we can get good measurements to improve pricing policies or just public policies in general. I detect a great frustration there in some of your writings, particularly your Nobel Prize article (Deaton 2016), where you went through in great detail and explained to the profession, “Gee whiz, there are serious problems with these measurements.” Can you explain to us where we currently sit? This goes also to the International Comparison Program (ICP) of the World Bank, where you’ve done a lot of work.

Deaton: And where I still am chair of the technical advisor group for them.

Rausser: Where do we go from here?

Deaton: I don’t know where we go from here. You were Chief Economist at USAID and you’ve been involved in these things for a long time. It’s that they’re much less interested in measurement than they ought to be, right?

Rausser: Yes.

Deaton: It was Gallup who started the World Poll and started collecting data on everybody all around the world, and the World Bank never seemed to have an interest in doing that or finding money to do that. The UN uses other people’s data, but collects few data by itself. I suppose it’s difficult because the countries have their own interests. The Indian government, for instance, has very strong vested interest in not improving its statistics so to say, because all that growth might go away or some of it might go away. Successive governments have pinned their legitimacy on this high economic growth. I don’t know, maybe you have a good idea, but it has been very frustrating. I know that when I first worked for the World Bank, Graham Pyatt was there and had started this project called the Living Standards Measurement Study, which had responded to an early sense of those problems. There was a literature in the 1970s about whether development in poor countries was helping the poor at all; there was even a paper about “Belindia,” about a tiny rich Belgium in a huge poor India that the authors saw as fitting the stylized facts of development, which was challenged by Gary Fields about Brazil (Fields 1977, Taylor & Bacha 1976). Perhaps you remember?

Rausser: I think I do.

Deaton: Then I think T.N. Srinivasan, Graham Pyatt, Montek Ahluwalia, and Jack Duloy at the World Bank realized that the data simply did not exist to settle these questions, which were absolutely central about development and poverty. Not that these earlier papers were wrong, but the data were so weak that they might be right, but the opposite might be right too. After that, Hollis Chenery, then (and the first) Chief Economist of the Bank, persuaded McNamara, then President of the Bank, that it would be good to be more serious about measurement. They started the Living Standards Measurement Study program. It still exists, but the Bank never put serious money into data collection, as opposed to assistance for countries to collect data and then collating them. It never did what USAID did, which was to finance and run the demographic health survey (DHS) according to a more or less standard pattern.

Rausser: Right.

Deaton: Now the DHS has had all sorts of other problems, and they were so somehow tied to this population control stuff, but the World Bank never got to square one with data collection. The demographers who ran the DHS were so hostile to economics, which I think started here in

Princeton, just up the street. They were seriously anti-economics, so that there was never a real possibility of getting household survey well-being measures into the DHS.

Rausser: Given the serious limitations with regard to accurate objective measures, does that help explain why you've turned to the work on happiness?

Deaton: No, I don't think so. I haven't lost my interest in the real measurement stuff. Actually, I was at a meeting in Washington last week for the ICP, and we're just about to come up with a new round of those data. I love working with these people, and they're mostly national income accounting statisticians. In Europe it's a very serious business because, of course, the European Union's transfers between countries depend on PPP-based calculations of GDP of the various member countries. It's taken very seriously there, and these are really, really good people. It's just that the happiness thing was interesting essentially because my colleague Danny was here, who's one of the smartest people around, and he was interested in it.

Rausser: Yes, Danny Kahneman. He was a colleague of mine at Berkeley.

Deaton: Is that right?

Rausser: Yes.

Deaton: He and Anne Treisman had just come to Princeton, and we started this new Center for Health and Well-Being, which rearranged all of our office space. We got to sit with people in other disciplines, and Danny was in the office next door. At first, I thought the happiness stuff was sort of nuts, but then it was clear that talking to him and other people that worked in that area, there was a lot of really serious scholarship going into those things. I still think it's sort of nuts, but it's clearly not completely nuts because it correlates with a lot of really interesting stuff.

Also, the thing that has always appealed to me was to try and build a bridge so that you're not just talking about this very narrow material well-being sort of stuff. There are many other things that are important to people in life beyond that. Maybe these life evaluation or happiness questions would get at some of them, and I think they do. On the other hand, I've never bought into Richard Layard's message, that this is all you need for public policy. But I certainly think it's a good thing to get started on measuring them.

Rausser: That's occupying a fair amount of your time at this juncture.

Deaton: Yeah, though the work on deaths of despair has taken over my life for the last couple of years, more than the happiness issues.

Rausser: We're running out of time, but there's one last question about the philosophy of science. You frequently refer to Popper and about the Popper curse. What about Thomas Kuhn?

Deaton: Kuhn? I read him very early on too, as well as Imré Lakatos. Actually, I now work with Nancy Cartwright, who's one of the leading philosophers of science of her era, and I've learned an immense amount from her. She's been married to at least two of the great philosophers of the twentieth century.

Rausser: Oh, I didn't know that.

Deaton: She was married to both Ian Hacking and Stuart Hampshire.

Rausser: Oh, yes. She was.

Deaton: Hacking wrote about statistical inference, and Hampshire about Spinoza, and both about much else. Nancy's a very, very interesting lady. Yeah, she's another example of someone in my life

who, when I go and talk to them and realize I don't have a clue what they're talking about, and think, "Oh, that's sort of interesting." You know?

Rausser: Yes.

Deaton: Maybe I have something to learn here, and that's certainly been true. But one of my big lines of work with Nancy is fighting against the randomized controlled trial people.

Rausser: Yes, and you're staying the course there.

Deaton: I am. It's not that it's a bad thing, but I just think the idea that its some sort of magic bullet is insane. I have just written a piece on that the other day, and I worry a lot about the ethics.

Rausser: A new piece on randomized controlled trials.

Deaton: Yeah, it's called "Randomization in the Tropics Revisited."

Rausser: I see.

Deaton: That's the new piece. I think the most important part of that paper is the section about ethics. Coming back to development too, I just think it's a really terrible thing, a very, very dangerous thing for people in rich countries to be doing experiments on people in poor countries. There is a lot of that. It's not that it's impossible, I just think it's really difficult, and it raises a lot of issues that I don't think are being very well considered. One experiment that various other people have been unhappy and written about, but not me, took place in one of the very poorest places in India.

The investigators, not the group that just won the Nobel, went to one of the very poorest places in India, and they undermined solidarity and reduced people's wages at random. That's illegal apart from anything else because there's a minimum wage there, but it also undermines people's solidarity and maybe all they have. Anyway, I've been worrying about that a bit. I'm very much a pluralist—I think there are many ways of learning. I think it would be good if economists not only talk to sociologists and political scientists but spent more time with philosophers, which we used to do.

Rausser: Which you've done.

Deaton: Well, I'm doing that more recently.

Rausser: But you've spent more time with sociology.

Deaton: Amartya Sen has had a huge effect on me too.

Rausser: Pardon?

Deaton: Amartya Sen has had a huge effect on me, and I've known him since he was in Cambridge in the 1960s. But at that time, they used to talk to philosophers. Bernard Williams was there at that time. I was just a junior hanger on, but there was really a sense of a joint enterprise between economics, philosophy, and ethics. Now, those things have just moved very far apart in a way that I don't think has been very helpful on either side.

Rausser: Professor Deaton, Sir Angus Deaton, I appreciate very much your time. We'll finish this brief interview with one of the greatest social scientists that we've known over the last 50 years. Thank you very much.

Deaton: Thank you very much, it's been a real pleasure.

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

ACKNOWLEDGMENTS

We thank James Davis, Joel Ferguson, and Jed Silver for excellent editorial assistance.

LITERATURE CITED

- Attanasio OP, Weber G. 2010. Consumption and saving: models of intertemporal allocation and their implications for public policy. *J. Econ. Lit.* 48(3):693–751
- Besley T. 2016. The contributions of Angus Deaton. *Scand. J. Econ.* 118(3):375–96
- Br. Acad. 1993. John Richard Nicholas Stone 1913–1991. *Proc. Br. Acad.* 82:475–92
- Browning M, Deaton A, Irish M. 1985. A profitable approach to labor supply and commodity demands over the life-cycle. *Econometrica* 53(3):503–44
- Case A, Deaton A. 2015. Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. *PNAS* 112(49):15078–83
- Case A, Deaton A. 2020. *Deaths of Despair and the Future of Capitalism*. Princeton, NJ: Princeton Univ. Press
- Coffey D. 2015. Prepregnancy body mass and weight gain during pregnancy in India and sub-Saharan Africa. *PNAS* 112(11):3302–7
- Cohen AJ, Harcourt GC. 2003. Retrospectives: Whatever happened to the Cambridge capital theory controversies? *J. Econ. Persp.* 17(1):199–214
- Deaton A. 1977. Involuntary saving through unanticipated inflation. *Am. Econ. Rev.* 67(5):899–910
- Deaton A. 1985. Panel data from time series of cross-sections. *J. Econom.* 30:109–26
- Deaton A. 1987. Life-cycle models of consumption: Is the evidence consistent with the theory? In *Advances in Econometrics: Fifth World Congress*, Vol. 2, ed. T Bewley, pp. 1221–48. New York: Cambridge Univ. Press
- Deaton A. 1991. Saving and liquidity constraints. *Econometrica* 59:1221–48
- Deaton A. 2003. Health, inequality, and economic development. *J. Econ. Lit.* 41(1):113–58
- Deaton A. 2010a. Instruments, randomization, and learning about development. *J. Econ. Lit.* 48(2):424–55
- Deaton A. 2010b. Price indexes, inequality, and the measurement of world poverty. *Am. Econ. Rev.* 100(1):5–34
- Deaton A. 2013. *The Great Escape: Health, Wealth, and the Origins of Inequality*. Princeton, NJ: Princeton Univ. Press
- Deaton A. 2016. Measuring and understanding behavior, welfare, and poverty. *Am. Econ. Rev.* 106(6):1221–43
- Deaton A, Drèze J. 2009. Food and nutrition in India: facts and interpretations. *Econ. Political Wkly.* 44(7):42–65
- Deaton A, Heston A. 2010. Understanding PPPs and PPP-based national accounts. *Am. Econ. J. Macroecon.* 2(4):1–35
- Deaton A, Muellbauer J. 1980a. An almost ideal demand system. *Am. Econ. Rev.* 70(3):312–26
- Deaton A, Muellbauer J. 1980b. *Economics and Consumer Behavior*. Cambridge, UK: Cambridge Univ. Press
- Deaton A, Paxson C. 1994. Intertemporal choice and inequality. *J. Political Econ.* 102(3):437–67
- Deaton AS. 1974. The analysis of consumer demand in the United Kingdom, 1900–1970. *Econometrica* 42(2):341–67
- Deaton AS, Muellbauer J. 1986. On measuring child costs: with applications to poor countries. *J. Political Econ.* 94(4):720–44
- Fields GS. 1977. Who benefits from economic development? A reexamination of Brazilian growth in the 1960s. *Am. Econ. Rev.* 67(4):570–82
- Fukuyama F. 1989. The end of history? *Natl. Interest* 16:3–18
- Gorman WM. 1953. Community preference fields. *Econometrica* 21(1):63–80
- Gorman WM. 1959. Separable utility and aggregation. *Econometrica* 27(3):469–81
- Gorman WM. 1968. The structure of utility functions. *Rev. Econ. Stud.* 35(4):367–90
- Lewis WA. 1954. Economic development with unlimited supplies of labor. *Manch. Sch.* 22(2):139–91

- Lewis WA. 1955. *The Theory of Economic Growth*. London/New York: Routledge
- Lowrey A. 2017. Is it better to be poor in Bangladesh or the Mississippi Delta? *The Atlantic*, March 8. <https://www.theatlantic.com/business/archive/2017/03/angus-deaton-qa/518880/>
- Modigliani F, Brumberg R. 1954. Utility analysis and the consumption function: an interpretation of cross-section data. *Post-Keynesian Econ.* 1:338–436
- Muellbauer J. 1975. Aggregation, income distribution and consumer demand. *Rev. Econ. Stud.* 42(4):525–43
- Nobel Media AB. 2015. *Angus Deaton: biographical*. Nobel Media AB, Stockholm. <https://www.nobelprize.org/prizes/economic-sciences/2015/deaton/biographical/>
- Popper K. 2005. *The Logic of Scientific Discovery*. London: Routledge
- Samuelson PA. 1947. *Foundations of Economic Analysis*. Cambridge, MA: Harvard Univ. Press
- Stone R. 1954a. Linear expenditure systems and demand analysis: an application to the pattern of British demand. *Econ. J.* 64(255):511–27
- Stone R. 1954b. *The Measurement of Consumers' Expenditure and Behaviour in the United Kingdom, 1920–1938*. Cambridge, UK: Cambridge Univ. Press
- Subramanian S, Deaton A. 1996. The demand for food and calories. *J. Political Econ.* 104(1):133–62
- Taylor L, Bacha EL. 1976. The unequalizing spiral: a first growth model for Belindia. *Q. J. Econ.* 90(2):197–218
- Tucker M. 2019. Appiah, Case, Deaton, Maldacena among many Princetonians chosen for list of top 50 thinkers. *Princeton University News*, July 17. <https://www.princeton.edu/news/2019/07/17/case-deaton-chosen-prospect-magazines-2019-list-worlds-top-50-thinkers>