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tool / programming language question from a techie who wonders what economics people use

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Hi,

This question is unrelated to the concepts taught in macroeconomics or microeconomics, but rather in relation to the tools / programming languages that economics people use. I am assuming that they must use this type of thing to evaluate their economic scenarios, and given I have a technical background, I was just curious what tools / programming languages they use when trying to solve their economic scenarios.

I took microeconomics last semester and macroeconomics this semester, to remind myself about economics and to better understand the economy from which I grew up (US) and my husband's (England), and other different economies as well. I've always worked in the high tech business world and it is useful there too of course. My background is 100% technical both in education and work experience, so you may better understand why I asked this question, in regard to tools / programming languages that people who solve economic issues and make recommendations use. I'm not sure if those tools / languages overlap with the technical world from which I come -- I was just curious as I take this class. Thanks if anyone knows about these and can answer my question! ;-)

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[Edyta Słodkowska](#) · a day ago

Hi,

of course there is a lot of such IT tools which help economists to conduct economic simulations in more mathematical way. They are mainly based on programming languages but also there are programmes for less professional economists which can be used even only by clicking a mouse ;) Even there is a field of study which takes into consideration mostly quantitative approach to economics, namely econometrics, where a lot of models that can be used to describe the economy or to carry out a forecast are created.

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Karen West · a day ago



Thanks! I've never heard of the field of econometrics, but it makes sense that it exists for those people who take a quantitative approach to economics. I'm sure as you said there are other mathematical simulation packages that economists use too. I was just curious since I come from the high tech world, but taking this as a humanity. Thanks.

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Donald E. Davis · 2 hours ago

Hi, Karen. Econometrics is for measuring the economy. I think what you are asking about would be modeling. The only economic model for which grant money is available in the USA is the DSGE or Dynamic Stochastic General Equilibrium model. (I am reminded of Voltaire's quip that the Holy Roman Empire 'was neither holy, nor Roman nor an Empire!') Coming from a STEM background one might be forgiven for assuming that 'dynamic' mean varying with time, but this is a very special timeless Economics version of dynamic. One might also think that it involved money and debt but again be wrong. Economists consider money to be 'a veil over the real economy' and abstract away from it where ever possible. That tends to make the subject 'Money and Banking' a sort of stand alone subject. Nor do they bother themselves with stocks and flows as might an accountant.

Instead of anything that would make sense to someone from STEM, economists use a set of equations that do not involve time, money or debt into which they put values from econometrics for a particular state of the economy and then solve the system to determine the general equilibrium. This model assumes all decisions are made by a single rational actor. Then one or more inputs can be changed to some extent and the equations solved again. Do that enough and perhaps that is what they mean by 'stochastic'. Associate different sets of input values with specific times and you can artificially generate 'time'. The 'general equilibrium' part seems obvious, but that equilibrium is a fleeting notion, or as Irving Fisher's noted in [The Debt Deflation Theory of Great Depressions](#): *"it is as absurd to assume that, for any long period of time, the variables in the economic organization, or any part of them, will 'stay put,' in perfect equilibrium, as to assume that the Atlantic Ocean can ever be without a wave."* It was [Irving Fisher who first formulated](#) the famous equation $MV=PQ$ back in the first decade of the 20th Century. It was also Irving Fisher who famously stated in the summer of 1929 that the US economy had reached a new permanent high plateau. He sincerely believed this and, as a consequence, lost all of his considerable wealth, but he did retain his tenured position at Yale. The Debt Deflation Theory of Great Depressions was his *mea culpa*, but was largely ignored. though he nailed the process at work in The Great Depression. It is 31 pages of lucid writing.

Naturally the DSGE model has proved particularly useless during the Global Financial Crisis and was pointedly criticized in Congressional Testimony in June, 2011 by Robert Solow, a Nobelest, by David Colander, author of the text recommended as a reference for this course, and by several others. This

testimony was given before the sub committee while Brad Miller was Chairman and it used to be available for download, but all of the links point now to the new Chairman and I cannot find the previous links. I should have saved the text in PDF form on my computer.

Steve Keen is developing a model that is based on a system of ordinary differential equations some of which are time variant. It is 'stock and flow consistent', includes money and debt, models banks, etc. I think you can download his current version and give it a run. Early versions have produced outputs that resemble real world economic phenomena. Naturally he is largely shunned by the Mainstream.

Hope this helps.

Don Davis

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Karen West · just now 🔒



That did help, except that it is definitely a foreign area for me. Of course in engineering school we take some of the same math classes for the differential equations, the stochastic processes at a graduate level, but never applied to the world of economics. I've forgotten most of that math and would have to review it to remember it again! But I got the gist of all that you wrote, and appreciate all the information and how some people apply in the world of solving economic scenarios. I'll file this note away for future reference, since I will never remember all that! ;-) Thanks for the help. I appreciate it.

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