

# Q&A...

with Joseph Abadi, an Economist here at the Philadelphia Fed.



## Joseph Abadi

Despite having earned his doctorate in economics less than three years ago, Joseph Abadi has already produced an impressive body of work about the intersection of finance and technology. He also helped launch, in conjunction with the University of Pennsylvania, our *Digital Currency Center*. For this issue, he examined decentralized finance, which uses blockchain technology to match buyers and sellers of assets. In this Q&A, he explains what led him to study economics, and what he hopes to accomplish through this work.

<sup>1</sup> Joseph Abadi and Markus Brunnermeier, "Blockchain Economics," Federal Reserve Bank of Philadelphia Working paper 22-15 (2022), <https://doi.org/10.21799/frbp.wp.2022.15>.

### Where did you grow up?

Mostly in New York, but I also spent some of my childhood in Argentina. My dad was from Argentina, and at one point he had a business opportunity there. So, we moved there for a few years.

### What did your parents do for a living?

My father was an investment banker. My mother was in finance too, but she stopped working for a few years when I was born.

### Did their work shape your interest in finance, or did that develop organically later?

Because my parents worked in finance, it was a frequent topic of conversation around the dinner table. Also, because my dad was from Argentina, I was familiar with things like its currency crisis and inflation problems. That gave me an interest in economics and eventually in becoming an economist.

### What led you to study math and physics in college?

I've always enjoyed thinking about and solving problems, and I really enjoyed studying math and physics in high school. But I maintained my interest in economics while studying them. I wanted my work to have an impact or at least be comprehensible to more than a handful of people. If you do a math PhD, there are probably only about four people in the world who will understand what you're studying. So, I got a PhD in economics.

### After you earned your PhD, you could have pursued a career in finance, just like your parents. But instead, you went to work for the Philadelphia Fed. What led you to make that decision?

I'd had a couple of experiences in college interning at financial firms. It was interesting enough, but I wanted to focus more on research, which is what I enjoyed doing most. Writing my dissertation reinforced that impression. I really enjoyed doing my own research, getting to work on whatever topic I found interesting for as long as I needed to. Whereas, if you're working in industry, the questions are still interesting but you're often on

a compressed schedule. Once you get far enough, it doesn't make sense to go further. You move on to the next thing because finance is about making money.

### What lessons did you learn from physics and math that you apply to your research in economics?

Math and physics helped me think about and simplify abstract problems, and studying them gave me an intuition for how to solve a big problem before starting work on it. Just today I was working on a problem, trying to understand under what conditions a currency will circulate globally. For instance, why does the U.S. dollar circulate globally whereas the Argentine peso doesn't? A trick that I used to solve this problem is to think of extreme scenarios. For instance, what if one country has high inflation and the other doesn't? Then what will happen? What if one country is very small relative to international markets and one country is big? That's what I took from math and physics: making simplifications to get some idea of where to go with a problem.

### What are your goals for the work you're doing here?

To write papers that are going to change the way people think about certain issues. For example, I cowrote a paper about the design of blockchains from an economic perspective.<sup>1</sup> Our goal was to help people understand the costs you incur when you design a blockchain recordkeeping system. We don't disparage blockchain recordkeeping systems. But if you were to read the paper, a natural thought is that these systems incur a lot of unnecessary costs. So, one change that might come from my research is making blockchain recordkeeping systems cheaper.

### If you teach people about physics, you're not going to change the physical properties of the universe. But if you teach people about economics, it can lead to changes in the economy.

That's true. That's why economics is more difficult than physics. The economic laws of the universe aren't stable in the same way.