

BY ANTHONY HUI

Adjusting to Income Risk

Yongsung Chang, Jay H. Hong, Marios Karabarbounis, Yicheng Wang, and Tao Zhang. “Income Volatility and Portfolio Choices.” *Review of Economic Dynamics*, April 2022, vol. 44, pp. 65-90.

A common question in economics and finance is how households respond to changes in income risk. Theory predicts that when households’ incomes become more volatile, they may save more, work more, or reduce their holdings of risky assets to compensate for their increased risk.

In a recent article in the *Review of Economic Dynamics*, Marios Karabarbounis of the Richmond Fed, Yongsung Chang and Jay Hong of Seoul National University, Yicheng Wang of Peking University, and Tao Zhang of the Ragnar Frisch Centre for Economic Research examined how households adjust their financial portfolio in response to changes in income risk. Income risk is distinct from income level in that it pertains to the uncertainty of future earnings rather than current earnings.

The authors made use of multiple Norwegian data sets that collect information about households’ income and detailed financial holdings. The benefits of these data sets over other survey-based data include reduced measurement error and response bias as well as more comprehensive tracking of households over time. From these data, the authors found that the typical Norwegian household has a mix of safe assets — including government bonds, bank deposits, and life insurance policies’ cash values — and risky assets — including stocks and shares in mutual funds. The authors defined the overall risky share of a household’s portfolio as the value of risky assets divided by the value of total financial assets.

To obtain a clean estimate of how

households adjust their risky asset share in response to income volatility, the authors focused on the single largest change in the standard deviation (a measure of variation) for each worker’s income growth. Concentrating on this single “structural break” eliminates noisy variations in the data. Examples of events that can cause a structural break include a change in employer, industry, or location. Using these structural breaks, the authors found a clear

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negative relationship between the risky share of assets and income volatility.

But not all structural breaks are equal. The data show that households are most likely to experience a structural break when changing employers, a change they will likely anticipate. If households predict a change in their income volatility, they may not adjust the risky share of their portfolio as much. Thus, the authors focused their work not just on structural breaks, but on unanticipated ones, which provide the largest and cleanest response.

Following the work of other researchers, the authors used information from firms to identify income shocks that individual workers can neither anticipate nor control. They combined this information with the structural breaks to isolate an estimate of large, unpredictable income risk. Using this measure, they found a much larger effect on portfolio allocation in response to changes in income. When unanticipated income risk doubles, typical households reduce their allocation of risky financial assets in their portfolio by 5 percentage points.

The authors next incorporated these

unanticipated income shocks into a standard portfolio choice model to see whether they could replicate the response they found in the Norwegian data. The advantage of using a model is that it allows the authors to better understand how income risk affects households’ welfare (that is, their well-being). Welfare may be affected through two channels. First, households experiencing higher income risk may reduce consumption and rebalance their portfolio toward safer assets. Second, households may face difficulties smoothing their consumption over time because they cannot fully insure against income risk.

Households generally prefer to smooth their consumption over time. Income volatility makes that challenging, however. One way to insure against this volatility is by investing savings in the stock market, which is risky, or in safe assets, such as a bank account. Risky assets offer greater returns but a higher risk of losses. Through the model, the authors calculated that the cost of being unable to insure against income volatility is large. They also found that households benefit from being able to adjust the risky share of their financial portfolio in response to income volatility.

This research also has implications for questions about wealth inequality. “Some households have more income stability because they have two earners or other outside assistance, for example,” says Karabarbounis. “Those households can place their money in high-risk, high-return instruments, which allows them to grow their wealth substantially over the long run. This is in contrast with single-earner households, which face greater income uncertainty. They might be less comfortable with high-risk instruments and instead put their money in a safe bank account, earning a lower return.” **EF**