Hiroshi **TOMA**

E-mail: htoma@umich.edu

Address: 611 Tappan Ave., Ann Arbor, Michigan

February 22nd, 2022

Adrien Auclert

Organizer

Dear Mr. Auclert:

It is with great enthusiasm that I submit my application for the NBER Graduate Student Workshop on Heterogeneous Agent Macroeconomics. Currently, I am a third-year student in the PhD in Economics program at the University of Michigan. My main research interest lies in the field of monetary economics. As part of my PhD training, I am presently involved in two different projects that study how monetary policy interacts with the different degrees of heterogeneity that exist across households and firms.

In my first project, titled "Past inflation experiences, future inflation expectations and monetary policy", I study how the heterogeneity of inflation expectations across agents affects the effectiveness of monetary policy in the long-run. Agents modify their inflation rate expectations after living through high inflationary episodes and then carry these expectations into the future, where they interact with future monetary policy and the potentially different expectations of the younger cohorts.

In my second project, titled "The macroeconomics of shrinkflation", I study the macroeconomic consequences of shrinkflation, which refers to the practice certain firms have of reducing package sizes instead of rising prices after a cost shock. This is, in fact, a way of introducing hidden inflation. Here, the heterogeneity rises on the household side: there are households that react more to changing sizes and there are households that react more to changing prices. This determines the decision of the firms of whether to reduce sizes or increase prices. I provide more details on these projects in the accompanying research statement.

I believe my current projects would greatly benefit from attending the workshop. In first place, it would let me further advance my training in the tools of the trade of heterogeneous agents. In second place, it would provide me with a unique opportunity of sharing and discussing my ideas with like-minded peers.

I may be reached by e-mail at htoma@umich.edu. Moreover, at the bottom of this letter you can find the contact information of the faculty members of my Deparment that can provide a recommendation for me. Thank you for your time and consideration.

Sincerely,

Hiroshi Toma

REFERENCES

Javier Cravino
Associate Professor of Economics
Department of Economics
University of Michigan
jcravino@umich.edu

Andrei Levchenko
Professor of Economics
Department of Economics
University of Michigan
alev@umich.edu

Matthew Shapiro
Professor of Economics
Department of Economics
University of Michigan
shapiro@umich.edu

Hiroshi **TOMA**

E-mail: htoma@umich.edu

Address: 611 Tappan Ave., Ann Arbor, Michigan

EDUCATION

UNIVERSITY OF MICHIGAN

2019-PRESENT *PhD, Economics.*
Current GPA: 4.00/4.00
Relevant Macroeconomics Coursework: Numerical methods, non-rational expectations, rational inattention, financial frictions, big data applications.

PONTIFICAL CATHOLIC UNIVERSITY OF PERU

2014-16 *Master, Economics*.

2009-13 *Bachelor, Economics*.

RESEARCH INTERESTS

International Economics, Monetary Economics.

PEER-REVIEWED PUBLICATIONS

Castellares, R, & Toma, H. (2020). Effects of a mandatory local currency pricing law on the exchange rate pass-through. Journal of International Money and Finance, 106.

WORK IN PROGRESS

Cevallos-Fujiy, B., Khanna, G. & Toma, H. Production networks and social proximity.

Pedemonte, M., Toma, H. & Verdugo, E. Past inflation experiences, future inflation expectations and monetary policy.

Toma, H. The macroeconomics of shrinkflation.

PAPER PRESENTATIONS

2018 Bank for International Settlements Consultative Council for the Americas (BIS-CCA) 4th Research Network Conference (Mexico City, Mexico), Latin American and Caribbean Economic Association (LACEA) and Latin American Meeting of the Econometric Society (LAMES) Annual Meeting (Guayaquil, Ecuador), Central Reserve Bank of Peru Annual Research Conference (Lima, Peru), Pontifical Catholic University of Peru Research Seminar (Lima, Peru).

2017 Central Reserve Bank of Peru Annual Research Conference (Lima, Peru), Economic and Social Research Consortium (CIES) Annual Seminar (Lima, Peru), Peruvian Economic Association Annual Congress (Lima, Peru).

2016 Central Reserve Bank of Peru Annual Research Conference (Lima, Peru), Peruvian Economic Association Annual Congress (Lima, Peru).

RECENT PROFESSIONAL EXPERIENCE

CENTRAL RESERVE BANK OF PERU

2017-19 *Supervisor, Macroeconomic Modelling Division*.
Development and maintenance of DSGE and empirical models for forecasting and monetary policy scenarios.

2016-17 *Specialist, Balance of Payments Statistics Division*.
Compilation and analysis of the balance of payments statistics.

AWARDS AND FELLOWSHIPS

PhD in Economics 1st Year Fellowship, University of Michigan.

Bank for International Settlements Consultative Council for the Americas (BIS-CCA) 4th Research Network. Participant and discussant in research network composed by researchers from 7 Central Banks of the Americas. Final paper titled *Effects of a Mandatory Local Currency Pricing Law On the Exchange Rate Pass-Through*.

XVIII Annual Research Prize, Economic and Social Research Consortium (CIES). Grant of 5,000 Canadian Dollars (3,800 United States Dollars).

Licenciate Thesis Support Program, Pontifical Catholic University of Peru. Grant of 5,000 Peruvian Soles (1,500 United States Dollars).

Graduate School Academic Merit Fellowship, Pontifical Catholic University of Peru. Financial aid of 20,000 Peruvian Soles (6,000 United States Dollars) based on academic merit for the Master of Economics program.

Prima AFP Excellence Prize. Award given to the top 2 Economics graduates of the top Peruvian universities.

SKILLS

Software and Programming: Dynare (advanced), Iris (intermediate), LaTeX(intermediate), Julia (intermediate), LyX (intermediate), MATLAB (advanced), Python (intermediate), R (intermediate), Stata (advanced).

Languages: Spanish (native), English (fluent).

REFERENCES

Javier Cravino	**Andrei Levchenko**	**Matthew Shapiro**
Associate Professor of Economics	Professor of Economics	Professor of Economics
Department of Economics	Department of Economics	Department of Economics
University of Michigan	University of Michigan	University of Michigan
jcravino@umich.edu	alev@umich.edu	shapiro@umich.edu

Updated: 2/22/22.

Research Statement

Hiroshi Toma

My main research interest lies in the field of monetary economics. More specifically, I am interested in studying how monetary policy interacts with the different degrees of heterogeneity that exists across households and firms. Currently, during my third year in the PhD in Economics program at the University of Michigan, I am working in two different projects related to this topic.

My first project is titled "Past inflation experiences, future inflation expectations and monetary policy" and is jointly developed with Mathieu Pedemonte (Federal Reserve Bank of Cleveland) and Esteban Verdugo (University of Michigan). In this project we document that people that have lived through high inflation episodes tend to have higher inflation rate expectations[1]. We also document that, in the United States, inflation experiences are clustered by age. In particular we find older people have gone through higher inflationary episodes. This means heterogeneity is going to arise: different cohorts have different inflation expectations. We then ask the following: what are the consequences on monetary policy of having heterogeneous inflation expectations across cohorts?

To answer the previous question we propose a New Keynesian model with overlapping generations and heterogeneous inflation expectations. We posit that the heterogeneity of inflation rate expectations can turn monetary policy into a long-run game. If, upon a high inflation episode, the Central Bank is too dovish and allows the inflation expectations of the agents to shift to the right, then these individuals will carry these higher inflation expectations into the future, which in turn can interfere with the effectiveness of future monetary policy. Therefore, the effectiveness of monetary policy will depend on the inflation expectations agents bring from past experiences, as well as on how much these expectations differ from the expectations of the younger cohorts which did not experience inflationary events.

In my second project, titled "The macroeconomics of shrinkflation", I study the macroeconomic consequences of shrinkflation, which refers to the times in which firms reduce the size of their packages instead of increasing their prices when facing rising costs. In practice, shrinkflation results in an increase in the price per unit, even though the tag price does not change. Therefore, shrinkflation is a form of hidden inflation. Then, I ask two questions. In first place, when do firms decide to reduce the size of their packages instead of increasing prices? In second place, how does shrinkflation affect the actual inflation rate and, by extension, monetary policy?

Because shrinkflation has not been a well-studied economic phenomenon[2], I use scanner microdata to document several facts around its occurrence in recent years and across sectors. Then I propose a theoretical model that incorporates these facts and that can inform about the interaction between shrinkflation and monetary policy. More specifically, I derive a menu cost model in which heterogeneity rises on the household side: there are households that pay less attention to sizes than others, making them more prone to not notice when shrinkflation occurs and not modifying their consumption afterwards, even though prices per unit are rising. Then, firms, by knowing how their customers respond to changing sizes and prices, take a decision on whether to shrink packages or increase prices.

I believe my current projects would greatly benefit from attending the workshop on heterogeneous agents. In first place, it would let me further advance my training in the tools of the trade of heterogeneous agents. In second place, it would also provide me with a unique opportunity of sharing and discussing my ideas with like-minded peers.

[1] Also see Malmendier and Nagel (2016).

[2] Some examples are Gourville & Koehler (2004) and Levy & Snir (2013).

References

Gourville, J. T., & Koehler, J. J. (2004). Downsizing price increases: A greater sensitivity to price than quantity in consumer markets.

Levy, D., & Snir, A. (2013). Shrinking goods.

Malmendier, U., & Nagel, S. (2016). Learning from inflation experiences. Quarterly Journal of Economics, 131(1), 53-87.