

2014

# CONNECTING POLICY WITH FRONTIER RESEARCH

Economist Interviews from the 39th Annual  
Federal Reserve Bank of St. Louis Fall Conference

Oct. 9-10, 2014



CENTRAL TO AMERICA'S ECONOMY  
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## MESSAGE FROM THE PRESIDENT

At the Federal Reserve Bank of St. Louis, we have long tried to provide perspectives on whether the policies adopted in the past still serve us well today and whether recent developments at the frontier of research can be fruitfully applied to improve policy. This agenda has become especially important in the past few years, as the Federal Reserve and central banks around the world have struggled to devise appropriate policy responses to the current macroeconomic situation.

In polite economist society, there has long been a distinction between what is known as “frontier” research and what is sometimes called “policy” research. In my view, this has been and continues to be a false dichotomy. There is no such distinction: “Policy” and “frontier” research are two sides of the same coin. We need to understand both how fundamental mechanisms in the economy operate as well as how current data can be interpreted in terms of fundamental theory.

In short, advanced economic theory has to be made more relevant for actual policy, and actual policy has to understand and embrace the sometimes difficult ideas advanced in the theoretical world. The St. Louis Fed has long been a leader in supporting research at the intersection of economic theory and economic policy.

At our 2014 fall conference, we were fortunate to have an outstanding group of speakers whose research expands our understanding of key contemporary issues in macroeconomics. The conference agenda included papers on labor markets and education, banking regulation issues, and other topics. The St. Louis Fed was proud to provide this forum for discussion and analysis of the leading issues of the day.

In addition to finding ways to connect the research world with the policy world, the St. Louis Fed strives to connect academic research with a nonacademic audience. Our goal is to explain in lay terms why the research is important, what implications it has for policy and what it means for people and the economy overall.

This volume brings the main findings of the research presented during the conference to a wider audience. We hope that you find the material informative and that it will serve as a resource on important macroeconomic and policy issues.

**James Bullard**  
President and CEO  
Federal Reserve Bank of St. Louis



## MESSAGE FROM THE RESEARCH DIRECTOR

The Research division of the Federal Reserve Bank of St. Louis has long been renowned for its cutting-edge research, policy analysis and provision of economic information to the public. This tradition dates back to the 1960s, when Homer Jones was the director of the Bank's Research division. At that time, the St. Louis Fed took a very contrarian stance on how monetary policy should be conducted and backed that stance with top-flight economic research.

We have found that the best policy advice comes from economists who work at the frontier of economic thinking. Academic economists are often vocal in their views about policy and are willing to critique actions taken by the Federal Open Market Committee, the main policymaking body of the Federal Reserve System. To evaluate arguments of academic critics and make use of good ideas and research for policy, the Fed must have economists who work at the frontier of knowledge. Fed economists must be able to explain their own views in a rigorous way, as well as explain why an alternative claim about policy is suspect. A healthy competition of ideas allows the best theories and policies to win in the end.

Academic research is valuable because the thinking about economic issues is unrestricted. It is proactive in that it often focuses on interesting issues long before they come to the attention of policymakers.

Academic research is rigorously vetted before publication in peer-reviewed journals. It is forged in the fires of debate and criticism. Academic research also takes the form of program evaluation (economic autopsies) of major economic events. It can take years to analyze and understand what happened and what policies or regulations need to be changed.

At the St. Louis Fed, we continually look for ways to connect frontier research with policy. Our annual fall conference, which brings together leading academics and economists, does just that. The discussions that follow highlight some of the key contributions of the papers presented at the 2014 fall conference.

**Christopher J. Waller**  
Senior Vice President and Research Director  
Federal Reserve Bank of St. Louis



## FOREWORD FROM THE CONFERENCE ORGANIZERS

Every year, two economists from the Research division of the Federal Reserve Bank of St. Louis are selected to organize the Bank's annual research conference. The privilege was ours for the 39th Annual Federal Reserve Bank of St. Louis Fall Conference. Of course, a conference of this magnitude doesn't come about through the work of only two people. While we may have had the distinction of, as St. Louis Fed President James Bullard noted in his opening remarks of the conference, "putting this provocative program together," we are grateful for the numerous Bank employees who worked to make this conference happen.

The rich tradition of this conference began when the first one was held on Nov. 30, 1976. It was titled "Financing Economic Growth: The Problem of Capital Formation" and considered the problems of generating sufficient flows of saving and investment to finance economic growth and development in the future.

Since then, the annual conference has continued to feature the latest in policy and frontier research. This year's conference was highlighted by yet another distinguished group of speakers. Specifically, this year's speakers presented papers:

- Measuring market frictions and their role in explaining the "labor wedge"
- Assessing the ability of demand stimulus to increase inflation
- Gauging the Affordable Care Act's effect on households' incentives and work schedule decisions
- Discussing job-to-job flow patterns after the Great Recession and the effect on unemployment

- Measuring financial shocks' effect on matching idle labor with idle jobs
- Studying the impact of states' higher education subsidies on young people's education and migration decisions
- Discovering circumstances when mandatory disclosure requirements on banks are beneficial
- Discussing regulatory reforms to promote competition and gain greater voluntary transparency in the banking sector
- Measuring whether it is ever beneficial to require banks to hold more than their otherwise preferred level of government bonds

One of the St. Louis Fed's goals is to make economic data and research available to a broad audience. This conference volume, in which our speakers describe their work in layman's terms, follows in that tradition.

We thank you for your interest in the 2014 fall conference and look forward to the 40th conference in 2015.

**William Dupor**  
Assistant Vice President  
Federal Reserve Bank of St. Louis

**Yongseok Shin**  
Research Fellow  
Federal Reserve Bank of St. Louis

The Federal Reserve Bank of St. Louis hosted its 39th Annual Fall Conference on Oct. 9-10, 2014. **David Andolfatto** sat down with each of the conference presenters and discussed their work in plain English. The content in this conference volume is based on those interviews. All interviews have been edited for clarity and length.

For the full conference agenda, please see  
<http://research.stlouisfed.org/conferences/annual/39th.html>.

*The views expressed in this volume are those of the individuals presenting them and do not necessarily reflect the views of the Federal Reserve Bank of St. Louis or the Federal Reserve System.*



## FERNANDO ALVAREZ

Professor of Economics, University of Chicago

**Paper:** “Mandatory Disclosure and Financial Contagion”  
(with Gadi Barlevy)

### ANDOLFATTO

**Why don’t you tell us a little bit about the question that you’re addressing in the paper?**

### ALVAREZ

The general question is to study one of the aspects of the stress tests. The stress test is one of the policy tools now used by central banks, mainly the European Central Bank (ECB) and the Federal Reserve, to analyze how banks will fare in differing scenarios, and then they make this information public. Stress tests have other aspects, but in our paper we mostly analyze that feature.

### ANDOLFATTO

**Are these stress tests something new? Or is this something that has been done in history? Is it something that’s come about because of the financial crisis?**

### ALVAREZ

The form of the stress test has changed more than a little bit because of the financial crisis. Obviously, there has always been supervision from central banks over commercial banks and other banking institutions. But there has been a change to make the information public, which is not something that we have seen before. That’s the aspect that we tried to study.

### ANDOLFATTO

**So regulatory bodies have regularly stress tested banks before to see how resilient they might be under different alternative financial stress conditions. But what’s new, you’re saying here, is that they’re making the information public to the community? And you’re interested in whether this is a good idea?**

### ALVAREZ

Exactly. So under what conditions is this a good idea from a public policy perspective, precisely? As you mentioned with your question, this is new. It happened in the financial crisis. And you see it in the academia and in the policy-making circles, like some of [former Federal Reserve Chairman Ben] Bernanke’s speeches and obviously his influence during his tenure on conducting the stress test, but also in evaluating it afterwards in the ECB. So you see it in the public policy arena, in the academia, and also in some of the practitioners,

they talked about some of the advantages. But what we want to think about is: If they are so good, why don’t banks do it by themselves?

The idea is not that they are doing something to, you know, get banks doing something bad. It’s just they are doing something that in fact will help banks. It will help everybody.

So, from their perspective, if they are so good, why don’t they do it by themselves? And also, if they are so good now, is it like somebody just discovered that now they are good and before people didn’t realize? Or is it because of the financial crisis that these are special circumstances whether they are good or not? So then our paper—like most academic papers—takes a stylized version of the world and tried to answer these questions in that stylized version.

### ANDOLFATTO

**There are also conventional reasons for why this type of information is not disclosed publicly, perhaps the stigma that such a disclosure might impinge on a particular bank that’s identified as being weak. What do you have to say about that?**

### ALVAREZ

We studied a setup where sometimes it’s a good idea and sometimes it’s a bad idea, but we get a bit more precise. The times in which it’s a good idea is when there’s a lot of contagion in the sense that the fate of a particular bank is not determined that much by how these banks operate, but by how the whole network of banks operate. For instance: During the crisis, you had a market freeze, not so much because there’s a large loss—maybe their losses are not huge—but we don’t know where they are. So the image that we have is there are some bad apples, but we don’t know where the bad apples are.

### ANDOLFATTO

**So the location of the risk is not known, and this potentially poisons the whole barrel.**

### ALVAREZ

Exactly. So everybody doesn’t trust everybody else. The interesting aspect is that these are situations in which individual



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“The idea for policymakers and investors is that if a lot of people disclose information, you could try to find the architecture of the financial network and really see where the bad apples lie.”

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banks may not want to show that they themselves don't have the bad apples. But if they're all encouraged to do it, then you could get in a situation that is better for everybody and unfreeze the markets.

#### **ANDOLFATTO**

**Under these conditions, we should observe that individual banks express voluntary desire to participate in the program.**

#### **ALVAREZ**

If you know that the other banks do it, you are fine to do it. But if you're the only one, you may not want to do it. And I think the intuition is relatively simple.

Let's say that it has some cost to disclose this information and some benefits, such as showing to potential investors in the bank or other creditors that I've survived the stress test. But this also benefits you if, say, you're another bank, I owe you some money, and now you know that I'm solvent. And then the idea is that if you are all forced to do it, then the social benefits will be internalized.

Now, in a situation in which we don't trade that much, so we don't have these interlocked portfolios and your fate isn't so dependent on mine, then this wouldn't be an issue. In normal circumstances—circumstances where there's not much what we call contagion—then the private and social benefits would be aligned.

#### **ANDOLFATTO**

**Your paper makes it very clear when and when not this type of policy of mandatory disclosure of stress test results is a good idea socially, and you mentioned that it all hinges on the degree of what you call potential contagion, the extent to which banks are interlocked.**

#### **ALVAREZ**

It's the idea that maybe Lehman [Brothers] didn't have anything bad themselves. But then if someone else owes money to Lehman, I don't want to lend to Lehman.

#### **ANDOLFATTO**

**Operationally, can we observe this interlocking set of claims? Is this something we can see?**

#### **ALVAREZ**

The idea for policymakers and investors is that if a lot of people disclose information, you could try to find the architecture of the financial network and really see where the bad apples lie. Now obviously, it will always be imperfect. But the idea is that one person, only one bank, disclosing information will give very little information about the whole network, while a lot of banks disclosing information will help a lot.

So it will be imperfect, but if you think about clearinghouses and these type of financial arrangements, they're all like, “I'm trading with you, but do I have to worry about your trading counterparties?” This is an issue that financial institutions think about a lot. One part of the contribution of this is that maybe it's forcing them to have to account for the social benefit and not just the private benefits of disclosing information.

#### **ANDOLFATTO**

**On the whole then, you'd say your paper is generally supportive of the program, the stress tests?**

#### **ALVAREZ**

Yes. In particular, Bernanke in the public policy arena or Gary Gorton in the academia pointed out that the freeze of markets in 2008 looked like, “I don't want to trade because I don't know whether the other party will be able to pay me.” These may be the type of situations for which this is indicated.

#### **ANDOLFATTO**

**When was the first stress test implemented?**

#### **ALVAREZ**

There have been similar types of tests elsewhere, and then there's also the International Monetary Fund (IMF) now trying to encourage [them] more broadly, but mostly they are in the ECB and in the U.S. It wasn't at the very beginning of the financial crisis, but in 2009 there were two waves. The first one had disclosure of this information, and this was the first time that it has happened.

#### **ANDOLFATTO**

**And I think I recall reading that Bernanke attributed a calming of the financial markets because of the outcome of the information. Do you share that opinion?**

#### **ALVAREZ**

Well, the bigger analysis is complicated, because the stress test also has other features. Another feature of the stress test is that if a bank happens to be vulnerable to these types of shocks, then it mandates that it has to raise capital. That

means it's hard to know whether it was the fact that information was released or it was also the fact that they were obliged to raise capital.

On the other hand, the ECB conducted a stress test that didn't have the second element. It only has the informational release. Where the Europeans focus on the information, they have some other problems in their design.

It was thought by most participants that this was not a credible stress test. Nevertheless, even under these suspicions, people found calming effects from the stress test in Europe. So I will say that it's hard to know. These are complicated. But my reading of the evidence is very supportive of Bernanke's view.

### **The paper's main takeaways, according to Alvarez:**

- In moments of financial crisis, intervention that otherwise would not be a wise policy may be justified.
- This is not particularly bothersome. It's mostly about a release of information.
- It's a public policy that is reasonable from the perspective of analyzing social cost and benefit.

To watch the interviews from the conference, visit [stlouisfed.org/connecting-policy-with-frontier-research/2014](http://stlouisfed.org/connecting-policy-with-frontier-research/2014).

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## MARK BILS

Hazel Fyfe Professor in Economics, University of Rochester

**Paper:** “Resurrecting the Role of the Product Market Wedge in Recessions”

(with Peter Klenow and Benjamin Malin)

### ANDOLFATTO

**I was wondering if you could tell us a little bit about what your paper is about and what the question is.**

### BILS

The paper is with Pete Klenow and Ben Malin, and anything I say shouldn't be attributed or held against them.

The starting point is well-known, that we don't really understand what happens in recessions. In recessions, there's a big drop in employment and hours. At the same time, consumption drops a lot. So, given the drop in consumption and that hours and employment are low, we would expect, and I think it's reasonable to expect, that people would be willing to work at a lower rate of pay. So the reservation wage for workers, what they'd require to work, should be low.

At the same time, for most recessions, productivity doesn't fall that much. For the last three recessions, which is the period we look at, the last 25 years, on average, labor productivity doesn't really drop. So then you have this puzzle. Why is it that people are getting laid off or that firms aren't creating jobs or the work weeks are cut, even though it looks like the return on labor doesn't look bad? The productivity looks pretty good, given what people would want to work at.

That's referred to as the labor wedge. It shows up in other places in the literature. The whole unemployment puzzle, sometimes called the Shimer puzzle, is very closely related. So that's our starting point. And then in the literature, a lot of that has been stressed as a problem from the labor market. It's natural, because you're trying to understand why labor drops so much in recessions. So it's viewed as, “What's the problem with the labor market?”

And so people have looked at average hourly earnings in the data and say, “Well, average hourly earnings also don't fall that much during recessions, maybe a little bit compared to productivity, but not so much.” So maybe the problem is in the labor market. What's keeping the wages sticky or not falling?

We make a couple of points. One is we don't really know how to measure what the price of labor does in recessions,

because we know that firms smooth people's wages. New hires' wages drop a lot more.

### ANDOLFATTO

**You mean the price of labor to the firm may not be fully reflected in the, say, the wage that they're earning at that point?**

### BILS

Right. Suppose I don't cut all the wages for my long-term employees, for convenience or to try to provide some insurance for them. That doesn't mean that I can't go out and find somebody new who would be cheaper, for instance.

We show that, for various different ways of measuring the price of labor, there is quite a drop in the price of labor compared to the productivity. It looks like the problem is not wage stickiness, but just that the demand for labor really is dropping a lot in recessions, just not in a way that we can link to productivity.

What we show then is, in a few different ways, that if we look at lots of inputs that don't get purchased through the labor market, we see very much the same phenomena. I'll just mention a couple. We look at self-employed workers, and we see very much a similar phenomenon, even though of course they don't have any bargaining problems with their employers. They're self-employed. They work for themselves.

And we look at intermediates. Intermediate purchases are huge in most industries. It's like half of the value of their output. We see that the price of the intermediates drops a lot, yet the inputs drop a lot, and we see the same puzzle: that the firms seem to be pulling back a lot on intermediates, even though the productivity looks quite good.

We're basically arguing it's not a problem in terms of wage setting in the labor market. It's a more general problem of firms drawing back and being more reticent to put output out on the market in recessions, and it's just causing all factor demands to drop.

### ANDOLFATTO

**There are some people who have claimed that there's some sort of composition bias. The workers you see laid off in a recession are the less skilled, lower productive workers. And as these workers are laid off, this raises the average labor productivity of the people who keep the jobs. Do you have any view on that?**

### BILS

You can calculate how big that is. And that helps to explain a little bit. You can just do sort of a back-of-the-envelope calculation. In a recession, for every percent fall in hours, maybe three-quarters of that is employment. The guys who are getting laid off are maybe 20 percent less productive. And then you can calculate that it makes a little bit of difference in measuring productivity.

I can do other calculations, though, that would suggest that productivity actually drops even less in recessions. If I have any overhead labor, any overhead factors, the fact that I have to keep them on in the recession would tend to cause productivity to drop even more. So these things tend to, I think, kind of offset.

Also, that compositional bias shouldn't show up for the factors we're looking at, like intermediates.

### ANDOLFATTO

**So your findings then would call into question these approaches to try and understand recessions that focus on problems in the labor market, labor market frictions, things like this, and move the focus someplace else. Like what, where?**

### BILS

Well, I would say it a little differently. We would like to say that the focus shouldn't be only on that. I wouldn't argue that there aren't some distortions coming from the labor market as well as the goods market. It's just that I think the literature has moved to say it's almost all in the labor market, and it's largely based on looking at, like, average hourly earnings.

In fact, we say this literally: We think both what's happening to other inputs and in the goods market deserves attention in the same way that the labor market does.

### ANDOLFATTO

**Do you have any, like, pet hypotheses here? What's going on in the product market?**

### BILS

Let me just say again what we see and some possible explanations. We see that productivity does not drop so sharply in recessions, but the cost of a lot of inputs seems to be falling. So what could that be?

Well, one natural story would be that the firms are raising their markups during a recession, so they're pulling back and they're pricing higher. That shows up in Keynesian sticky price models just because the prices are slow to respond. I think these effects are bigger and longer than what one would get out of that story, in particular for the Great Recession. We see this for all three recessions, but this markup, this product market wedge, is particularly striking for the Great Recession.

So it could be price stickiness. It could be that firms feel like it's a time where, if you try to keep producing at the same way you were, you'd have to slash prices so much that it doesn't make sense.

A paper by Simon Gilchrist, Raphael Schoenle, Jae Sim and Egon Zakrajsek shows that, after Lehman Brothers, firms that had cash flow problems raised their price relative to the other guys. Their explanation was that these firms couldn't afford to invest in their stock of customers. They had to get money now, so they had to charge a higher price, even if it cost them some of their customer base. They didn't want to do it, but it's just a form of cutting investment.

And I would say more generally, any decision at the margin to produce more is partly an investment. So when a firm hires a worker, it's always partly an investment. You don't know whether they're going to be good or bad. If you really were just hiring based on that day, would you ever hire these guys? They might come in and screw things up for the day. There's always an investment component to producing more. Because there's less investment, firms will act like, "Well, I'm going to be more reticent to produce in the recession." And that will show up as moving up a demand curve to a higher price, causing an increase in price markup.

I would also mention a paper by Cristina Arellano, Yan Bai and Patrick Kehoe. They show that, if uncertainty goes up in a recession and firms don't want to overextend because they might go under and lose the whole firm, that causes firms to be more reticent and pull back more on producing in a recession.

All these forces lead to less dynamic, less competitive markets in a recession. I think it could cause markups to go up. That's what we're arguing: People should be focused on these other forces as well as, say, wage setting.

### ANDOLFATTO

**In any case, it does seem to rule out some forces, like productivity shocks or stuff like this.**

### BILS

The acyclical data on productivity speak pretty well to that. It doesn't mean there's no role for them. But there has to be, I think, other shocks that are more important.

In recessions, firms don't want to hire. I can't rationalize that with a productivity shock, because productivity just doesn't fall enough.

### ANDOLFATTO

**You don't make any explicit policy recommendations on your findings, but do you see how your line of work, your line of inquiry, might one day inform policymakers in a particular manner? Or is it too removed from that right now?**

### BILS

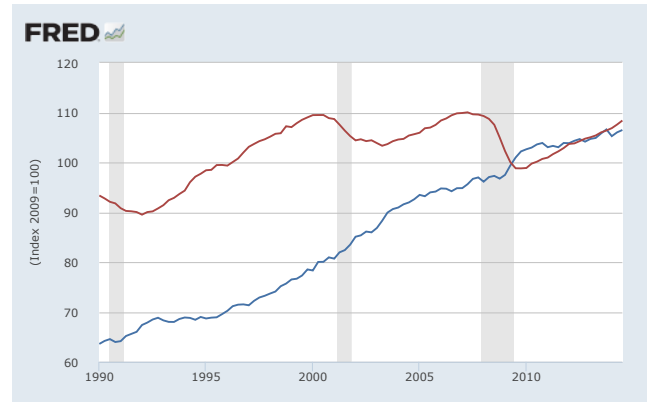
Again, I'm not speaking for Pete or Ben, of course. I don't think in terms of policy, but I would say the following: We don't know what's causing labor to fall in recessions. We don't think it's primarily wage stickiness. It's likely factors we don't understand well. If we recognize that we don't understand recessions, that has important policy implications. You should tread lightly. That would be a lesson I would take. I wouldn't take a view based on recessions that the labor market just doesn't work well. That opens the door to all sorts of escapades in policy.

Our work reinforces that there are costs to recessions from inefficient drops in employment. But then what's the right policy response? I could say, "Well, we should do things therefore to subsidize activity more in recessions." But sometimes that's counterproductive. If I look at policies that get made not according to rules, but ex-post, sometimes they make things worse. They create a situation where you don't know what to do as an employer or firm because, even though you're not necessarily in the rent-seeking business, in those times it pays to be.

I can give two examples. Assume we're in a recession and you think maybe we'll get a big investment tax credit. Maybe we won't. Maybe it'll come next year. So what should I do? I should invest less so that I would delay my investment until the tax credit kicks in.

Around 2009, there was a lot of discussion of creating a subsidy to hiring, so that if firms did net hiring, you would get a payment from the government. This is a terrible idea. Firms have to sit around and make calculations like, "I don't want to hire now, because if I do, then I lose out on the subsidy. Better to let workers go, making room to hire when the subsidy kicks in."

## Productivity and Hours



— Business Sector: Real Output Per Hour of All Persons  
— Business Sector: Hours of All Persons

NOTE: Shaded areas indicate US recessions.

The lesson I would take is: Do nothing, or use a rule. If policymakers could credibly have a rule that, when employment falls a lot, we're going to have an investment tax credit or we're going to have some payroll tax cut, I think our results could help rationalize that. But if a policymaker can't explain and commit to what they will do under some future scenario, then I don't think we should trust their choices after the fact on these policies. That's my view, but, again, not necessarily Pete's and Ben's.

### The paper's main takeaways, according to Bils:

- Recessions look quite costly. Not just labor, but all down inputs drop sharply in recessions despite little fall in productivity.
- We see this as a product market distortion that cuts demands for all inputs in recessions.

To watch the interviews from the conference, visit [stlouisfed.org/connecting-policy-with-frontier-research/2014](http://stlouisfed.org/connecting-policy-with-frontier-research/2014).

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## V.V. CHARI

Paul W. Frenzel Land Grant Professor of Liberal Arts and Professor of Economics, University of Minnesota; Founding Director, Heller-Hurwicz Economics Institute

**Paper:** “On the Optimality of Financial Repression”  
(with Alessandro Dovis and Patrick Kehoe)

### ANDOLFATTO

**This is a very provocative kind of title, “On the Optimality of Financial Repression.” What do you mean by repression?**

### CHARI

Financial repression is a term that’s often used to describe policy measures by governments which require, in particular banks, but more generally, other intermediaries—like savings and loans, insurance companies, pension funds and the like—to hold a lot of government debt in their portfolios. That is, that besides private assets that they might hold—like loans to households, mortgages and so on—they’re often required to hold a lot of government debt.

### ANDOLFATTO

**Would required reserves on the part of banks, for example, constitute a form of financial repression, kind of a legislated amount of a certain type of government debt?**

### CHARI

Right. Typically, these are requirements that are justified in terms of safety and soundness. It says that, in order for a bank to meet its regulatory standards, it must hold a sufficient amount of so-called safe assets. These safe assets typically refer to the debt of the government where this entity is located.

### ANDOLFATTO

**So the repression refers to the fact that these entities are required, kind of against their will, to hold these types of assets, I presume. So what is the question that you’re interested then in addressing in this paper?**

### CHARI

Historically, this issue has largely been studied within the context of ensuring that banks particularly continue to be safe. But we take a somewhat different perspective on this. We look at the broad sweep of historical experience. Oddly enough, it turns out that whenever governments need to issue a lot of debt—the United States during the Civil War is one example of this; more recently, we’ve seen this need in Europe—that’s when implicit or explicit regulations requiring financial intermediaries to hold debt seem to go up. These banks and similar institutions end up holding a large fraction of their portfolio in the form of government debt.

We thought that was a striking and interesting observation, and so we were led to ask why. What we argue in our paper is that this phenomenon is very hard to understand if governments can in technical terms commit to their future policies. So what that means is that, if a government can choose what policies it’s going to follow for a long period of time and stick to those policies, then requiring banks to hold this kind of debt is a very inefficient way of raising revenue. There are much more efficient ways of raising the revenue needed to finance a war or of issuing government debt during a recession, precisely because forcing banks to do this implies that banks will be able to finance less private investment, and so therefore the economy will be worse off as a consequence of these policies.

However, what we argue is that, in a world where people are concerned about the possibility that governments might default on their debts, either explicitly or implicitly through inflation, then these policies remarkably start to make sense. They make sense because if banks and other intermediaries are holding a lot of public debt, then a default endangers the financial system and therefore tends to make the situation a lot worse. And because the situation is going to be a lot worse, governments are dissuaded from defaulting.

Therefore, from the perspective of governments looking ahead, this mechanism turns out to be a useful device to commit yourself to not default in a world where it’s difficult to convince investors that you will not default on that debt. So, paradoxically, something that is very bad, if governments can pick policies and stick to them, turns out in fact to be a necessary and a desirable instrument in a world without commitment.

### ANDOLFATTO

**So what you’re saying is basically that, in a world where the government cannot commit to its promises, say, to repay debt, that if it forces the domestic banks to overload on the domestic sovereign debt, that this would increase the costs—the economic and presumably political costs—of the government from defaulting. And the threat of that is what enhances the ability of the government to refinance?**

## CHARI

That's exactly right. And so these forces are likely to be particularly strong when the government needs to issue a lot of debt, because when they issue debt, investors will buy the debt only if they think that the government is unlikely to default. But if you've got a situation in which you've already fought a war—think World War II or something like that—and you've issued a lot of debt during the war, come peacetime, you have a strong incentive to say, "Well, let's default in part on that debt through inflation or through explicit kinds of means."

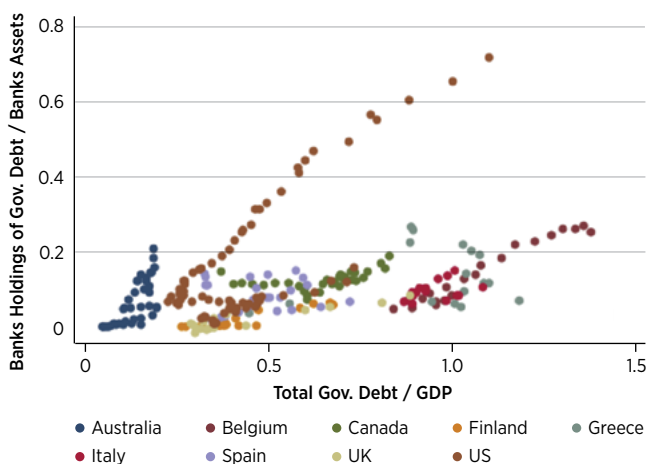
How does that help you? That means that valuable resources which would have been used to finance other kinds of expenditures no longer have to be used to pay interest on government debt, and so therefore the distortions that occur because you've got this big overhang of government debt are much smaller.

## ANDOLFATTO

**Presumably, this is not the only way government could build commitment or enhance its commitment to repay. There are also political costs to, say, consumers and households who would be loaded up on this domestic debt. In your paper, you don't actually focus on that. You're focusing on the potential costs through the banking sector, not the political costs?**

## CHARI

Like any good paper, we hope, we wanted to focus on one issue rather than take on a whole gamut of issues. And so we chose to focus our attention on this particular issue, rather than discuss the broader ramifications. I have a bunch of papers which address those broader ramifications as well.



## ANDOLFATTO

**You mention, and I think it's pretty well-known, that it seems unusual that, say, Italian banks seem to be loading up disproportionately on Italian sovereign debt. But we don't necessarily see any explicit government regulations requiring these banks to behave in this manner. Could it be that there are natural market forces that would lead, say, Italian banks to load up on Italian debt?**

## CHARI

Yes, there are some market forces. The nature of regulation is a little complicated and a little subtle, because, especially as far as the banking system is concerned, private banks are in fairly close touch with their regulators. And their regulators evaluate the safety of these banks through a variety of different kinds of metrics. It's not just specific, written-down formulas.

We think of a lot of this kind of regulation as being implicit, not quite out in the forefront, not specifically in any written rule or regulation. But, yes, there are perhaps other forces that would lead Italian banks to load up on Italian government debt. Those forces tend to be weak because banks do have—in a reasonably competitive market system—strong incentives to diversify their portfolios.

And so, therefore, holding Italian government debt is a particularly undiversified form of risk if you're holding a lot of Italian mortgages or loans to Italian firms, because that debt is going to become relatively less valuable exactly when the rest of the Italian economy tanks. So normal market forces, you'd think, would give Italian banks a strong incentive to hold German debt and German banks to hold a lot of Italian debt. Instead, we tend to see in practice the exact opposite.

## ANDOLFATTO

**Suppose, for whatever reason, the Italian banks feel that the Italian government is less likely to default on their sovereign debt that's held domestically. And suppose that this is true throughout Europe. You'd like it to be diversified, but if what I just said was true, this sovereign debt would be relocated to its domestic sources. That maybe reinforces your paper. This is not through explicit government regulation, but they know that the government is less likely to default if it's held domestically.**

## CHARI

I think that is very complementary. One can certainly imagine those kinds of forces inducing banks to understand that it's in everybody's cooperative and best interest to hold a lot of Italian debt. So I agree. I think the kind of story you are telling complements the story we're telling fairly well.

## ANDOLFATTO

**In terms of policy implications, what do you feel are the main lessons that policymakers might draw from the findings of your research?**

### CHARI

A very pressing and central topic in Europe, for example, right now is that the plan is that the European Union will have a central regulatory and supervisory authority, which will be run perhaps out of the European Central Bank in Frankfurt and in Brussels. And that authority will have the primary responsibility for supervising all the banks from Portugal to Ireland to Germany and Austria, as opposed to the current practice, which is that the national regulatory authorities regulate their own domestic banks.

And an important issue that's being discussed as we speak is: How should these regulations be set up? And there are lots of forces in Europe arguing on very sensible grounds that national banks—banks in Portugal for example—should not hold an excessive amount of Portuguese debt. That makes them vulnerable to the possibility that Portugal might default on its debt. And so, therefore, they should be induced or required to hold German debt, for example. And there are good reasons why you might think that that proposal is a good idea.

What our research suggests is, maybe not so fast. Maybe there are good reasons why Portugal or Greece or Italy or Spain might require their own banks to hold their own national debt. We should take those considerations into account in designing policy. Far be it from me to suggest that the considerations we're pointing out are the only ones that should guide regulation, but we think it is an important, perhaps very important, consideration that they should keep in mind. So maybe the European supervisory authorities should think twice before it harmonizes regulations across Europe.

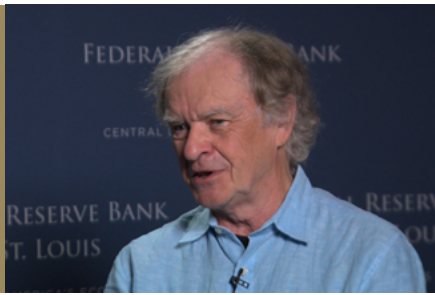
### The paper's main takeaways, according to Chari:

- Good economics always has the property that things that seem like a puzzle on the surface, through deeper analysis, turn out to be less of a puzzle.
- Good applied economics has useful and interesting policy recommendations, and I hope our paper has that as well.

To watch the interviews from the conference, visit [stlouisfed.org/connecting-policy-with-frontier-research/2014](http://stlouisfed.org/connecting-policy-with-frontier-research/2014).

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# JOHN KENNAN

Richard Meese Professor of Economics, University of Wisconsin, Madison

**Paper:** “Spatial Variation in Higher Education Financing and the Supply of College Graduates”

## ANDOLFATTO

Can you tell us a little bit about the questions that you are pursuing in this investigation here?

## KENNAN

There’s a lot of money spent on financing higher education, mainly by the states in the U.S., and the amount of money spent is quite variable from one state to another, even for states that are quite close by, for example, North and South Dakota.

The question that I’m interested in is what the states are getting for the money, that is, what the effects are of the differences in spending, and in particular whether a state that allocates a lot more money—by way of spending on the colleges in the state or subsidizing the tuition payments for the students—sees a change in the composition of the labor force in the sense that the state has more college graduates sometime later than they would have had if they hadn’t introduced these subsidies.

The issue, to a large extent, is whether the intervention that affects college enrollment decisions actually sticks in the place where it’s applied. There is an incentive for people to move toward labor markets where they can, obviously, get the highest return for their education. So if a state subsidizes its students to acquire college degrees, the students might wander off and go use that human capital in some other place.

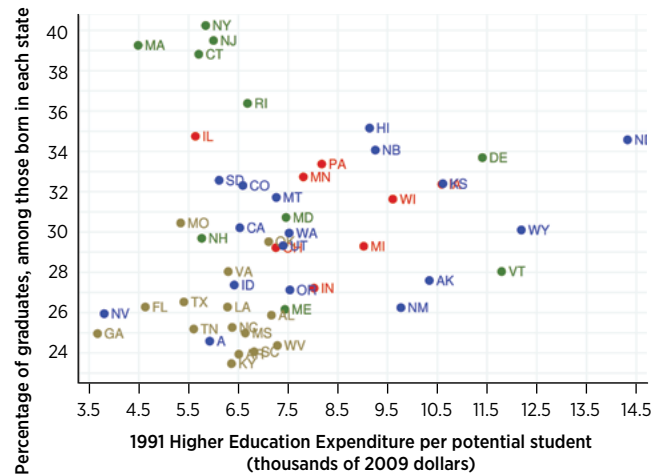
## ANDOLFATTO

It would seem odd that a state would subsidize its education for students within the state only to see them leave. What do you find? What do you discover? What is the answer to the question of why this heterogeneity exists?

## KENNAN

The effects are quite substantial in terms of the choices that students are making on enrollment, not just in terms of completing college degrees, but enrolling in two-year colleges or community colleges and emerging with at least a partial university education. So on that margin, these policies, both changes in expenditures and also changes in tuition levels, have substantial effects. But there’s not much indication that the effects are dissipated through migration. These are people, particularly the college graduates, who migrate a fair bit.

## Higher Education Expenditures and Human Capital Distribution



The exercise I do in the paper is to look at the distribution of people at age 36, starting at 19, making enrollment decisions along the way and then making migration decisions, and just count the number of college graduates at age 36, the number of people with some college and the number who are just high school graduates.

And the effects seem to stay where they’re applied. Something on the order of a 20 percent change in tuition or subsidies gives rise to something like an 8 percent increase in the number of college graduates in the state sometime later, like 15, 17 years later. So the migration activity is pretty active, but it doesn’t undo the effects of these subsidies.

I should say these are preliminary estimates built on a model that uses individual survey data from the Labor Department. And the estimates so far have been done just for a single state. But that’s the finding.

## ANDOLFATTO

You mention in the introduction of your paper that this is not the first paper to investigate these types of questions. But what’s distinctive in your paper is that the migration is explicitly modeled. What do you mean by that? How do you distinguish what you’ve done here vis-à-vis what’s been done elsewhere earlier in the literature?

**KENNAN**

There are two kinds of things that have been done. One is to look at the effects of specific tuition subsidy programs, where there are, for example, merit scholarships given out to selected individuals. I think Georgia was the first state to do this, and a number of other states have introduced it, the HOPE Scholarship.

What was measured was the effect of that kind of a subsidy on the decisions that these students would have made regarding going to college or not. The effects that were found were quite substantial, but that doesn't answer the question of where these people will end up. And it doesn't answer the question of what happens when you do that kind of subsidy for everyone in the state, not just for a select few.

The other kind of work that's been done is to consider looking at just a count of the number of new college graduates or the number of new M.D. degrees produced within a state, and then when there is a surge in the flow of new graduates, come back maybe 10 years later—this is a paper by John Bound and co-authors at the University of Michigan—and ask, "Does that surge in the flow of new graduates correspond to a substantial increase in the stock of college graduates 10 years later in the state?" And the finding there was that it really doesn't tend to stick if you measure it that way.

What's distinctive here is not just to take the flow as something that's given for some extraneous reason, but to try and think about what would happen if you deliberately change the flow of new college graduates by means of a specific policy intervention, and then, rather than just doing a count of what the numbers are now and 10 years later, keep track of how individuals make these choices, both choices about whether they go to school and choices about where they want to live and work.

**ANDOLFATTO**

**So your model helps identify the reasons?**

**KENNAN**

It certainly keeps track of the reasons that people are making the choices, and it allows you to think about the choices that they would make under alternative arrangements and alternative policies that they might face.

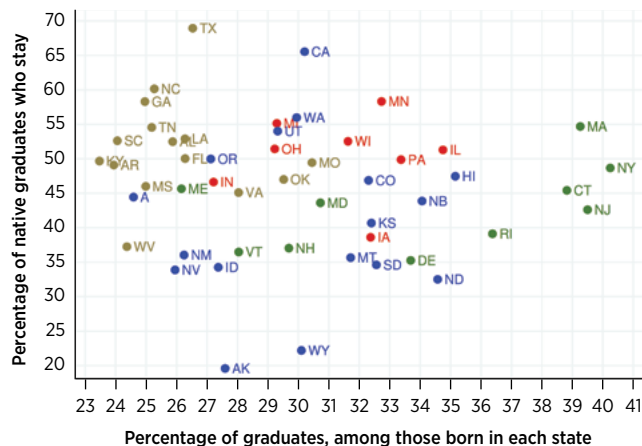
**ANDOLFATTO**

**Does your paper speak at all to the reasons for the variation that we do see in subsidies?**

**KENNAN**

Not really, and that's somewhat mysterious. The subsidies, the amount of money that's allocated for higher education is very substantial. And, of course, that has to be financed by taxes on the residents of the state. So the people who end up

**Migration**



as college graduates are in some sense paying for themselves, but the people who end up not going to college are also paying for the college graduates.

These kind of policies involve an implicit transfer from people who don't have so much money to begin with and giving the money to people who already have quite a bit, so a transfer from someone who is a high school graduate to someone who is a college graduate. That's a little surprising to see. To see that these decisions are made very differently across the U.S., that's not something that the paper really addresses. Indeed, it treats those variations as the outcome of some, perhaps political, process where it's largely accidental how the numbers turn out. But that's a very interesting question in its own right.

**ANDOLFATTO**

**Perhaps not this paper, but this line of inquiry you're pursuing, how might it feed into the policy debate? How might it inform policymakers? Do you see any role for your findings in how educational policies might be designed going down the road?**

**KENNAN**

I think it brings up the question of whether it's beneficial for the residents in the state as a whole to augment the level of education in the state labor force. You will see the argument made that, by having a more educated workforce, everybody benefits, not just the people who have the extra education, but that it spills over to the others in the state as well. It creates jobs. It enhances the labor market in some way.

I don't really get into that in this paper, but, certainly, you want to know—if that's your view of how the labor market works—whether these large expenditures are actually going to pay for themselves in the long run through some mechanism like that.

## ANDOLFATTO

There are many ways to attract human capital to a locality, such as offering an environment that's conducive to entrepreneurs or startups, that would be independent of where they were educated. But I think what you're getting at here is the suggestion that the homegrown talent is eventually going to come back, that the locals who are financing this endeavor can rest assured that your findings suggest that they will be coming back and contributing.

## KENNAN

One thing that's really important in looking at migration data is that there is a very strong tendency for people to want to live where they grew up. They will leave in many cases, but they'll often come back. So if you're trying to change the composition of the workforce in the state, you might try to do it by attracting college graduates from other places, but it's likely to be much more effective to produce more college graduates from your home population, because those are the people who are most inclined to be in this location in the long run.

## The paper's main takeaways, according to Kennan:

- The decisions that people are making seem quite purposeful.
- If you think about the reasons that lie behind the choices that people make about going to college or not, going to college for a year or two and whether to continue, or going to a community college and finishing in a four-year college, there seems to be some evidence that these choices are quite systematic and that the subsequent migration choices are similarly quite systematic.
- You can actually predict what the consequences of changes in different policy variables will be, and I think that's encouraging.

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## ROSS LEVINE

Willis H. Booth Chair in Banking and Finance, Haas School of Business, University of California, Berkeley

**Paper:** “Competition and Bank Opacity”  
(with Liangliang Jiang and Chen Lin)

### ANDOLFATTO

**Would you mind telling us about your paper?**

#### LEVINE

I want to investigate what happens to the quality of information that banks disclose to the public and to regulators after regulators reduce impediments to competition among banks. So the general issue is: If there’s a regulatory change that allows banks to compete with each other, so one bank can enter another bank’s market, does that have an effect on the quality of information that they disclose?

### ANDOLFATTO

**Quality in the sense of the quality of their balance sheet, the information contained in the regular statements required?**

#### LEVINE

All firms, all corporations, including banks, have income statements and balance statements where they describe how much profit they’re making and what their assets are. And they can do things with their accounts to make themselves look a little bit better or look a little bit worse.

When we talk about information disclosure, it’s the degree to which they are manipulating that information in order to perhaps pass muster with the regulators on capital requirements or in order to look a little bit better in terms of profits. Or they could even make themselves look a little bit worse if they want to discourage new entrants as a way to signal that the market’s not very profitable.

### ANDOLFATTO

**What particular regulations do you have in mind here, or deregulation?**

#### LEVINE

We look over a particular period in the U.S., starting in the mid-1970s and going through to about 2000, when there was a series of regulatory reforms that reduced impediments.

For example, one type of reform eliminated restrictions on banks being able to set up branches within their own state.

For a long time in the U.S. and in many states, there were restrictions on how many banks, how many subsidiaries, how many branches a bank could actually have. Those were removed, and that meant if I was in one part of the state and you were in another part of the state, I could set up a branch and compete with you. And that was disallowed before by regulation.

Then there were other regulatory changes. For example, if I’m in California, you’re in Missouri, and you want to open up a bank in California, for a long time in the U.S. for most of the 20th century, you couldn’t do that. And these restrictions were removed.

There were a variety of other restrictions that slowly allowed banks to be able to compete with each other more vigorously.

### ANDOLFATTO

**Regulations come. They wax, and they wane. Is there a presumption of what additional competition or the lack thereof has in terms of bank opacity?**

#### LEVINE

What’s nice from a research perspective, and I think also from a policy perspective, is that it could go either way.

For example, many people argue that competition improves efficiency. If this bank is going to be under threat, then its investors—potentially both bondholders and stockholders—are going to monitor that institution much more carefully and perhaps induce it to provide much more accurate information and not play around with the numbers.

At the same time, if a bank or another firm is under a threat, insiders may see that their horizons are short, and they may want to manipulate the information more intensively in order to get bonuses because the firm’s long-term prognosis is not so great.

From a theoretical perspective, it could go either way. This has implications for us today because it’s about what types of policies are going to make it easier for the private sector to assess what’s going on at a bank, and also for regulators.

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“We get measures of how much of this type of restatement is taking place before a big change, how much is taking place after or in the earlier measure where we have a statistical model, and we assess how much of this manipulation seems to be taking place and whether it changes. What we find is that it’s a very big change. It goes down by about 40 percent.”

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#### **ANDOLFATTO**

**Yours is largely an empirical investigation. There’s a broad class of theories that can go one way or the other. And now you’re taking a look at some evidence. What evidence in particular are you looking at?**

#### **LEVINE**

What we do is we look at these regulatory changes that take place in different states over different times, and we have measures of the degree to which the bank is manipulating its information before there was a regulatory change, and then we see what happens afterwards.

#### **ANDOLFATTO**

**Give an example of evidence that you have of manipulation, how you can identify that in your data.**

#### **LEVINE**

The accounting profession has many models of trying to predict or explain loan loss provisions. Loan loss provision is when a bank takes aside some money and puts it into an account and says, “We’re worried that some of our loans may not pay off, and we want to have this money there just in case there’s a problem.”

When the bank does that, it lowers its income in that period, and it increases measures of capital. The bank can use that type of discretionary loan loss provisions. Maybe they don’t really need to have loan loss provisions, but they do it anyway. Or maybe they want to boost their profits and look better to potential buyers, and then that way they’ll take money out of loan loss provisions, and that comes in through the income statement and looks like a profit.

#### **ANDOLFATTO**

**But how can you tell whether this loan loss provisioning is well-intentioned, or just for window-dressing purposes?**

#### **LEVINE**

There are two ways we do this. One way to do this is through a statistical model, and this again comes from the accounting profession. We predict—using all the information we can—what we expect loan loss provisions to be, how much we think banks are going to put aside. Then, we look at the difference between our prediction from a model and whatever’s left over. We can see whether that amount of ignorance, that measure, changes systematically before and after a bank faces competition.

The other way we do it is that banks also will restate their earnings. What that means is they put together their loan loss provisions. They release this information to the public—income statements and balance sheets. Then sometimes a few quarters later, they’ll go back and they’ll say, “Oops, we’re going to restate it.” So we also look at that, because that’s a very direct measure of whether the bank had to change its accounts ex-post.

#### **ANDOLFATTO**

**Restating financial reports is very common, but you’re trying to discover whether this occurs more systematically under one regulatory regime vis-à-vis another, I guess.**

#### **LEVINE**

Exactly. We get measures of how much of this type of restatement is taking place before a big change, how much is taking place after or in the earlier measure where we have a statistical model, and we assess how much of this manipulation seems to be taking place and whether it changes. What we find is that it’s a very big change. It goes down by about 40 percent.

#### **ANDOLFATTO**

**It goes down because of the regulations that permitted more competition in the United States? These measures go down?**

#### **LEVINE**

Exactly. What happens is the measures of competition go up. So as regulators remove barriers to competition, I can come over to your neighborhood. You can come to California. What we see after that is, both you and I, because we’re subject to greater competition, we manipulate our earnings less. We restate our financial accounts less frequently.

#### **ANDOLFATTO**

**According to your estimated model of loan loss provisioning, you estimate that this kind of window-dressing tool is used less frequently in a more competitive**

**regime? So your empirics lend support to one side of the theoretical debate and argue that increased competition promotes transparency?**

#### LEVINE

Correct.

#### ANDOLFATTO

**Do you have a view as to whether this is a good thing? There are cases that could be made that some degree of opacity is kind of desirable—like the Fed, for example, does not disclose the identity of, say, the agents who make use of the emergency lending facility, or at least delays the disclosure. Do you have a view, or does your analysis suggest anything, about the desirability of these types of increased competition leading to greater transparency?**

#### LEVINE

There's a long series of papers that examine the relationship between bank opacity—or the degree to which banks manipulate their accounts, the degree to which there are restatements of their earnings—and bank performance. What I mean by bank performance is you'll see that banks tend to be less stable, more fragile, when they manipulate their earnings more. And this exists in other firms as well.

You also tend to see that lending becomes less efficient and much more subject to the vagaries of the business cycle when banks are more prone to manipulate their earnings or restate their financial accounts.

Regulators also have a harder time following the banks when their financial accounts are not as accurate as they could be. So there seem to be these implications for bank behavior of the degree to which banks manipulate their earnings. Our contribution is to assess this question: Well, this one type of policy change—whether increased or decreased competition—what was its impact on the bank? And it's the degree to which it manipulates earnings.

#### ANDOLFATTO

**Let's take a look at the Canadian banking system in particular, which most people would characterize as less competitive than the United States. And yet it's widely known that it displayed much more resilience during the recent crisis in particular. Do you have any views on that? Have you looked at other countries?**

#### LEVINE

In this particular study, I haven't looked at other countries. One of the nice things about looking at U.S. states is that we can hold lots of other things constant. Obviously, if you look at Canada and you look at the United States, the differences are going to be much more substantial. And it's hard to isolate the effect of one thing, like competition.

#### ANDOLFATTO

**So competition is good for transparency, and transparency largely provides a more resilient, more accountable banking sector.**

#### LEVINE

Yes, and I think it's relevant for today, because especially after the crisis, we have greater consolidation, perhaps a feeling of "too big to fail" on the part of investors and banks. This might be interpreted as an increased regime in which there's less competition.

What this paper talks about is not just the history from the '70s and the '80s, but it also speaks to what's going on now in terms of regulatory policies that might infringe on competition and the contestability of markets.

#### The paper's main takeaways, according to Levine:

- Competition tends to reduce lots of inefficiencies in banks.
- We should be worried about policies and developments that are going to reduce competition among banks.

To watch the interviews from the conference, visit [stlouisfed.org/connecting-policy-with-frontier-research/2014](http://stlouisfed.org/connecting-policy-with-frontier-research/2014).

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## IOURII MANOVSKII

Associate Professor of Economics, University of Pennsylvania

**Paper:** “Demand Stimulus and Inflation: Empirical Evidence”  
(with Marcus Hagedorn and Jessie Handbury)

### ANDOLFATTO

**You’re looking at some empirical evidence behind the relationship between demand stimulus and inflation. Can you tell us a little bit about the exact question you’re addressing?**

### MANOVSKII

If you don’t mind, I’ll start a little bit further back, which might be helpful.

If you look at what happened in the U.S. economy in 2014 until now, what surprised a lot of people was an unexpectedly strong recovery of labor markets. Unemployment declined substantially and employment increased substantially, so there is a roughly proportional flow of people from unemployment into employment. Vacancies are at an all-time high.

What caused this unexpectedly strong recovery? One thing that comes to mind is that, in January 2014, massive extensions of unemployment benefits, which started during the Great Recession, came to an end. And it could be that somehow that expiration of unemployment benefits caused the recovery in the labor market.

So how would the story work? It’s very simple. When you provide benefits to people, people tend to demand higher wages in equilibrium, so wages go up. If productivity of workers stays the same, but firms have to pay higher wages to those workers, they have to hire fewer workers because profits decline and job creation goes down. That’s not to say that people are lazy. It’s not to say that people don’t want to work. Everybody wants to work. It’s just in equilibrium firms know that after they hire workers they will have to pay higher wages relative to workers’ productivity, and that causes a decline in job creation, an increase in unemployment and a decline in employment.

This was the theory assessed in the paper that I wrote a year ago with Marcus Hagedorn, Kurt Mitman and Fatih Karahan where we very carefully measured the effects of unemployment benefit extensions and found very sizable negative effects on employment. Unemployment benefit extensions also increase unemployment and cause a decline in job vacancies.

### ANDOLFATTO

**Negative in those measures, but the insurance aspects could have had positive effects?**

### MANOVSKII

Exactly. One of the aspects in which our research was criticized was as follows. The argument was made by the Council of Economic Advisers and by the Congressional Budget Office that, “Look, unemployment benefit extensions is one of the best stimulative policies out there. It provides money to people, who would spend that money, will stimulate aggregate demand, will stimulate the economy and could have substantial positive effects on the economy.”

And so the real motivation for this paper is trying to evaluate, “Is it really happening? Is the effect of unemployment benefit extensions on demand stimulus really as big as the models that policymakers are using suggest it is?”

### ANDOLFATTO

**You’re asking if the demand stimulus effect of, say, extending unemployment insurance benefits is as large as these models suggest. But what does the evidence suggest, first of all?**

### MANOVSKII

It’s very hard to measure the effect of stimulus and to know directly whether stimulus has a big effect or a small effect. Suppose there is a state that has a lot of unemployment. You increase stimulus there, and you see that the economy recovers a little bit. It’s not clear if it recovers a little bit due to stimulus and the stimulus effect is not too big, or maybe the conditions in that state or that location were bad and maybe even becoming worse. So it’s generally very difficult to tease out how big this effect is.

And this is not what I’m doing in this paper. Instead, what I really want to assess is the quality of the models that policymakers are actually using and that generate big effects of stimulus. Are those models consistent with what we observe in the data or not?

### ANDOLFATTO

**So the models that justify, in policymakers’ minds, the positive effects of these types of stimulus programs, you’re**

**interested in taking their models and interpreting the evidence to see to what extent their models are consistent with this idea that this type of stimulus in particular is effective. Is this the idea?**

#### MANOVSKII

That's an excellent description of what we do.

#### ANDOLFATTO

**Tell us exactly then: What do you do, and which model do you have in mind of evaluating?**

#### MANOVSKII

Let me explain how standard models work and how policymakers usually think about it. Their reasoning is usually based on models in which prices are sticky. That is, there is some friction that prevents firms from adjusting prices. Now, suppose you provide money to people, and they spend this money to buy stuff. This increases demand that firms face, so firms, given that they cannot adjust prices, sell more.

What happens? People know that eventually firms will adjust prices, so prices will go up. And now consider the case of the zero lower bound on interest rates or the notion of the liquidity trap, which a lot of people argued characterized the economy in the last few years. Simply put, the idea is that the nominal interest rate is fixed at some low level.

And so then if you expect prices to go up, it means that you want to buy today. You don't want to delay your purchases into the future. In more formal economics terms, it means that real interest rate has to decline today, and this induces people to go out and buy stuff today. And this reinforces the effect of the original stimulus. People go out, they spend more, it amplifies the effect, and you can generate big stimulative effects from these policies.

#### ANDOLFATTO

**In the context of these models that you're interested in evaluating, when the nominal interest rate is at its lower bound—which it is today—this type of stimulative program means: You write checks for people. They're going to spend more. Firms are going to increase their production, and people are going to foresee that prices are going to rise in the future...**

#### MANOVSKII

And they want to spend even more today.

#### ANDOLFATTO

**So this induces them to spend now before the prices rise?**

#### MANOVSKII

Exactly. And why it might not happen outside of the zero lower bound is that it could be that monetary policies of central banks can undo some of those effects otherwise.

#### ANDOLFATTO

**So this type of stimulus program will generate an inflation. That's what the standard model predicts. How do you evaluate this?**

#### MANOVSKII

That's exactly where this paper comes in. We want to see whether unemployment benefit extensions—so spending on benefits—really changes inflation in the way that is consistent with these models and in the way that is consistent with big, sizable stimulative effects of those policies.

We identify counties in the United States which belong to different states but border each other. Now, unemployment benefit extensions are set at the state level. When economic conditions trigger unemployment benefit extensions, they are extended at the state level and apply to all counties within the state. This is the key part: It's not the economic conditions of a particular county that determine unemployment benefits in the state. It's the total effect of the economic conditions in the state that determines the benefit policy that applies to all counties. And then by looking at two counties that border each other but belong to different states, we can isolate the effects of spending on benefits by observing what happens to prices and inflation. In those locations, we can identify the effect of stimulus spending on inflation.

#### ANDOLFATTO

**So the idea is to consider two counties that border each other that are in different states and consider one state that, say, enacts an unemployment insurance extension program. Then, you want to study the behavior of these two counties that border each other to see if they react differently. And suppose they react differently. What do you discover then?**

#### MANOVSKII

In the class of models that policymakers are using, there is a particular mathematical relationship called the New Keynesian Phillips curve. It has a very intuitive interpretation. It says that inflation today is proportional to how costly it is for firms to produce the last unit of output they are producing plus expected inflation tomorrow.

#### ANDOLFATTO

**So inflation is a function of what firms believe to be the costs of production, not only today but also...**

#### MANOVSKII

Going forward, because remember prices are assumed to be sticky. If prices are sticky, it means firms may not be able to adjust prices for some time even if their costs of production change.



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“By looking at two counties that border each other but belong to different states, we can isolate the effects of spending on benefits by observing what happens to prices and inflation. In those locations, we can identify the effect of stimulus spending on inflation.”

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### ANDOLFATTO

**So they have to make a forecast of how their costs are going to evolve in the future. How does this relate into extension of unemployment insurance program?**

### MANOVSKII

Extensions of unemployment insurance programs mean that you provide a transfer. Recall it's very important that these extensions are financed at the federal level.

When the unemployment benefits go into a particular county, it's a pure transfer of resources into that county. When the resources enter the county, you would expect prices to go up, and you would expect marginal costs of the firm to go up because now firms have to hire more workers, they have to ramp up production and costs of doing so go up.

### ANDOLFATTO

**What you're saying is that the unemployment insurance benefits extension in the one county should stimulate more inflation vis-à-vis the neighboring county that did not. That's the implication of the theory?**

### MANOVSKII

Yes, but with one caveat. It's very important to measure inflation in a way that is consistent with the model. It's not just pure inflation. It's so-called quasi-differenced inflation. It's inflation today minus expected inflation tomorrow. It's this object that is related to the cost of producing for firms in the model. By looking at the data through the lens of the model, it's this change in prices that informs us about the changes in costs of firms and about the potential size of stimulative effect.

### ANDOLFATTO

**What sort of data do you have that permits you to identify this object?**

### MANOVSKII

We use Nielsen retail scanner data. It's a dataset which has approximately 40,000 retail stores, and we see the sales of all the goods they sell at a weekly frequency, the volumes they sell and the prices at which they sell each good.

When we look at those prices, they do not evolve in the way that the standard model would predict. In particular, the evolution of prices suggests—if you interpret that evolution of prices through the lens of the standard model with sticky prices—that the costs that the firms are facing are not affected by fiscal stimulus. This basically means that fiscal stimulus or transfers of resources to a county do not drive up the costs of the firms, they do not drive up expected inflation, and so they cannot have any stimulative effect.

### ANDOLFATTO

**It had no effect on inflation, but these unemployment insurance checks, did they stimulate spending?**

### MANOVSKII

Yes.

### ANDOLFATTO

**Without driving up marginal costs?**

### MANOVSKII

Again, it's a little bit of a subtle question. They do not drive marginal costs or costs to the firm only if you measure those costs the way the models the policymakers are using tell you those costs have to be measured.

You can measure it in a much simpler way. For example, you can ask, “Do total sales of firms increase when consumers in a county receive transfers?” And the answer is yes, so those transfers do increase sales and consumer spending.

You can also just look at prices, without measuring them in a way consistent with those models, that is, without taking the difference between the prices and expected prices tomorrow. If you just look at prices in this way, you see a fairly strong response. Prices do go up in counties that receive transfers.

In this sense, there are stimulative effects of these policies. If you try to interpret those effects through the lens of sticky price models on which policymakers rely, you would say that those effects are not there.

### ANDOLFATTO

**That's a very subtle point you're trying to make. What you're suggesting is that these types of programs may be stimulative but not for the reasons that policymakers typically think. Would that be fair?**

## MANOVSKII

That's a fair interpretation. Essentially, if you really believe in the class of models that policymakers are using, those policies are not stimulative, or they're stimulative but not for the reasons underlying those models.

It's natural to expect some stimulative effect even if you take a pure, frictionless model with no frictions on prices, for example. In those models, transferring resources to a particular county would stimulate spending at least to some extent, so you would expect some effect along the lines of what we find. What you do not find is this big amplification of the effect through the sticky prices mechanism underlying policymakers' thinking.

## ANDOLFATTO

**The policymakers that are relying on these types of models to organize their thinking on other matters, they may be flawed I suppose is what you're saying. Are there competing models that might do better? Do you talk at all about them?**

## MANOVSKII

We do some. In particular, we look at one class of models which also feature pricing frictions: the sticky information-type models. The idea there is that once in a while, let's say, the grocery store managers make a forecast of how they expect the economy to evolve. They program their computers, they program a pricing plan, and so there are prices that evolve over time according to those pre-specified plans. And people infrequently update those plans in light of the new information that they collect. It's just too costly to do it very often, so people only update those plans occasionally.

## ANDOLFATTO

**There's a competing model that potentially does better. There's the conventional one that doesn't do so well. What sort of mistakes might policymakers make by relying on this model vis-à-vis the one that you just described that does a bit better? Would they imply different types of approaches to stimulus?**

## MANOVSKII

The question is, "How big are the effects of stimulus?" The sticky information model would predict much smaller effects of stimulus than the original model, so the wisdom of stimulative policies could be called into question.

## ANDOLFATTO

**How many data points do you have in your paper in the dataset?**

## MANOVSKII

A lot. In the dataset on prices we have 76 billion observations. It's a massive amount of data.

### The paper's main takeaways, according to Manovskii:

- A lot of well-intentioned policies could have very negative impacts which counter the original design. For example, the policy of unemployment benefit extensions—either motivated by its potential stimulative effects or by the desire to help unemployed people—may actually hurt unemployed people.
- This is not because the unemployed are somehow lazy. On the contrary, unemployed people are desperate to work. However, unemployment benefit extensions improve workers' well-being when they are out of work. This puts an upward pressure on wages of those employed. Faced with a fixed level of workers' productivity but higher wages due to the policy, firms are not creating jobs because it becomes more difficult to cover the costs of job creation. And those unemployed simply do not get a chance of having a job. So the well-intentioned policy which tries to help unemployed people can actually hurt unemployed people and hurt them substantially.
- We have to be really, really careful about thinking and understanding the effects of these policies. In particular, the models on which policymakers rely and which imply large stimulative effects are not consistent with the data.

To watch the interviews from the conference, visit [stlouisfed.org/connecting-policy-with-frontier-research/2014](http://stlouisfed.org/connecting-policy-with-frontier-research/2014).

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## GIUSEPPE MOSCARINI

Professor of Economics, Yale University

**Paper:** “Did the Job Ladder Fail After the Great Recession?”  
(with Fabien Postel-Vinay)

### ANDOLFATTO

**Describe for us what exactly a job ladder is and what it means for it to fail.**

### MOSCARINI

I think everybody understands that there are high-paying jobs and low-paying jobs, and, in life, people slowly climb what we call a job ladder, meaning they slowly and by luck, by and large, find these higher paying jobs and occasionally fall off the ladder. They get fired, and this has long-lasting consequences for their earnings for a long time.

What we do in this research project, with my co-author Fabien Postel-Vinay from University College London, is look at what this job ladder implies for business cycles, why so many people lose jobs in recessions, why it takes so long to regain employment out of recessions and why the job recovery has been so slow. In past work, we actually looked at many recessions and many business cycles in many countries. In this work, we actually focus on the Great Recession, on the last cyclical episode, and we do find something different.

Let me tell you a little story for basically what we distilled out of the research project and why the Great Recession is different. When unemployment is high, it's actually easy for firms to hire. There are plenty of people knocking on the door. It's actually particularly easy for small firms, which are low-paying firms, to hire. They don't lose workers to other firms, there is no poaching, there are no quits, everybody is desperate for a job, and so small firms are relatively unconstrained.

When unemployment is low—as hopefully it will be in the U.S. in a year or so, as it's already falling—it gets much harder for firms to hire. So large firms start poaching people from small firms and the job ladder really picks up. This is what we see in the data. Small firms, as a consequence, actually do relatively well relative to large firms in recessions and early recoveries. So small firms actually are the engine of job creation, as many people say, but only when unemployment is high, which is probably when jobs are needed. And when the economy tightens, large firms are actually leading the charge, and that's where wages really rise.

Now, the Great Recession has been different. Something happened, something we don't actually dig into, that made

small firms suffer more than in previous episodes. Overall, they still did just as badly as large firms, but usually they do better in recessions. This all sounds counterintuitive, because most people have in mind that small firms are the ones who suffer more in recessions. Their credit is tighter, but the data speak quite strongly in favor of the pattern that I described.

In this particular recession, small firms did suffer. What happened was that there was no room created at the bottom of the job ladder because the small firms were suffering. They were not hiring, large firms were not poaching, the job ladder stopped working, and so these jobs at the small firms—which are the typical gate of entry for unemployed into employment or re-entry for the unemployed into employment—didn't open. These jobs at the bottom were not there.

Now, why is that? Why did this happen? We have different conjectures about why these quits declined. People maybe were scared about quitting their job and taking a gamble without a job because unemployment was so bad. But that's essentially what happened.

Then we looked at a host of data to corroborate this story, and we actually find that the movement of people up the job ladder is probably the one indicator of the labor market that has still not recovered. Unemployment has come down, employment has gone up, hiring rates are healthy again, but the job-to-job quit rate is still almost as low as it was five or six years ago.

### ANDOLFATTO

**So it's the large firms that are still not hiring and that are stopping the job ladder from working? They're not poaching?**

### MOSCARINI

They are not poaching until recently, mostly because unemployment was still high, so it was relatively easy to hire. You know, poaching is costly. You have to hire somebody out of another firm. You have to pay them more. As long as there are unemployed out there, firms tend not to do that and essentially poaching increases both when there are lots of people to be poached because they work at low-paying jobs and when you run out of the unemployed.

### ANDOLFATTO

**The Great Recession was not just a scaled-up version of what happens in previous recessions. Something different happened. Could you reiterate what was different?**

### MOSCARINI

That's exactly the point of the paper. What was different was that small firms suffered more. They suffered more relative to previous recessions and relative to large firms. So the experience of small firms was unusually painful. Large firms still did pretty badly, but usually they do worse. This time it was really across the board.

### ANDOLFATTO

**I guess you speculate on why that may be, that small firms may have been disproportionately hit this time relative to history. Does it matter why, for the story you're telling?**

### MOSCARINI

To some extent, it doesn't. Our story is not about what caused all this. It's why employment is not recovering fast. So this idea that there is a ceiling, there's something keeping employment from climbing this ladder. Now, if we want to speak about the causes, which I think is important, we know this has been a financial-crisis-caused recession. There are plenty of reasons why small firms have a harder time having access to credit. And so this time, they may have been particularly affected by the recession, more so than in previous ones.

What was not, I think, understood previously is that this was set in motion, this chain of events where these allegedly low-paying bad jobs disappeared. But these are actually important jobs because they, again, allow the unemployed to restart the process of regaining their earnings, and this time it didn't happen. We believe it's no coincidence that wages have not responded. So the one thing that's still flat is wages, and we have seen in previous recessions that wages will recover when large firms will start poaching. Until that happens, wages are going to just stay flat.

### ANDOLFATTO

**A lot of theories have this property that unemployment will spike and then show a gradual decline just because it's very easy to destroy relationships and costly to build them back up. This is a part of your story, but you get into deeper details of exactly how this is working, I presume. Does this imply anything specifically about the way policymakers might want to design policies relative to kind of a more naïve view of how this process is working?**

### MOSCARINI

I'm glad you asked, because we have some strong claims about policy. Actually we think there are ramifications for policy on two dimensions. First, there are well-known policies that cater to small businesses. The Small Business

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“We actually find that the movement of people up the job ladder is probably the one indicator of the labor market that has still not recovered. Unemployment has come down, employment has gone up, hiring rates are healthy again, but the job-to-job quit rate is still almost as low as it was five or six years ago.”

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Administration is one example. They provide loan guarantees and subsidized loans to small firms.

Now, we think we should also consider the hiring constraints the small firms face, and that those actually tighten in expansions, in booms, not in recessions. This idea that small firms need help in recessions because they can't have access to credit is only part of the story. Facing this hiring constraint actually seems to be, on average, stronger and more important. They have a hard time hiring and a much harder time retaining talent in expansions. So in a broad sense we may want to rethink some policies that are designed in terms of firm size.

Now, more specifically, and that's another policy implication, like I said, we think that wage growth is intimately related to this pattern of growth of large and small firms. Large firms pay much more, and a lot of wage growth that people experience comes through changing jobs and being hired by better firms.

We actually have a conjecture that the monetary authority should stop looking only at unemployment as an indicator of slack for wage growth and should actually start considering and looking carefully at the job-to-job quit rate, because the two are not perfectly related. There are situations like the current one in which unemployment is reasonably low by now, but this quit rate, this job ladder is not working yet. In these cases, we should not expect wage growth, so we should not tighten monetary policy if that's what the Fed believes should be done. We think that this job-to-job quit rate should be a central indicator to monetary policy because it predicts wage growth better than employment itself.

### ANDOLFATTO

**The job ladder mechanism that you describe and model in your paper, does it work well? Is it performing a social**

**function? Is there any reason to believe that it's not performing as it might in an ideal situation?**

### **MOSCARINI**

There are several different reasons why the pace of reallocation may not be ideal. Again, on average, people gain from upgrading. They're moving to more productive firms, so it's socially desirable to promote the job ladder. In that sense, it's probably not a good idea to prevent large firms from poaching workers from small firms. What we might want to think about is helping small firms hire the unemployed because high-paying jobs are in high demand by the unemployed and employed. It's hard for an unemployed to get a high-wage job, because the employed are competing for that. There's a lot of congestion.

And so although these low-paying jobs are not as high paying as the other ones, they do let the unemployed back into the labor force. And so it may be a good idea not to interfere with the upgrading, with the quits, but if there's any reason why the job flows are too slow and the job recovery is slow, there may be reasons to subsidize hiring of the unemployed by small firms and that creates the opportunity for workers to upgrade.

### **The paper's main takeaways, according to Moscarini:**

- The behavior of firms of different sizes is very important to understand what's going on. We don't want to look only at aggregate employment. We want to look at which kind of firms are hiring.
- It is not always small firms that suffer in recession.
- This last time was unusual. Small firms did suffer more, and I think we have been paying the price all along in the last five years because it made it harder for people to get back into employment. Hopefully, we are now at the turning point where large firms will hire and wages will rise.

To watch the interviews from the conference, visit [stlouisfed.org/connecting-policy-with-frontier-research/2014](http://stlouisfed.org/connecting-policy-with-frontier-research/2014).

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## CASEY MULLIGAN

Professor of Economics, University of Chicago

**Paper:** “The New Full-Time Employment Taxes”

### ANDOLFATTO

**Tell us what the paper’s about. What are the set of questions you’re interested in addressing here?**

### MULLIGAN

I’m looking at the health reform or Affordable Care Act, as it’s sometimes known. It has a number of taxes in there, but I focus on the two that turn out to be the biggest, and I think, often, the most underestimated or even overlooked. The first would be the employer penalty, and that’s levied on large employers that don’t offer coverage to their employees, starting next year and really going into full force in two years.

The second tax would be an implicit tax. It’s a benefit withheld from people because they are employed, and, therefore, their employer’s offering them coverage. It involves the withholding of some very generous assistance that came out with the law, but it’s withheld, typically, from people when they work.

### ANDOLFATTO

**And “large employers” are defined as…?**

### MULLIGAN

It’s a complicated definition, but roughly speaking, we could say 50 employees and over.

### ANDOLFATTO

**So these are taxes that are implicit taxes, as you say, that are overlooked by economists, policymakers? People haven’t been talking about them very much?**

### MULLIGAN

The employer penalty has been given attention, but it’s been well underestimated. Because of its tax treatment, it’s actually quite a bit more expensive than the \$2,000 headline number.

From a worker point of view, it’s expensive because it’s anti-competitive. It really discourages employers from having employees. Employee’s wages are going to suffer from that, more than you would think from a more typical tax of that size.

### ANDOLFATTO

**Let’s go back to the size of the penalty, which many people say is \$2,000, the headline. And through your investigation, what do you find? To what extent has it been underestimated? Is it significant?**

### MULLIGAN

It’s been underestimated in two ways. First of all, a lot of estimates put the number of workers that are really affected by it around 10-15 percent. I’d say it’s more like 25 percent. The reason is this anti-competitive aspect to it that employers are discouraged from becoming large. That hurts even employees who work for a small company, because their employer is no longer willing to compete so hard for employees. So that would be one way it’s underestimated.

Then the tax treatment: Because salaries are a deductible expense and penalties aren’t, employers really have to cut salaries by over \$3,000 in order to have that \$2,000 to pay the penalty. Also, it’s not a \$2,000 penalty. It’s indexed to health costs, and health costs have already gone up, so that’s going to creep up on us as well.

### ANDOLFATTO

**I think you mentioned earlier that these are averages that you’re reporting to me right now, but that there’s quite a bit of heterogeneity that will impact various groups differently. Is that correct?**

### MULLIGAN

Yes. It varies across people for a number of reasons, such as their employer tax situation. Some people don’t work for a for-profit employer, or their employer may have a different rate depending on the state they work in. That’s a source.

If you think of the penalty in terms of the number of hours that somebody has to work to create the value to justify the penalty, that number varies. Some workers need to work a lot of hours to create a little bit of value, and other workers create a lot of value in a short amount of time. So, that’s another major difference.

## ANDOLFATTO

Do you actually try to quantify those? How do you do it? And what do you find?

## MULLIGAN

I look at the amount of the penalty, making these adjustments for taxes that I mentioned. Then I ask the question, worker by worker, “How many hours do you have to work to create that kind of value?”

So, a minimum-wage worker, for example, would have to work a day every week of the year in order to create the value that would pay for that penalty that his employer is going to owe for him. One day a week for the government, on top of all the other days of the week we normally work for the government, is a lot.

## ANDOLFATTO

This paper is not one where you investigate the likely behavioral consequences of this distorted tax—implicit or otherwise—from the Affordable Care Act. Do you intend to investigate it further?

## MULLIGAN

I have a book. The front part of the book measures the taxes in many of the same ways as in the paper, and the second half of the book looks at the behavioral consequences.

## ANDOLFATTO

In the system that existed before, you could argue there’s quite a bit of cross-subsidization, in that employees at full-time establishments pay higher premiums to cross-subsidize the uninsured. Presumably, that cross-subsidization will go down if it’s replaced by this ACA. Is this counted as part of the taxes? Are you measuring net taxes?

## MULLIGAN

The paper I had today doesn’t deal with those taxes. The paper I had today only deals with two of the big ones. There are other ones that aren’t as big, and some of them go in the other direction. Maybe you’re alluding to some of those. In the book, I cover them all.

We’re hoping we’re going to have, say, less uncompensated care. And that would have the effect of a tax cut. But it’s not that big. Uncompensated care in the nation is \$50 billion a year or less. These taxes are getting up in the hundreds of billions, so they’re a different order of magnitude. But you have to account for it. If you want to get an accurate answer, you need to account for uncompensated care. And I do.

## ANDOLFATTO

So you’ve written a book. You’ve studied the U.S. health care system, insurance system, in detail. Do you make cross-country comparisons? From what you’ve discovered in your investigation, do you think that there are superior ways to deliver the same product? Or is the ACA messing up along some dimensions?

## MULLIGAN

It’s not quite my expertise. Actually, the title of my book is adopted from Keynes. Keynes wrote *The Economic Consequences of the Peace*, and I wrote *The Economic Consequences of the Health Reform*.

One thing we have in common: We were saying, “Look, we have a document presented to us. What is its impact?” And we don’t address what Keynes called the ideal question: What would have been a better document? I don’t know. I don’t have a better document. I have the document I have, and here are its effects. People should address that, but first thing I think would be good to understand is: The document we were given, what is it going to do to us?

## ANDOLFATTO

So, let’s first understand what the likely effects are of the legislation as it’s passed, and then subsequently, we can debate the merits and the pitfalls and talk about alternative design. That’s your view.

## MULLIGAN

I took that off of Keynes’ playbook.

### The paper’s main takeaways, according to Mulligan:

- I think a Fed audience is interested in two numbers that I come up with: that employment will be 3 percent less—because of the law and all its taxes, especially the two that were emphasized in the paper—and GDP will be about 2 percent less.
- Both of these impacts will be forever or however long the law lasts, and most of that, again, comes from the two taxes in the paper that we talked about in the conference.

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## GIANLUCA VIOLANTE

William R. Berkley Term Professor of Economics, New York University

**Paper:** “What Shifts the Beveridge Curve? Recruitment Effort and Financial Shocks”

(with Alessandro Gavazza and Simon Mongey)

### ANDOLFATTO

**Why don’t you start off by explaining to people what the Beveridge curve is and why anybody should care about it?**

### VIOLANTE

The Beveridge curve is the empirical relationship between the unemployment rate and the vacancy rate. The unemployment rate is the fraction of individuals in the labor force who look for jobs, and the vacancy rate is, loosely speaking, the fraction of idle positions or open positions in the economy. Obviously in an ideal world, in a world without frictions and in our perfectly competitive models, both the vacancy rate and the unemployment rate are zero, because of market clearing in the labor market.

In the data, it is not the case, and in a large class of frictional labor market models, this is not the case, meaning that unemployment and vacancies coexist in equilibrium. Typically in the data, there is a negative correlation between unemployment and vacancies. For example, in an expansion, firms post more vacancies, so the vacancy rate goes up, and workers find jobs at a faster rate, so the unemployment rate goes down. This generates a negative correlation over the business cycle between unemployment and vacancies.

As a consequence, typically, the Beveridge curve, this empirical relationship, is negatively sloped. Now, in the data every once in a while, this correlation changes sign and becomes positive. For short periods, or long periods depending on the country we look at, unemployment and vacancies are positively correlated. This means that we see in the data simultaneous increase in the unemployment rate and in the vacancy rate. This is a sign that there is a deterioration in the way the labor market works, because the fundamental role of the labor market is that of putting together idle jobs and idle workers. If they both increase at the same time, it means that there is a decline in what economists call aggregate matching efficiency, or the effectiveness of the labor market in combining job seekers and idle positions.

After the Great Recession, we did observe one especially significant instance of positive movement between unemployment and vacancies, or in other words, an outward shift in the Beveridge curve. For example, before the recession, an unemployment rate of around 7 percent was associated

with a vacancy rate of, say, 2 percent. After the recession, the same unemployment rate of 7 percent was associated with a vacancy rate of almost 3 percent, so more unemployment and more vacancies that coexist in the labor market.

### ANDOLFATTO

**Is it a common phenomenon during recessions for this Beveridge curve to shift or for this efficiency of the matching process to deteriorate? Or is it something that’s kind of special with respect to the last recession?**

### VIOLANTE

The quality of the data before, say, 2001 is not as good as after 2001, so it’s difficult to make a historical statement about this. If you compare the 2001 recession with the 2008 recession, for which you have high-quality data and comparable data, then in the Great Recession there was a remarkably large shift in the Beveridge curve.

### ANDOLFATTO

**What is the set of questions you’re interested in pursuing in light of the facts of what the Beveridge curve is and how it’s behaved?**

### VIOLANTE

In this paper, we are trying to understand the sources of this observed shift in the Beveridge curve or this decline in aggregate matching efficiency. We have in mind a mechanism that is based on an interaction between recruiting intensity on the firm side and financial shocks. The idea is very simple. The mechanism is based on three observations.

The first observation is that the job-filling rate—meaning the rate at which firms fill vacancies—increases with the firm’s growth rate. In the data, the firms that grow fast are the ones that recruit with the highest intensity or the ones that post their vacancies and spend a lot of resources—advertisement, networking, screening, and so on—in order to get quickly the workers they need.

The second fact is that it’s the young firms that have the highest growth rate and contribute disproportionately to job creation. For example, 20 percent of total job creation is due just to startups, and almost half of job creation is concentrated in firms that are younger than 7 or 8 years old. So



much of the job creation is in the young firms, and these are the firms that grow the fastest and have the highest degree of recruiting intensity.

The Great Recession has been characterized by a financial shock, and this financial shock had a disproportionate effect on young firms. To give you an example, we know that housing equity has fallen dramatically in the Great Recession. Housing equity is a key source of financing for startups, so young entrepreneurs often take a second mortgage on their house in order to finance the startup, at the birth of their enterprise. The inability of exploiting this important source of financing in the Great Recession, has reduced the ability to create new young firms, and those are the firms that recruit with the highest intensity.

So how does that translate into a fall in matching efficiency or a shift in the Beveridge curve? Basically what it means is that even if we do see a lot of vacancies in the data, these vacancies are not associated with a high recruiting intensity. Firms post a lot of vacancies, but they don't recruit with high effort. And so it's possible that we see high vacancy rate and high unemployment rate because the employers are not really looking hard for the workers.

**ANDOLFATTO**

**This is one interpretation of the so-called shift in the Beveridge curve. I suppose there are other interpretations as well. How does yours compare with, say, some prominent explanations? And what are the key strengths of yours versus these more conventional explanations?**

**VIOLANTE**

Another prominent or certainly plausible explanation of the shift in the Beveridge curve is an increase in occupational and geographical mismatch between unemployment and vacancies. The recession hit mostly the construction sector and manufacturing sector, and there were other sectors like, for example, health care that actually kept growing. After the recession, what happens is that you have a lot of workers that are fired from the construction and manufacturing sectors, but the available vacancies are in different sectors. That means that there is a misallocation or mismatch between unemployment and vacancies and that can, again, contribute to this coexistence of a high vacancy rate and a high unemployment rate.

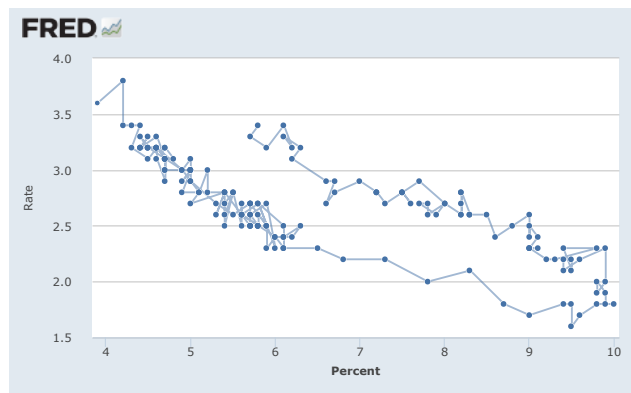
**ANDOLFATTO**

**So basically a structural disturbance that makes matching across sectors more difficult than within a sector. What would be wrong with that interpretation? Would it be complementary with your interpretation?**

**VIOLANTE**

Exactly. I worked on the measurement of mismatch in a separate paper, and we did conclude that that mechanism

**Job Openings: Total Nonfarm, Civilian Unemployment Rate 2000-12 2014-11**



NOTE: The job openings rate is shown on the vertical axis, the unemployment rate is shown on the horizontal axis, and the chart covers the period December 2000 through November 2014.

can explain at most, I would say, between one-quarter and one-third of the drop in aggregate matching efficiency. So there is scope for other explanations, and this is one of the reasons why we started working on this paper.

**ANDOLFATTO**

**There are a lot of people working on this issue: the Beveridge curve, why it's moving around, how to interpret it. What motivates your research in terms of what potential policy lessons might come out of this? Do you think your research might at some point bear on some labor market policies?**

**VIOLANTE**

Certainly, but we are still at a very preliminary stage of the project, so I want to be very cautious in terms of possible policy recommendations. The reason why what we do is interesting from a policy perspective is that there has been a great emphasis, I think, and for the right reasons, in trying to understand what the effect of the generous extension of unemployment benefits was on the unemployed workers' search effort. There was a lot of focus on the job seeker side with the idea that if we're extending unemployment benefits for too long, if the unemployment benefits are too generous, there is a disincentive effect on the unemployed and that can actually prolong the recession.

We're shifting the focus a little bit towards the firms, essentially. We're saying it's possible that it's actually the firms that are reducing their recruiting intensity, their search effort, and the reason is that this recession has been especially detrimental for young firms. If you want a fast recovery, one possible policy prescription, with all the caveats, would be to try to actually foster job creation.

Fostering job creation—which is another point that I think John Haltiwanger makes very clearly in a number of

academic and policy pieces—doesn't mean helping small firms, because there's a big distinction between young firms and small firms. There are a lot of small firms that are not young that don't have any growth potential. I think about the drug stores around the corner. They are at their optimal size. It's not like they need to grow further. But there are many young firms that are small and at the same time have significant growth potential, and those are the ones that need to be targeted if they are suffering because of disruption in the financial system that is supposed to channel resources towards them.

Of course, doing it right is very hard because we know there are many young firms that start well and then close shop after a few months because things go wrong. So it's extremely challenging to target, even among the young firms, those that have growth potential, and that's really an important challenge for policy.

#### **ANDOLFATTO**

**The challenge I guess would be for policy to actually identify them. There are a lot of people and firms that would like credit extension, a public credit policy or even wage subsidy I suppose could potentially work.**

#### **VIOLANTE**

Yes, or hiring subsidies. Exploring the impact of these policies in the context of our model is on our research agenda.

#### **ANDOLFATTO**

**Your paper would speak to more of a direct credit market intervention, I suppose. These are financial frictions that are holding them back.**

#### **VIOLANTE**

Yes. One of the conclusions of our paper is that these financial frictions were especially sharp in the recession, and so easing that friction would have helped. But once again, this conclusion is preliminary.

#### **The paper's main takeaways, according to Violante:**

- What we hope to learn is whether the recruiting intensity channel, or the search intensity on the firm side, can play an important role in business cycle fluctuations.
- This is something that has not been emphasized enough in our view with one notable exception, which is the paper by Steven Davis, John Haltiwanger and Jason Faberman that inspired our work.

To watch the interviews from the conference, visit [stlouisfed.org/connecting-policy-with-frontier-research/2014](http://stlouisfed.org/connecting-policy-with-frontier-research/2014).

To access the papers that were presented, visit <http://research.stlouisfed.org/conferences/annual/39th.html>.

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