

Does Policy Uncertainty Matter?

Nicholas Bloom (Stanford University & NBER)

based on research with Scott Baker (Kellogg) & Steve Davis (Chicago)

G20, April 16th 2015



Uncertainty has been in the media a lot

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How to make Europe's incipient recovery durable: End policy uncertainty

Marco Buti, Pier Carlo Padoan, 12 September 2013

The Eurozone is recovering but the revival is fragile – ringed by downside risks. This column argues that three steps – reducing policy uncertainty, repairing the financial system, and creating new investment opportunities – are essential. They could switch the negative confidence-growth feedback loop into a positive one, thus paving the way to robust medium-term growth. There is no room for complacency or procrastination.



108

A A

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Pos

When leaders met for the G20 Summit in Saint Petersburg last weekend, they welcomed the incipient recovery in the Eurozone. However, they also recognised that "despite our actions the [global] recovery is too weak" and fraught with risks. This is particularly relevant for the Eurozone, firstly because GDP growth in the area itself is still very weak and uneven, and secondly because, in the current external macroeconomic environment, the Eurozone economy

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Director General, DG Economic and Financial Affairs, European Commission



Pier Carlo Padoan

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But not everyone agrees

Browser tabs: Asymmetrical "Unce..."

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The Conscience of a Liberal

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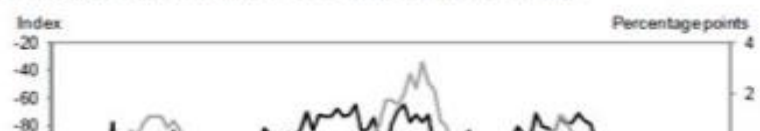
The "Uncertainty" Scam

One of the central talking points of right-wing economists is that "uncertainty" caused by Obama is holding the economy back; they cite, again and again, a paper by Bloom et al purporting to find a relationship between uncertainty and jobs, with uncertainty measured via such things as article counts.

But what's driving that uncertainty index? Jan Hatzius and his team at Goldman have an analysis, cited by FT Alphaville, pointing out something that I thought I knew, but with much more clarity: it's not at all about Obama.

Here's my key graph from the Hatzius paper:

Exhibit 2: Is Policy Uncertainty Cause or Effect of the Weak Economy?



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Three Questions on Policy Uncertainty

- 1) Theory: why might policy uncertainty matter for growth?
- 2) Data: can we measure policy uncertainty?
- 3) Empirics: has policy uncertainty lowered growth since 2008?

Three key theory channels for uncertainty

- 1) Cost of capital: Tobin (1958) shows how risk raises borrowing cost for firms and consumer, cutting investment and spending
- 2) Real options: Arrow (1959) & Bernanke (1983) highlight how uncertainty cuts demand by making firms and consumers cautious when mistakes are costly: they want to “wait & see”
- 3) Financial constraints: Recent papers like Gilchrist, Sim and Zakrajsek (2010) focus on how uncertainty can exacerbate financial constraints (e.g. firms hoard “dead cash”)

Further reading: “Fluctuations in uncertainty”, by Nicholas Bloom, Journal of Economic Perspectives, 2014

http://www.stanford.edu/~nbloom/JEP_Uncertainty.pdf

Three Questions – from Theory to Empirics

- 1) Theory: why might policy uncertainty matter for growth?
- 2) Data: how can we measure economic policy uncertainty
- 3) Empirics: has policy uncertainty lowered growth since 2008?

Uncertainty – including policy uncertainty - is hard to measure because it is not directly observed

Unfortunately,
no “uncertainty
barometer” exists

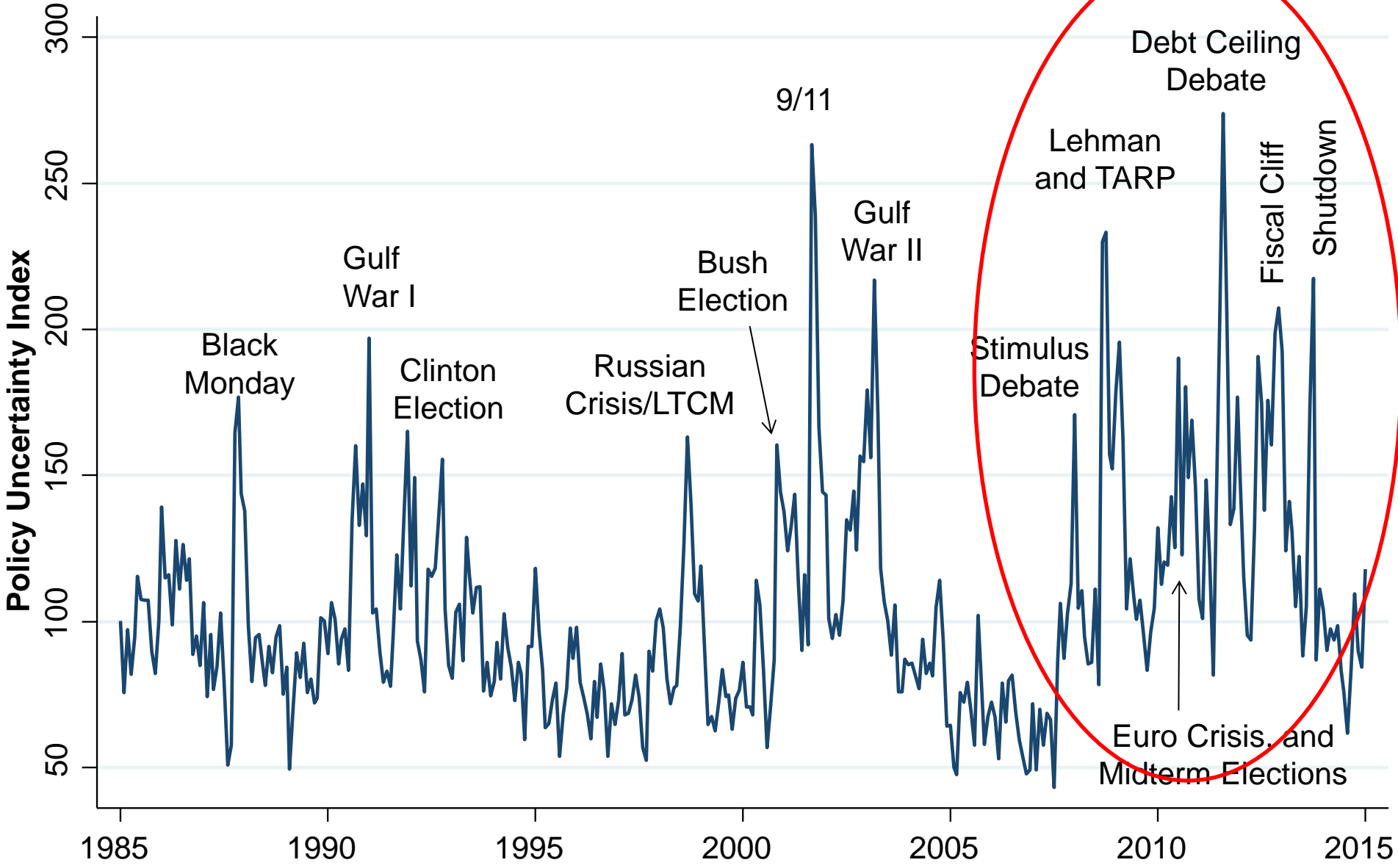


One measure is the Economic Policy Uncertainty (EPU) index from computer searches of newspapers

- For 10 major US papers get monthly counts of articles with:
 - E** {economic or economy}, and
 - P** {regulation or deficit or federal reserve or congress or legislation or white house}, and
 - U** {uncertain or uncertainty}
- Divide the count for each month by the count of all articles
- Normalize and sum 10 papers to get the U.S monthly index



US News-based economic policy uncertainty index



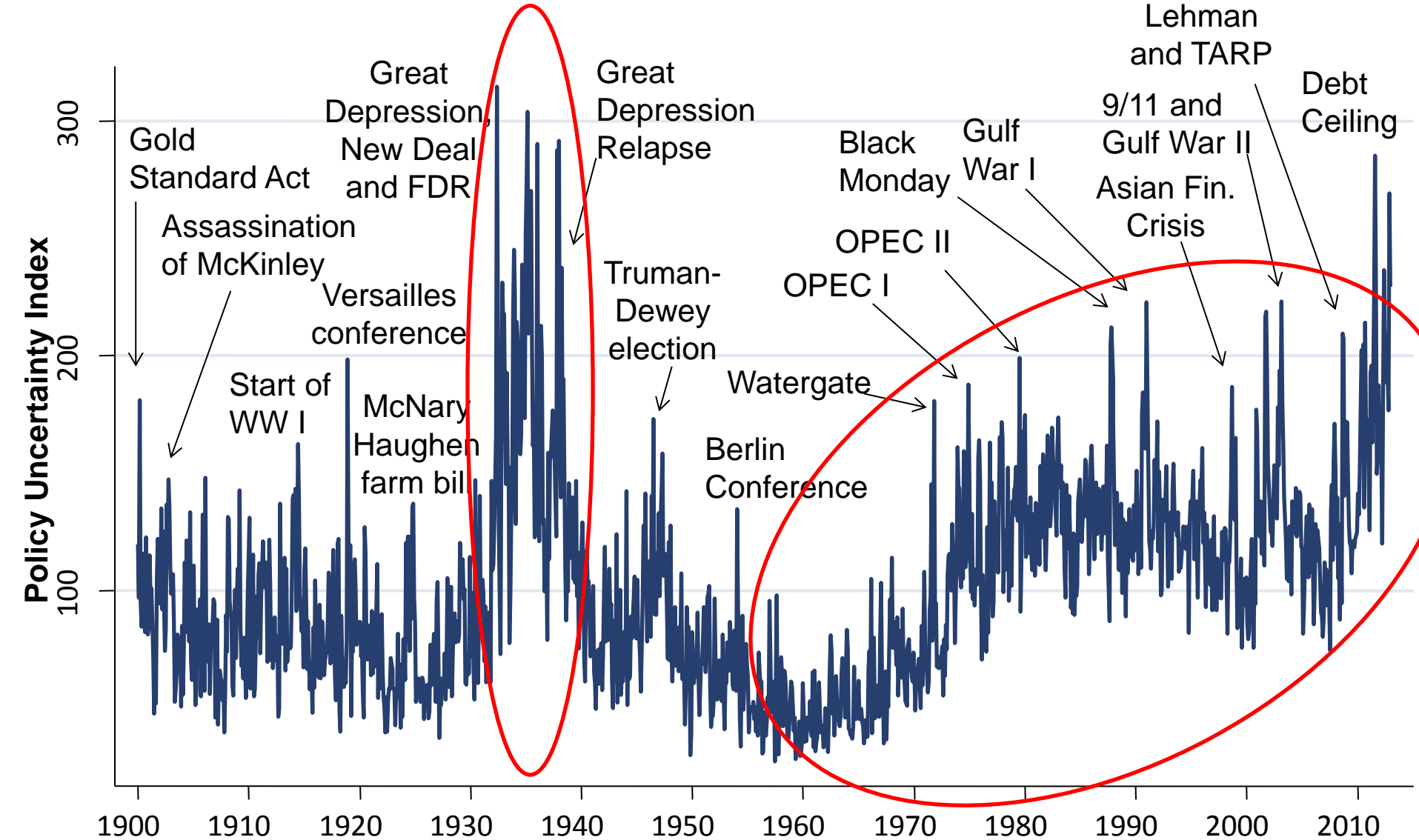
Source: "Measuring Economic Policy Uncertainty" by Scott R. Baker, Nicholas Bloom and Steven J. Davis, all data at www.policyuncertainty.com. Data normalized to 100 prior to 2010.

Which policy areas account for high US policy uncertainty in 2008-2012? **Articles point to fiscal and healthcare policies (not monetary policy)**

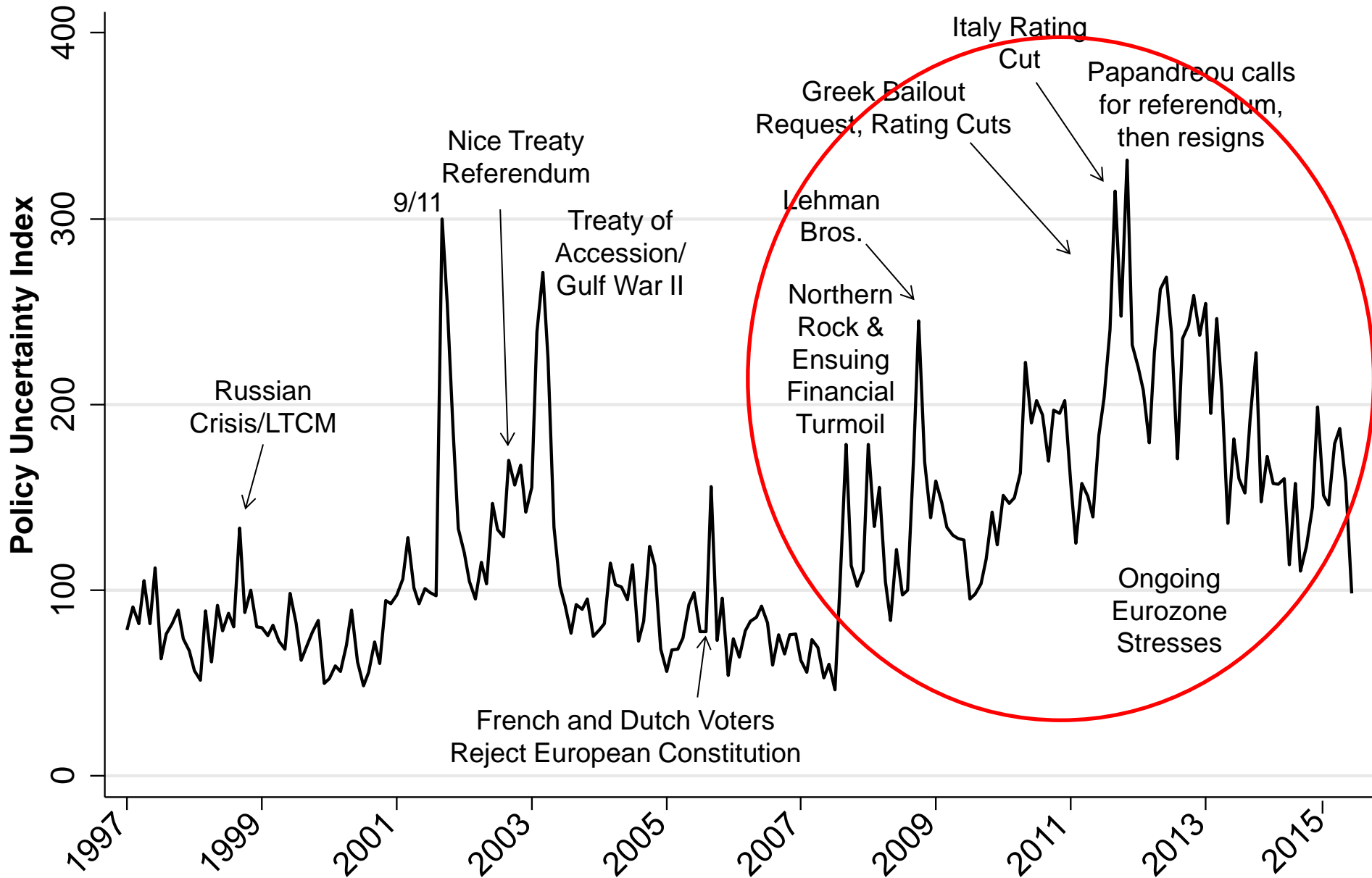
SHARE OF POLICY UNCERTAINTY ARTICLES BY TOPIC, %

	1985-2007	2008-2012	Change
Taxes	35.2	61.1	25.9
Health care	12.7	33.3	20.6
Regulation	14.9	28.4	13.6
Social Security	10.3	19.4	9.1
Government spending	15.0	23.9	8.9
Sovereign debt, currency crisis	1.4	2.8	1.4
Monetary policy	29.0	27.6	-1.5
National security	25.3	19.9	-5.4

Can run the US index back to 1900 with 6 papers, see rises in: (i) the Great Depression, (ii) since the 1960s

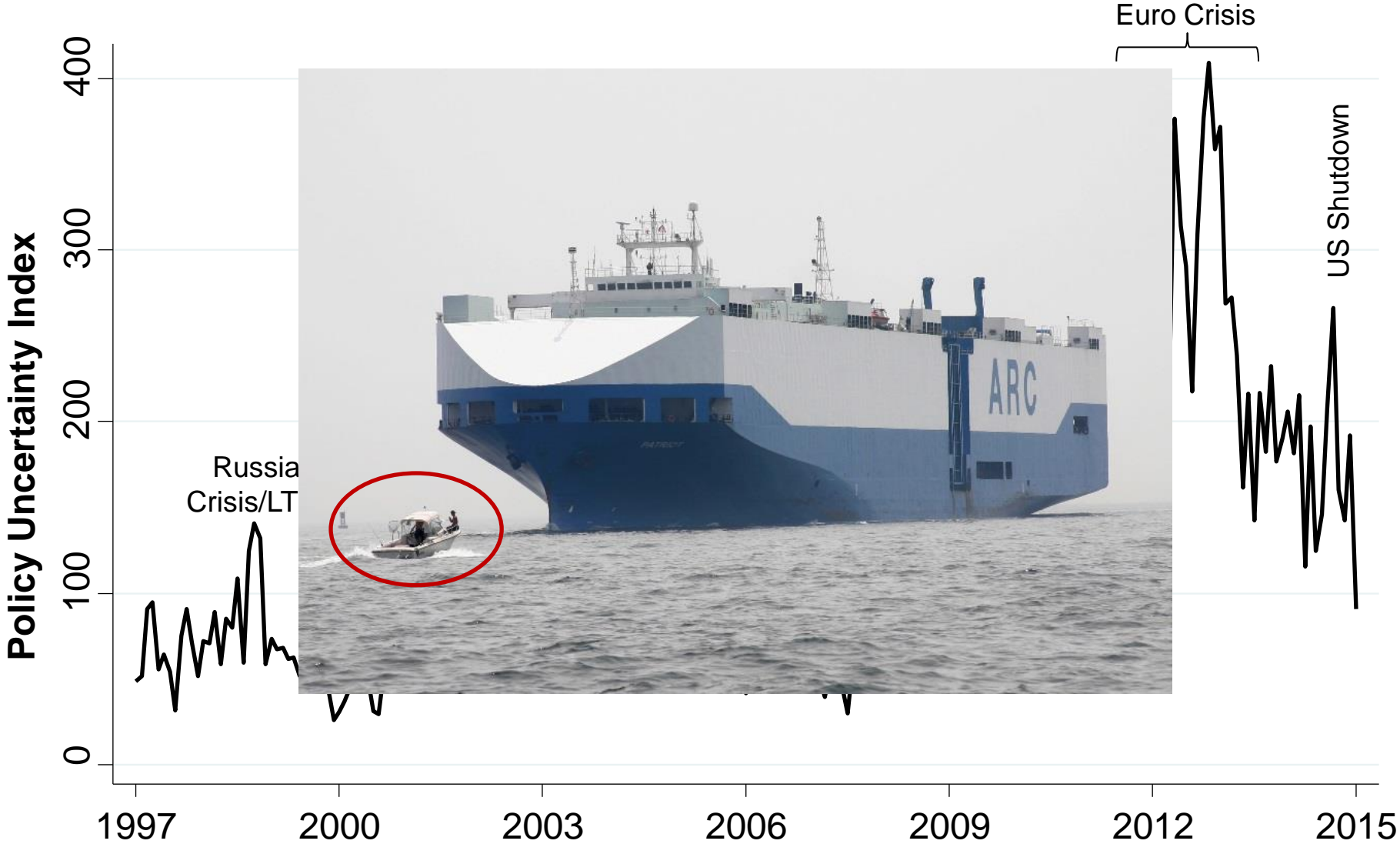


European Economic Policy Uncertainty Index



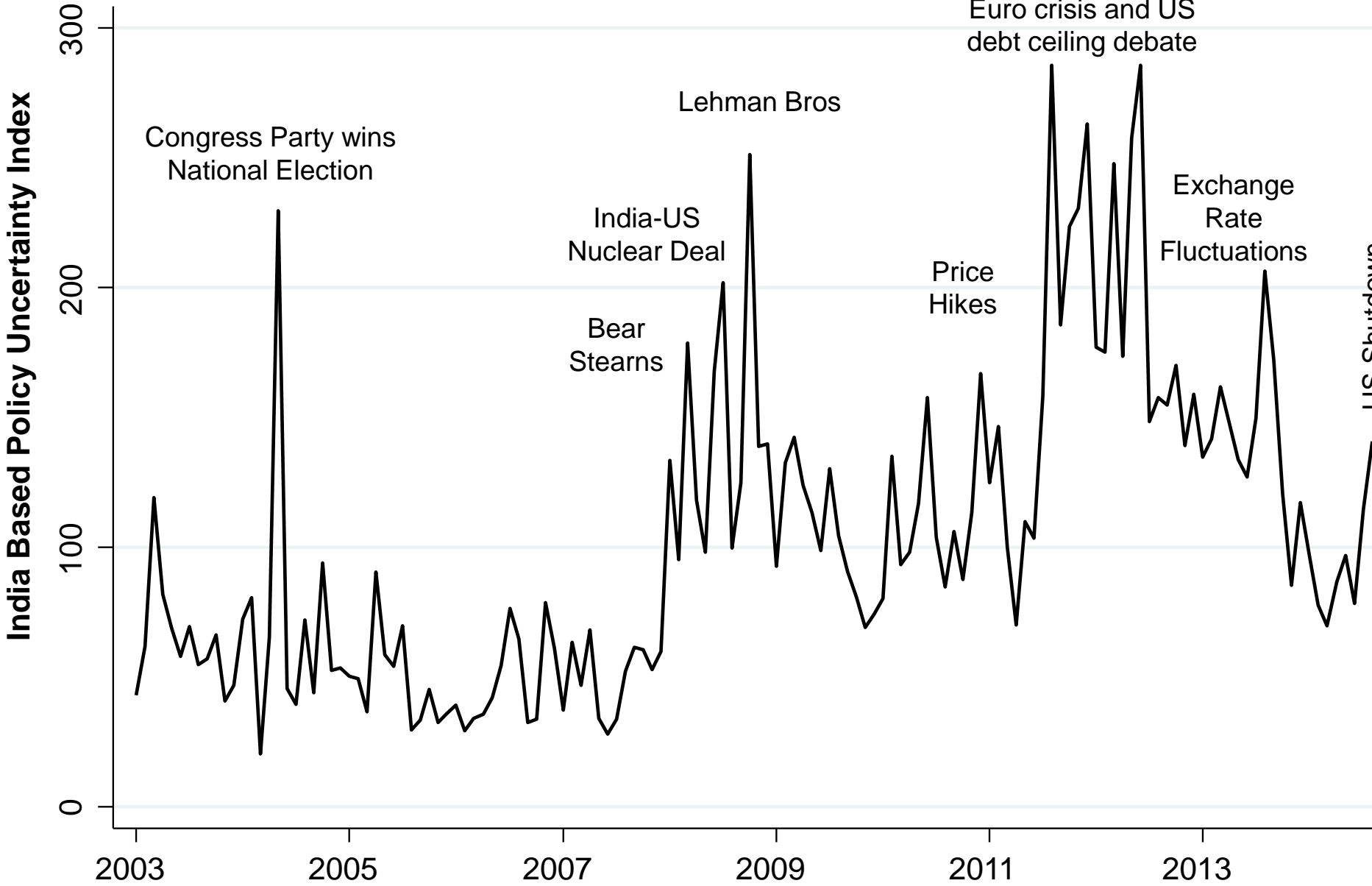
Source: www.policyuncertainty.com. Based on 10 papers (El Pais, El Mundo, Corriere della Sera, La Repubblica, Le Monde, Le Figaro, the Financial Times, Times, Handelsblatt, FAZ.)

UK Policy Uncertainty Index – note many of the policy events are international (why G20 is helpful)



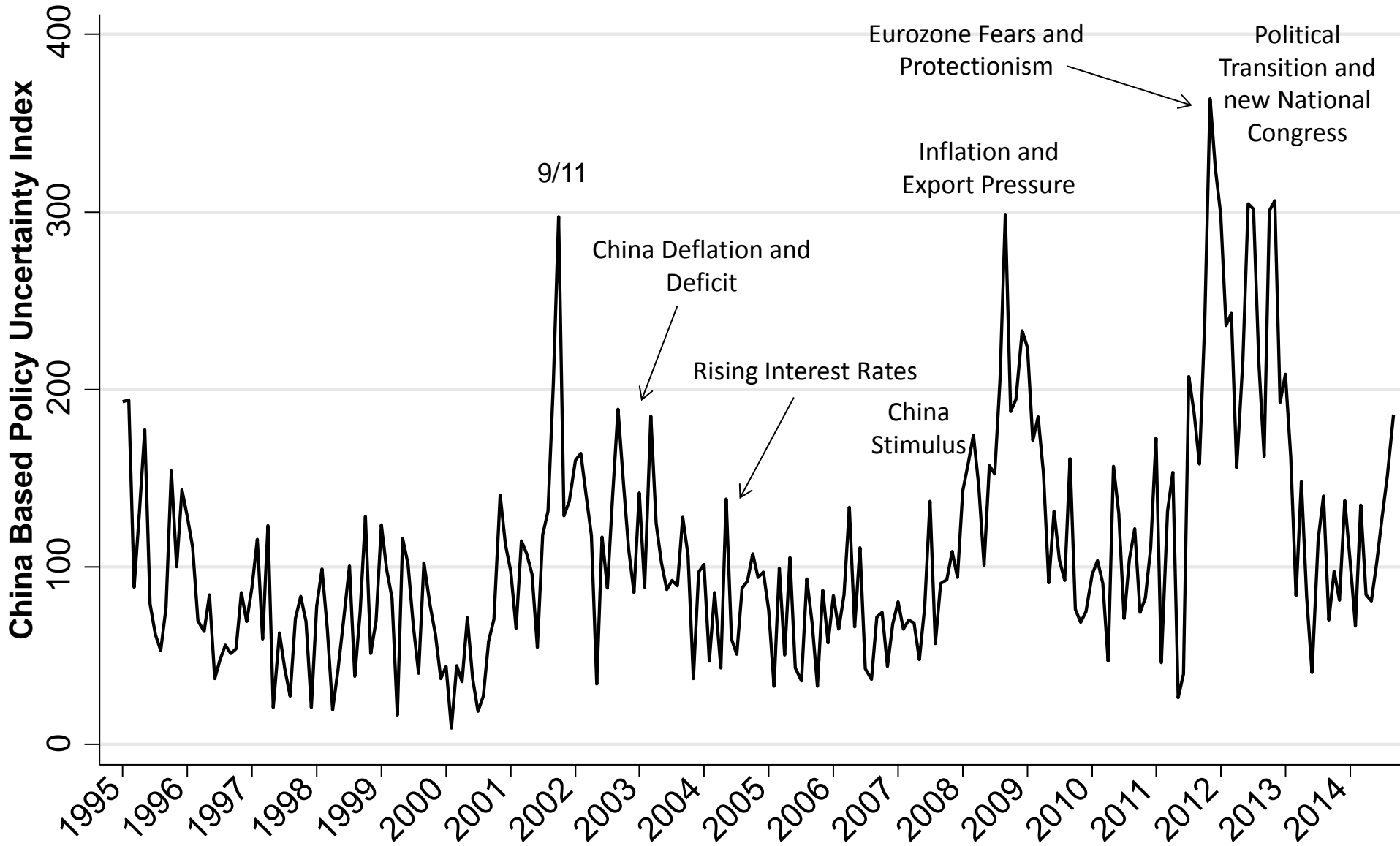
Source: www.policyuncertainty.com. Data from 2 UK newspapers (Times and Financial Times)

India Economic Policy Uncertainty Index



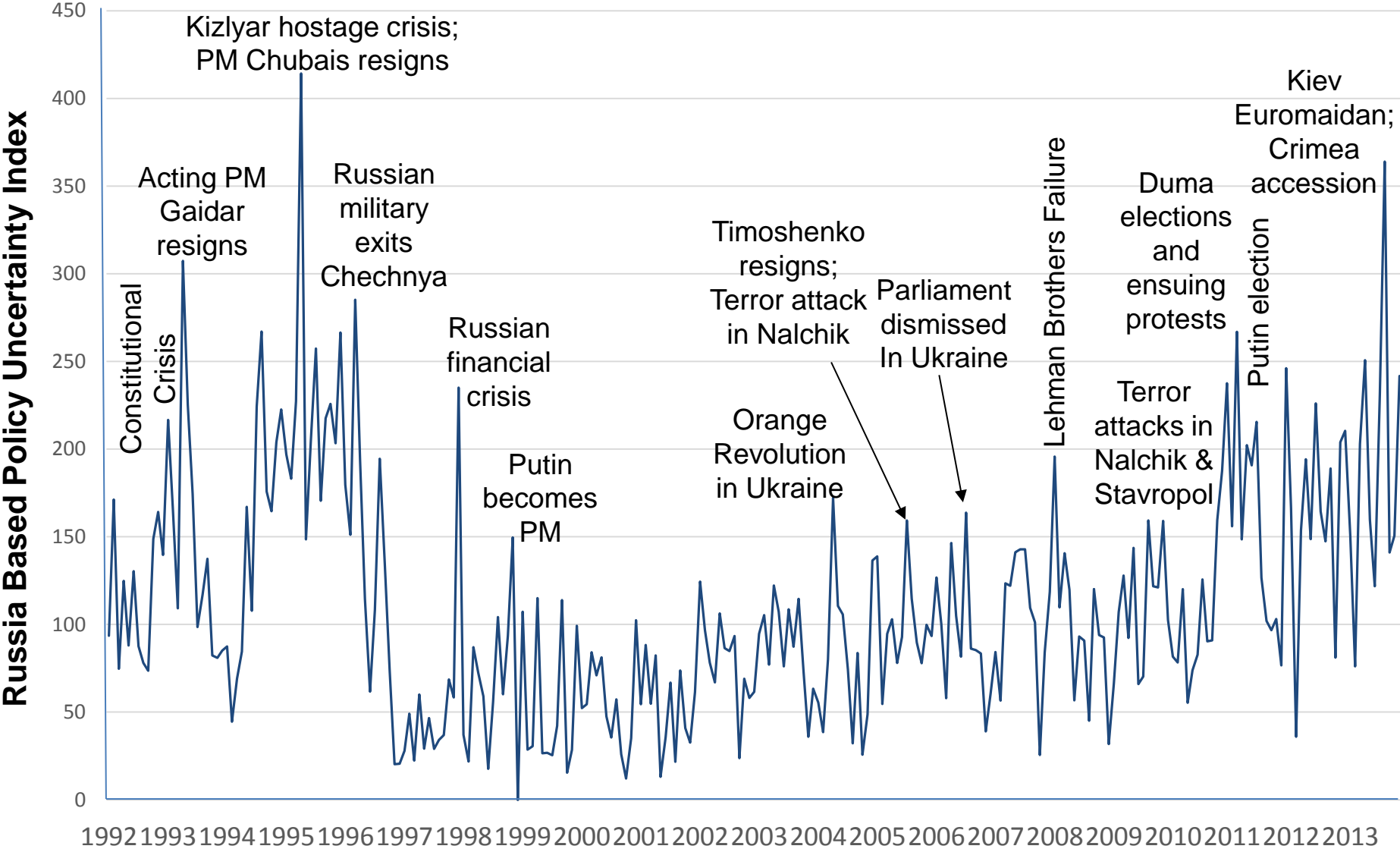
Source: www.policyuncertainty.com. Data from 7 Indian newspapers (Economic Times, Times of India, Hindustan Times, Hindu, Statesman, Indian Express, and Financial Express)

China Economic Policy Uncertainty Index



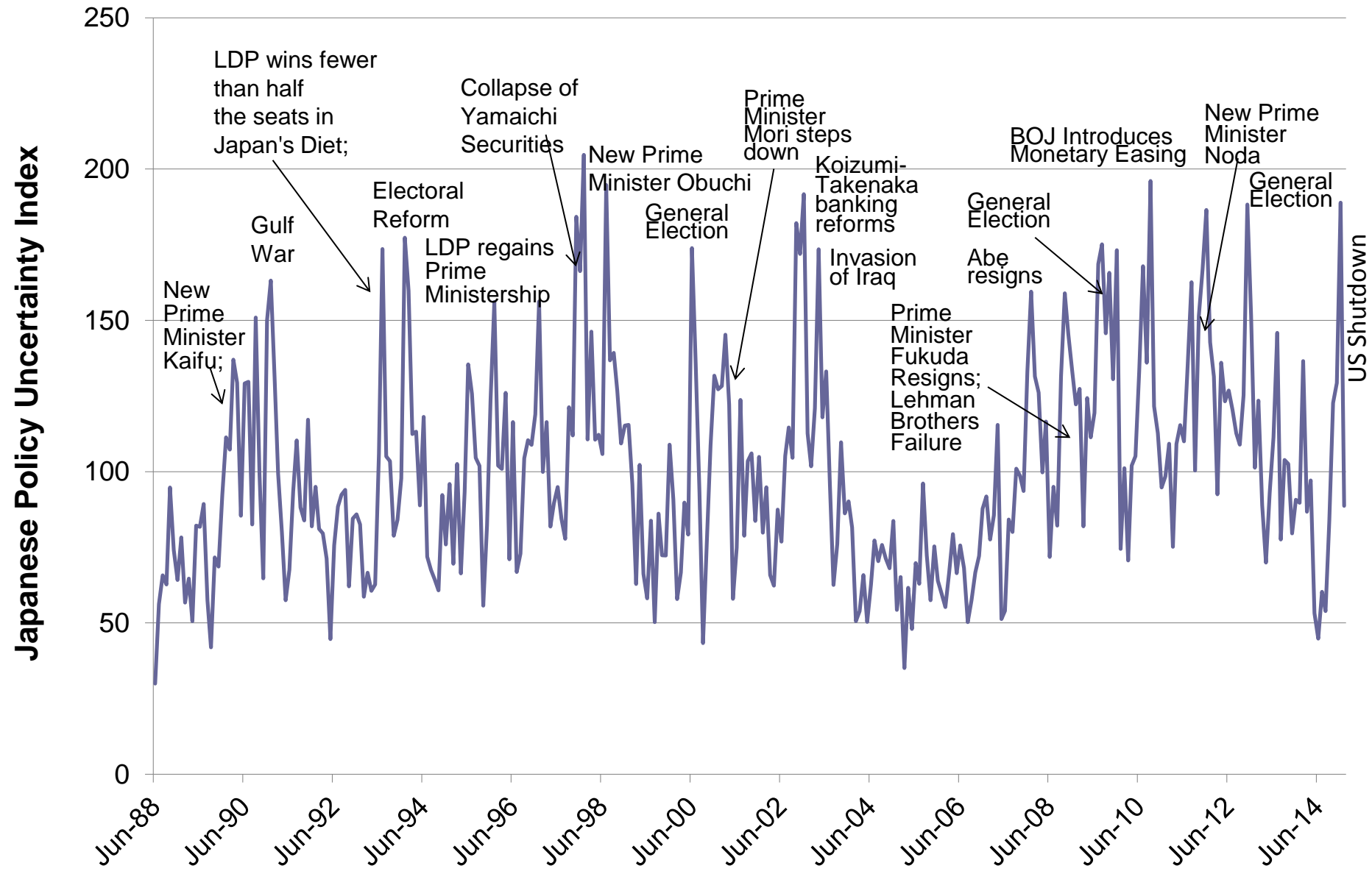
Source: www.policyuncertainty.com. Data until August 2014. Based on newspaper articles from the South China Morning Post (Hong Kong)

Russian Economic Policy Uncertainty Index (beta)



Source: www.policyuncertainty.com. Data from Kommersant daily newspaper (1992-2014)

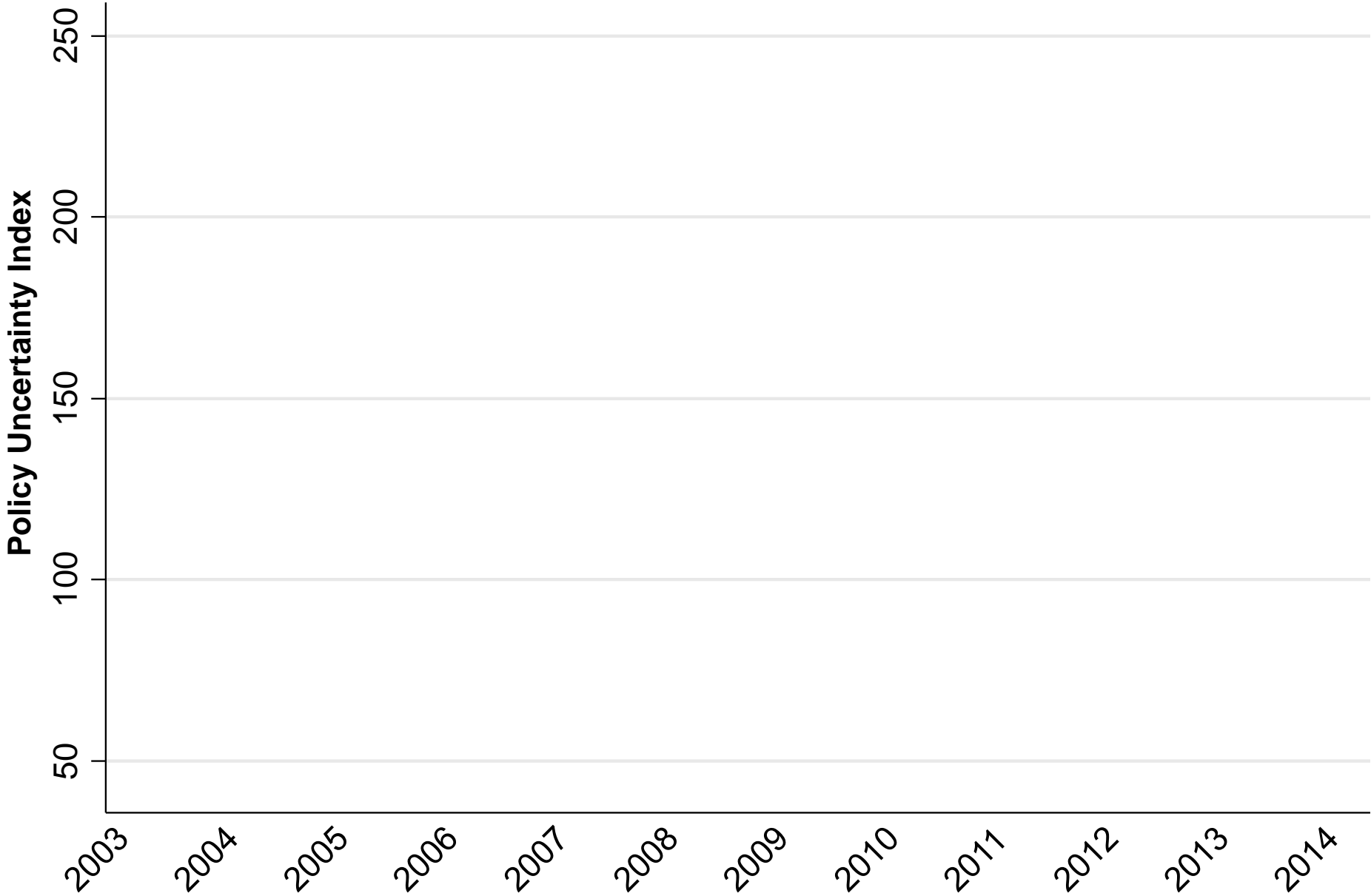
Japanese Economic Policy Uncertainty (beta)



Source: www.policyuncertainty.com. Based on newspaper articles from the Asahi and Yomiuri daily newspapers.

Trying to extend this out to the full G20 – for example, working on Australia, Brazil, Canada, and South Korea

North Korean Economic Policy Uncertainty Index



Source: www.policyuncertainty.com. Data from 0 North Korean newspapers

But can we rely on newspapers search data?



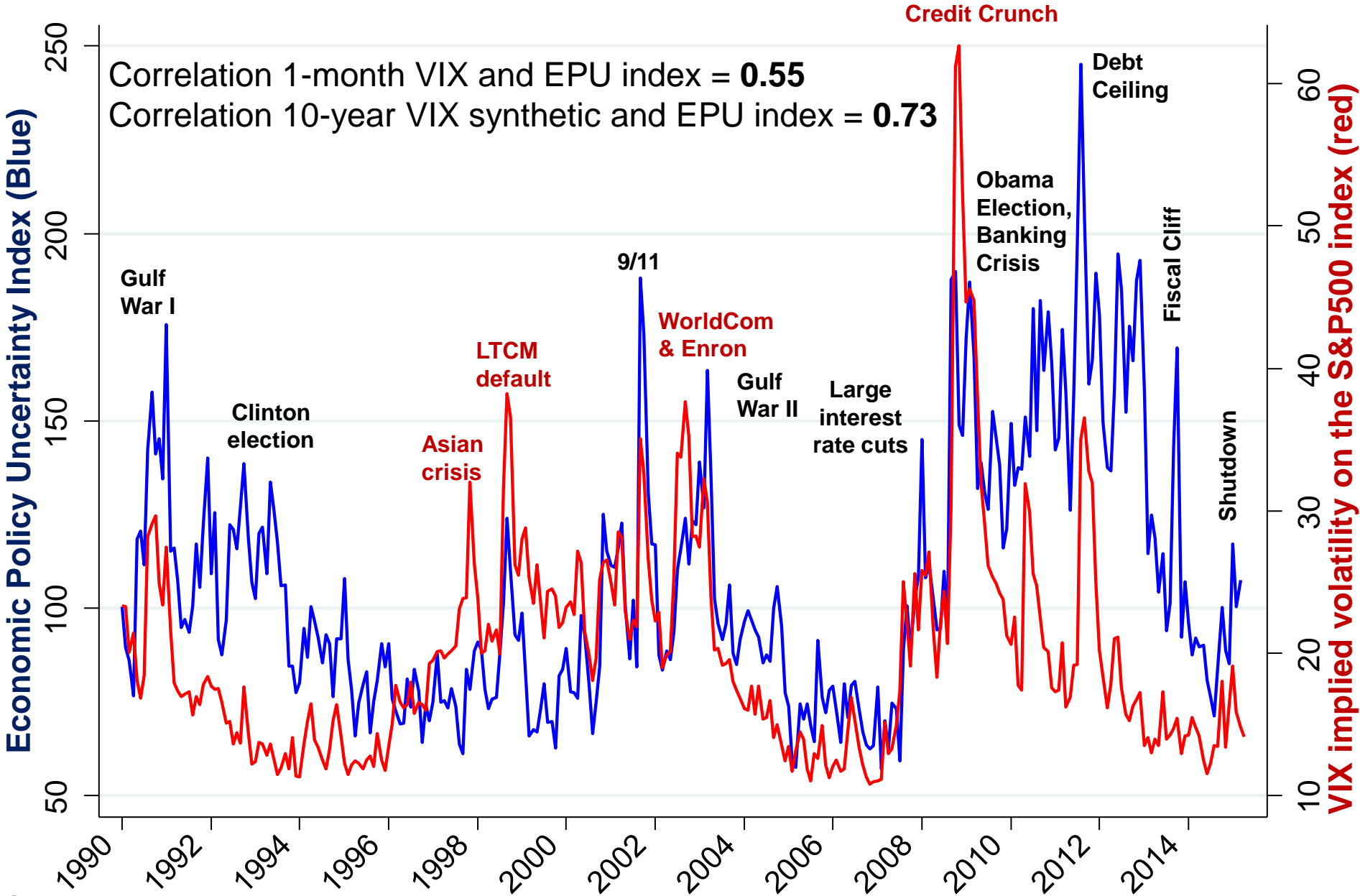
A) Evaluation of Policy Uncertainty Index: Market Use

Market use suggests information in our policy uncertainty data

I) Numerous users including: Goldman Sachs, Citibank, JP Morgan, Blackrock, Wells Fargo, IMF, Fed, ECB etc

II) This has led Bloomberg, FRED, Reuters and Haver to stream our data for their financial and policy users

B) Evaluation: comparison to stock volatility (e.g. VIX)



Source: www.policyuncertainty.com

C) Evaluation: Running Detailed Human Audits

10 undergraduates read \approx 10,000 newspaper articles using a 63-page audit guide to code articles if they discuss “economic policy uncertainty”

Economic Policy Uncertainty

New

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The Univers

Audit Methodology: Main Steps

1. Download all NY Times, LA Times, and SF Chronicle articles from 1985 to 2012 that pass our Economic

August 30 Sampling Details, 2

3. Assign 84 of the sampled articles for each paper to Kyle and 84 to Sophie. Call these subsamples Sub(Name,Paper), where
4. For each of the 172 subsamples, get reviewed by the other reviewer
5. In summary, per paper
6. Lastly, review

Auditing the Sampled Articles, 2

3. If yes to 2, then identify the policy category (checking all that apply):
 - Monetary policy Fiscal policy Taxes
 - Labor regulations Legal Policy Competition Policy
 - Government spending Health care programs and regulations
 - National security and terrorism Trade Policy
 - Energy & environmental regulation, natural resources and commodities
 - Entitlement programs, social safety net, welfare programs
 - Financial regulation (including banking and equity markets)
 - Political conflict and leadership changes
 - Sovereign debt, exchange rate policy, foreign reserves
 - Other policy matters (specify)
4. Code other aspects of policy uncertainty treated in the article: direction of change, nature of policy uncertainty (is it about who, actions, or effects?), and whether it discusses policy concerns in the United States or foreign countries.

FAQ

4. Given that the outcome of government policy is always uncertain, at some level, does any mention of a new or proposed policy constitute EPU=1?

No. An article mentioning the policy etc... For mention under c

True Positive 2

ATHENS – In the year since Greece received its first financial bailout, many things have changed. The country has reduced its budget deficit by 5 percent of gross domestic product. Workers have been hit by wage freezes and pension cuts, prompting a growing popular outcry. The state has revealed for the first time how many people it employs, and tax collectors can now cross-reference swimming pool permits with property records to determine wealth and

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Code as EPU = 1, because the article discusses uncertainty as

False Positive 5

Our Love Affair With Malls Is on the Rocks

“There are days now when I make \$160 and think I had a good day,” says Mark Classen, co-owner of Just Daze! Gourmet, a store in the mall that sells, among other items, signs

Code as EPU = 0, because the article does not mention any aspects of uncertainty

False Negative 4

Canada Is Expected to Join U.S.-Mexico Trade Talks

By MARY A. URLIO, Special to The New York Times
Published: January 20, 1991

After months of high-level talks, the United States, Mexico and Canada have reached agreement to include Canada in negotiations toward a continentwide North American free-trade zone, diplomats and trade officials said today.

The agreement, which could be announced as early as this week, would make Canada a direct participant in talks that have been under discussion by the United States and Mexico since the middle of last year.

The negotiations envisioned in the agreement would seek to bind the three countries' economies in a common market that would include more than 350 million people and would be larger than the European Community. Such a huge unhindered market would encompass interests as diverse as the machine shops of northern Mexico, the financial district of New York and the farmlands of western Canada.

“Everything is ready,” one diplomat said, describing preparations for the three-way talks. “It’s just a matter of making the formal announcement.”

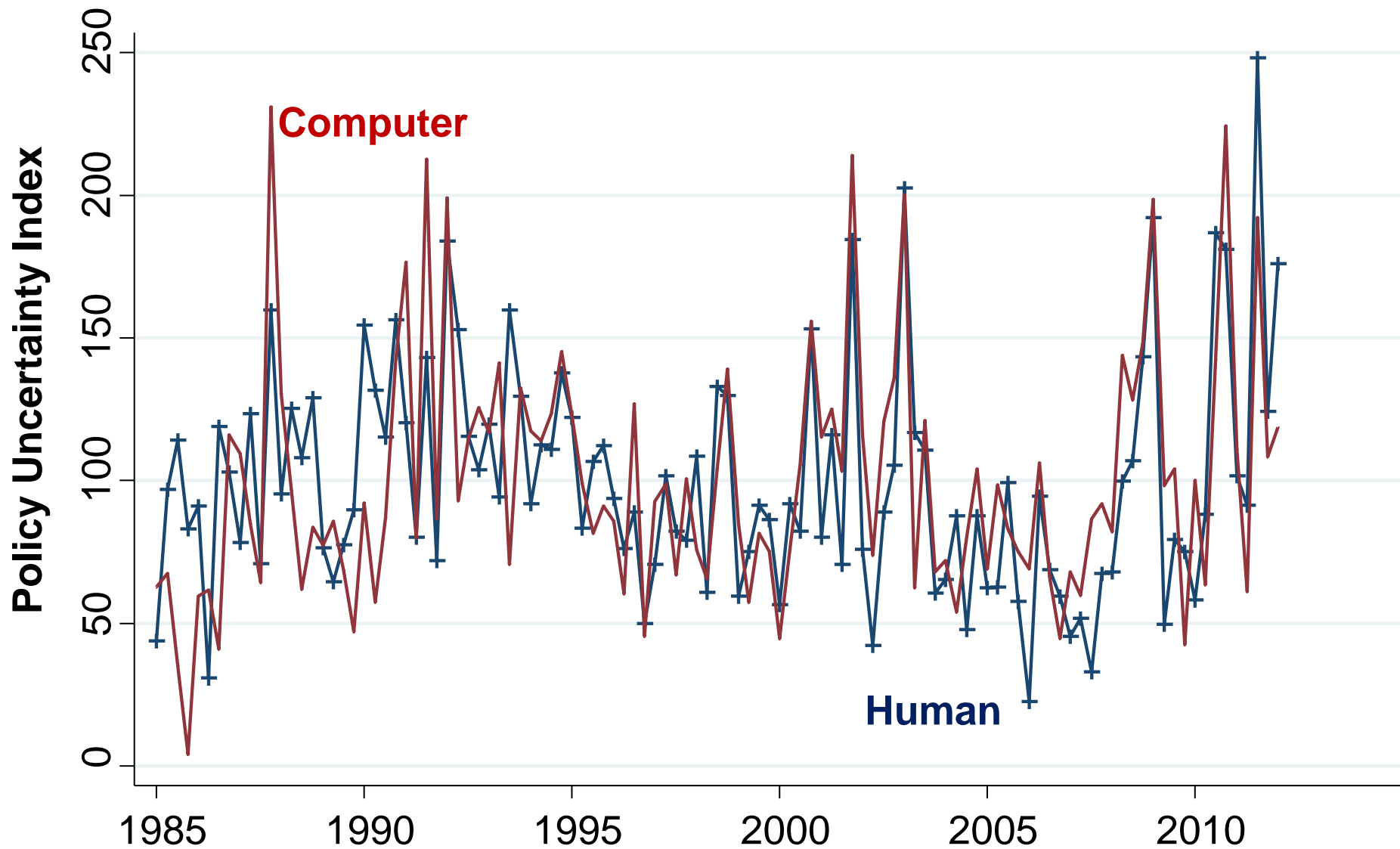
Speculation about the possibility of continentwide free-trade negotiations has been strong since last year, when President Carlos Salinas de Gortari formally requested free-trade talks with the United States.

Canada quickly expressed interest in having a role in the new talks, but its status was left unclear amid uncertainty about how its inclusion might affect the United States-Mexican talks, which were considered a high priority by both countries.

President Salinas has sought to conclude a free-trade pact quickly to accelerate the economic growth that has become a hallmark and a crucial test of his administration. President Bush has also made an accord a central economic objective and has sought to complete it before it could become embroiled in the politics of the 1992 Presidential election year.

Code as EPU = 1, because the article mentions uncertainty over the trade policy in North America. The automated search incorrectly codes the article as EPU = 0, because it never mentions any of the terms in the “policy” part of our search filter.

Find humans and computers give similar results in large samples (in fact both make mistakes)



Three Questions – from Theory to Empirics

- 1) Theory: why might policy uncertainty matter for growth?
- 2) Data: how can we measure economic policy uncertainty
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Evaluate the impact of policy uncertainty in 3 ways

1. Surveys
2. Firm-level analysis (firm panel regressions)
3. Macroeconomic analysis (VAR estimations)

1) Surveys: claim uncertainty has been a major drag

WSJ | VISTAGE

SMALL BUSINESS CEO SURVEY

A MONTHLY SURVEY measuring the sentiment of U.S. small-business CEOs and owners about the economy. Respondents are limited to businesses with annual revenues of \$1 million to \$20 million. The findings are analyzed by Dr. Richard Curtin, University of Michigan. [Read more about the survey.](#)

Select Month

December 2012

FIRM SIZE (annual revenue): All \$1-4 million \$5-9 million \$10-20 million

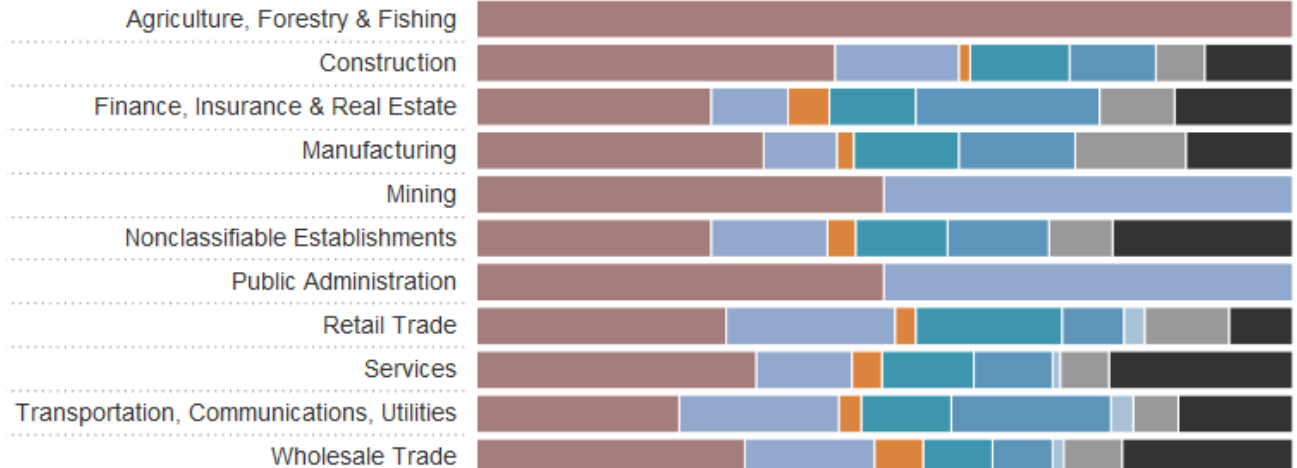
Significant Issues

What is the most significant business issue that you are facing currently?

- Economic uncertainty (local/national economy, budget deficit, housing)
- Financial issues (finance, cash flow, profitability)
- Growth (growing too quickly)
- Growth (growing too slowly)
- Political uncertainty
- Rising energy costs
- Rising healthcare costs
- Staffing (finding, hiring, retaining, and training)

Industry

NATIONAL



Current Economy

Future Economy

Investments

Sales Revenues

Profitability

Hiring

Significant Issues

Biggest Challenge

Healthcare Law

Demand

Financing

Employment

Total Revenues

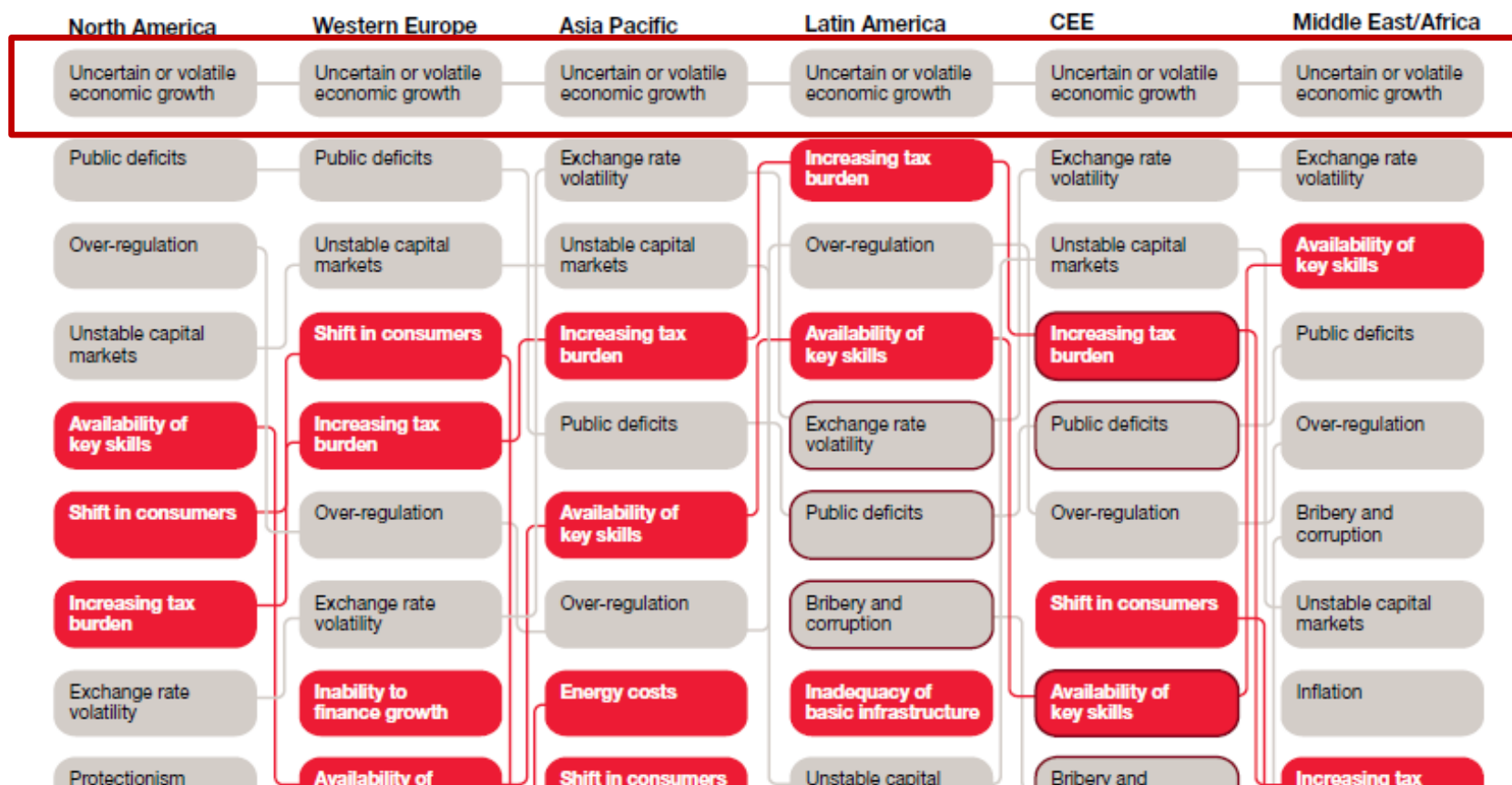
International WEF survey evidence also highlights uncertainty as a major drag – Global CEO survey

15th Annual Global CEO Survey 2012

Confidence disrupted ^{p5}/*Balancing global and local* ^{p9}/*Risk resilience* ^{p16}/
The talent challenge ^{p20}/*What's next* ^{p27}/*CEO interviews* ^{p30}

Figure 10: Global economic uncertainty remains the top threat to growth prospects

Q: How concerned are you about the following potential threats to your business growth prospects?



2) Firm-level analysis: Use econometric analysis to see how firms respond to policy uncertainty

Firm
fixed
effects

Period
fixed
effects

$$Y_{it} = F_i + P_t + \alpha * Exp_j * Gov_t + \beta * Exp_j * EPU_t + \varepsilon_{i,t}$$

Firm **stock price volatility, or investment or hiring**

Firm **government exposure × government expenditure**
(1st moment effect)

Firm **government exposure × policy uncertainty**
(2nd moment effect)

i=firm, j=industry, t=quarter

Estimated firm by quarter 1996-2012, standard-errors clustered by j

Find: (A) firms with greater government exposure - e.g. construction, defense and healthcare - have higher stock volatility when policy uncertainty rises

Dep Var: Log(30 day impl vol)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log(EPU)	0.496*** (0.011)		-0.057 (0.017)		-0.461*** (0.031)		
Log(EPU)×Intensity		0.309** (0.077)		0.338*** (0.132)		0.766*** (0.171)	0.235*** (0.113)
Log(VIX)			0.722*** (0.017)				
Log(VIX)×Intensity				-0.037 (0.140)			
Log(EU)					0.852*** (0.027)		
Log(EU)×Intensity						-0.409*** (0.146)	
Federal Exp/GDP	-14.37*** (1.43)		-6.65 (10.343)		-13.27*** (1.42)		
Federal Exp/GDP×Intensity		-19.00* (9.97)		-19.32* (9.79)		-19.50* (9.93)	-18.56 (10.52)
Defense EPU*Defense Firm							0.041*** (0.014)
Health EPU*Health Firm							0.047 (0.045)
Finance EPU*Finance Firm							0.150*** (0.029)
Firm and Time Fixed-Effects	No	Yes	No	Yes	No	Yes	Yes
Observations	113,335	113,335	113,335	113,335	113,335	113,335	113,335
Number of Firms	5,140	5,140	5,140	5,140	5,140	5,140	5,140

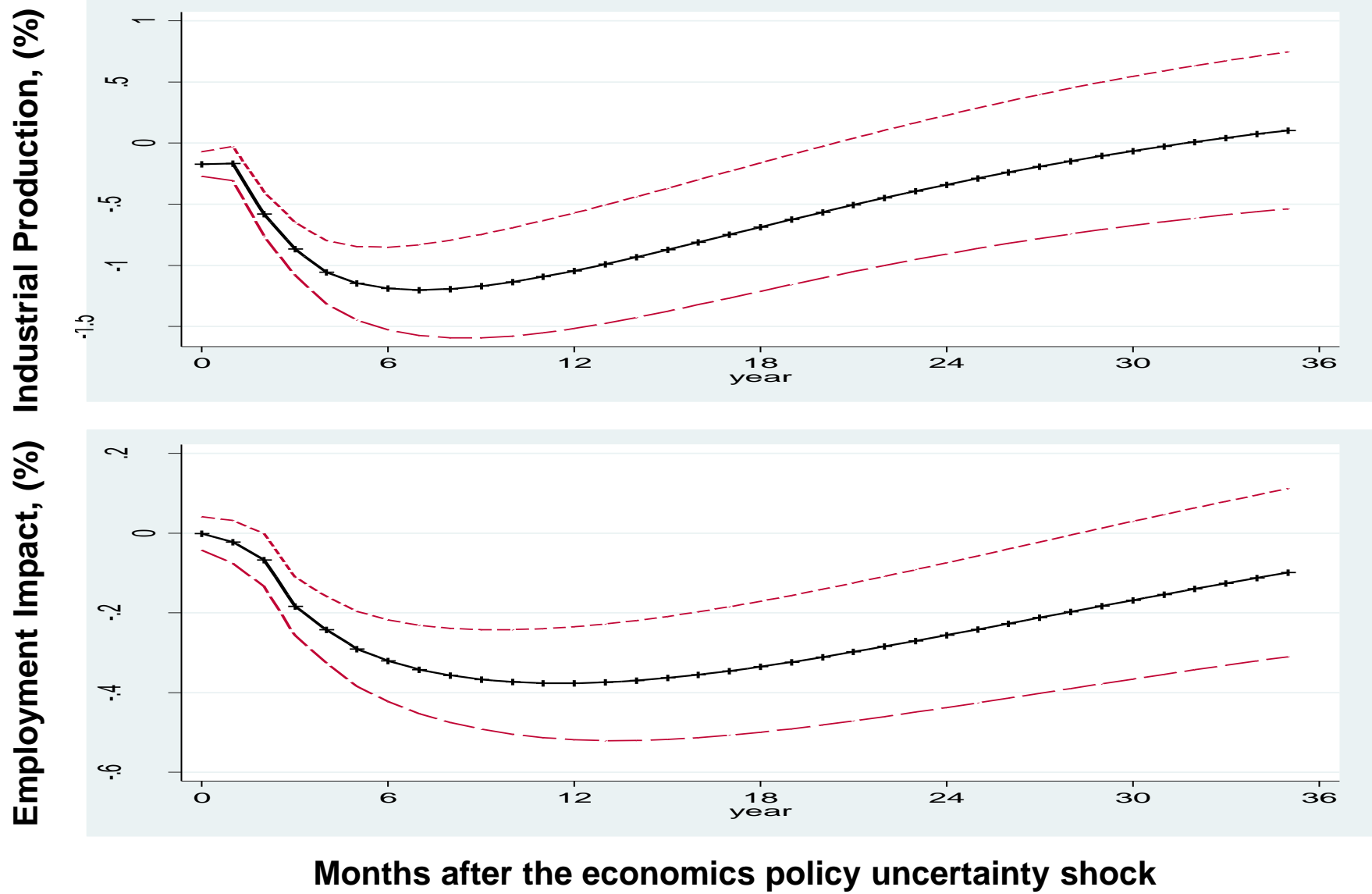
Source: Baker, Bloom and Davis (2014), “Measuring policy uncertainty” www.policyuncertainty.com

Find: (B) firms with greater government exposure have about 25% lower investment and hiring when policy uncertainty rises – uncertainty cuts growth

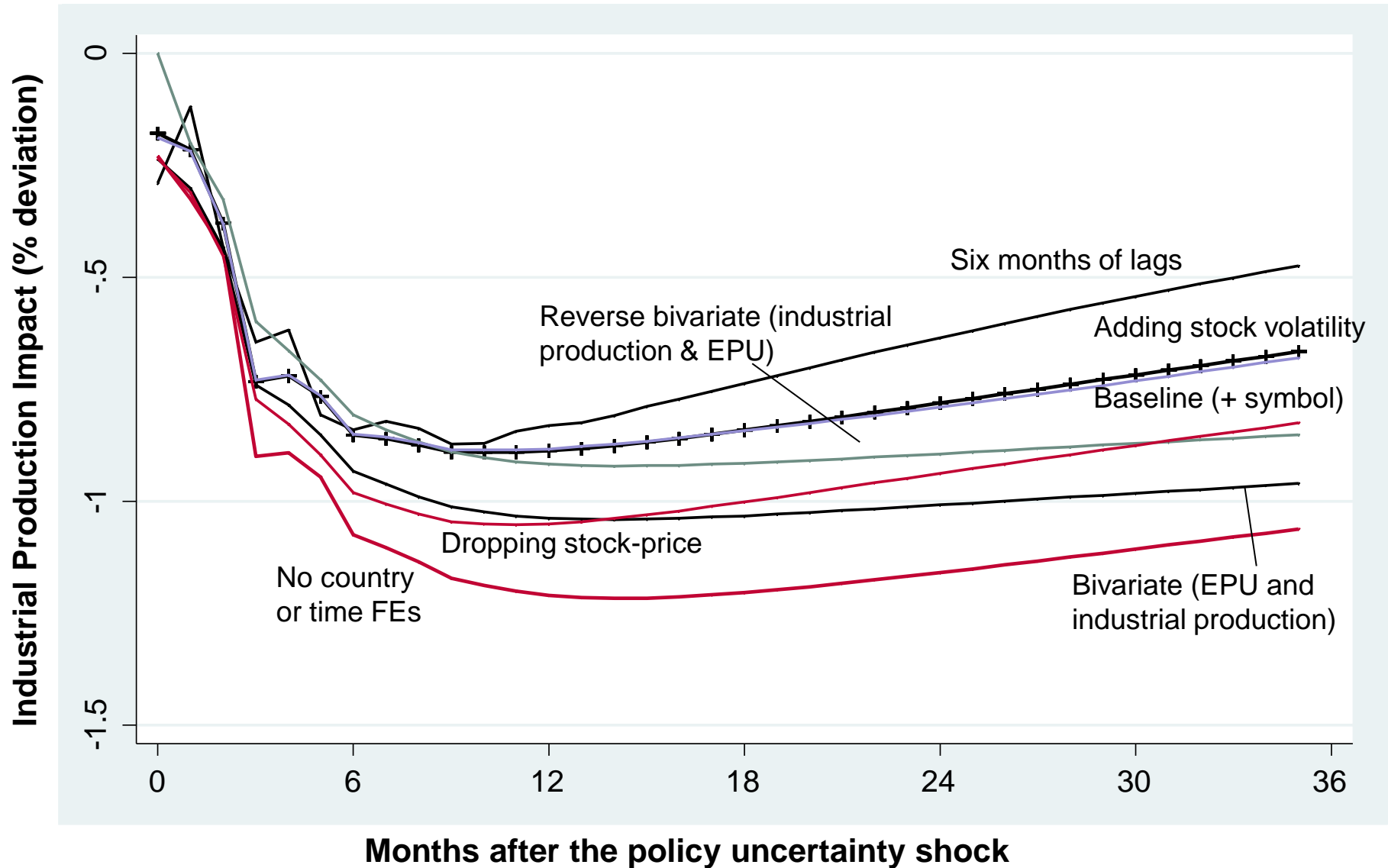
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I/K	I/K	I/K	I/K	Δ emp	Δ emp	Δ emp	Δ emp	Δ Rev
Intensity Measure:	Firm Seg.	Firm Seg.	Firm Seg.	Firm Seg.	Firm Seg.	Firm Seg.	Firm Seg.	Firm Seg.	Firm Seg.
Log(EPU) × Intensity	-0.029***	-0.029***	-0.028***	-0.027***	-0.192**	-0.219**	-0.266**	-0.184**	-0.069
Current EPU*intensity	(0.011)	(0.011)	(0.011)	(0.011)	(0.089)	(0.092)	(0.114)	(0.090)	(0.112)
ΔFederal Expenditure/ GDP × Intensity	9.36***	9.14***	8.51***	9.543***	20.47***	28.48***	14.71	21.42	34.20***
	(2.52)	(2.56)	(2.85)	(2.848)	(7.015)	(7.58)	(12.30)	(3.69)	(7.28)
ΔForecast Federal Expend./GDP × Intensity		0.59				-8.30***			
		(1.05)				(3.18)			
Defense EPU				0.125				-3.07*	
*Defense Firm ^a				(0.307)				(1.69)	
Health EPU				-0.480**				0.836	
*Health Firm ^a				(0.244)				(1.737)	
Finance EPU				-0.222***				0.940**	
*Finance Firm ^a				(0.077)				(0.386)	
Periodicity	Quarterly	Quarterly	Quarterly	Quarterly	Yearly	Yearly	Yearly	Yearly	Yearly
Firm and Time FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3 Years Fed Exp leads	No	No	Yes	No	No	No	Yes	No	No
Observations	662,679	662,679	378,846	378,846	150,820	150,820	99,560	150,820	142,241
Number of Firms	21,181	21,181	13,754	13,754	16,464	16,464	12,524	16,464	15,387

Source: Baker, Bloom and Davis (2014), “Measuring policy uncertainty” www.policyuncertainty.com

3) Macro estimates: US data predicts the rise in policy uncertainty seen from 2006 to 2008-2012 is followed by a drop in output of about 1% to 1.5%



We also examine our 12 country panel and find similar 1% to 1.5% drops in output following the 2008-2012 increases in policy uncertainty



Conclusions

1. Economic theory has long emphasized the damaging effects of uncertainty on investment, hiring and consumer spending
2. Policy uncertainty is an important and 'controllable' element of uncertainty, and appears to have risen during 2008-2013
3. We estimate rising policy uncertainty may have cut output by 1%-1.5%, particularly in construction, defense & healthcare
4. This rising policy uncertainty comes from fiscal & regulatory uncertainty – monetary policy uncertainty has been flat

Policy Implications – Three Strands

1. Monetary (Fiscal) Policy: should be predictable, transparent and stabilizing to (continue to) reduce policy uncertainty
2. Financial Stability: supporting the financial system in 2008+ helped avoid a Great Depression sized surge in uncertainty
3. International Coordination: the G20 can promote international policy stability, and reduce cross-country policy “tidal wash”



Finally, note all the data and research is online

Data

[US Monthly Index](#)

[US Policy Categories](#)

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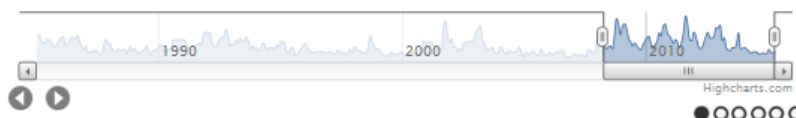
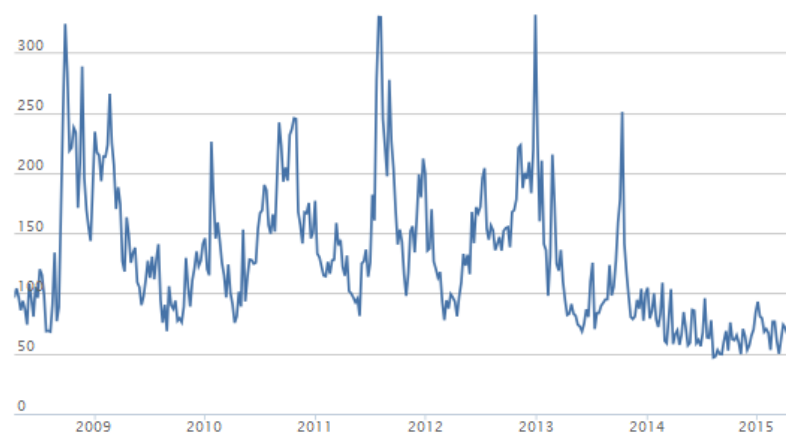
Economic Policy Uncertainty Index

We develop indices of economic policy uncertainty for the world's major economies.

Daily News-based Economic Policy Uncertainty (7-Day Moving Avg)  

Zoom

From: To:



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G20, April 16th 2015

