The World Uncertainty Index

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ASSA San Diego—January 2020

Outline

- Motivation and contribution
- Construction of the WUI
- Reliability checks
- Stylized facts
- New evidence on the effect of uncertainty
- Next steps

Motivation and contribution

Why an other measure?

- Existing measures available mostly for advanced economies…

- ...and often not comparable across countries.

What we do?

- We construct a new index of uncertainty—the World Uncertainty Index (WUI)—for 143 individual countries on a quarterly basis from 1952 onwards using standardized and cross-country consistent sources: the Economist Intelligence Unit (EIU) country reports.

Construction of the WUI-The EIU Reports

COUNTRY REPORT

Bangladesh

Bangladesh at a glance: 2002-03

OVERVIEW
The political scene will remain polarised and the main priority of the ruling Bangladesh Nationalist Party (BNP) will be to restore law and order. The previous ruling party and the main loser of the October 2001 election, the Awami League (AL), continues to refuse to accept the legitimacy of the result or to participate fully in the political process. Agricultural and export growth will continue to drive down overall GDP growth in 2001/02, but the economy will accelerate in 2002/03, largely reflecting a recovery in export demand for Bangladesh's products. The government will try to push on with economic reform in the face of opposition from entrenched interests in state-owned enterprises and in parliament, but politics will take precedence over economic objectives.

Key changes from last month

Political outlook
- The BNP's proposal for talks over disputes, including the repeal of a law that makes it obligatory for pictures of the AL's founder to be displayed in public spaces, will not lead to a profound reconciliation with the AL opposition, even if the AL accepts. The government has started to fulfil one pledge made in the October 2001 general election campaign to root out corruption and has filed charges against AL members, including the former prime minister, Sheikh Hasina Wajed.

Economic policy outlook
- International donors have not made any explicit commitment on lending more to Bangladesh. The chances of obtaining more international aid in 2002 will depend on prudence in the 2002/03 budget and signs of progress on economic reform by the time of an IMF visit due in July.

Economic forecast
- The Economist Intelligence Unit has cut its forecast of agricultural sector growth in 2001/02 to 2.3% (in real terms) from 4.5%, now it is known that the area under cultivation has fallen. Consequently, we have trimmed the real GDP growth forecast for 2001/02 to 4%.

April 2002

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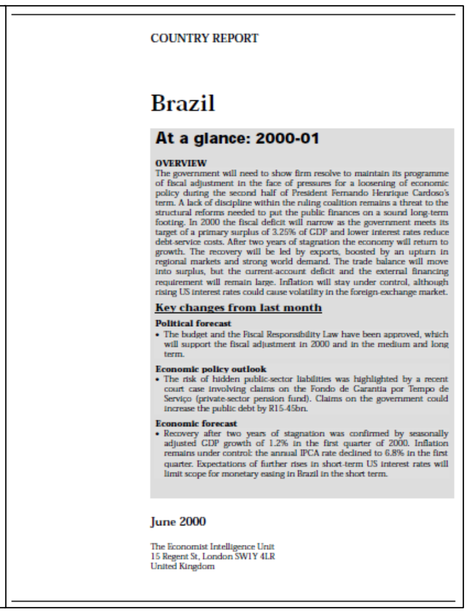
United Kingdom



COUNTRY REPORT

Brazil

At a glance: 2000-01

OVERVIEW
The government will need to show firm resolve to maintain its programme of fiscal adjustment in the face of pressures for a loosening of economic policy during the second half of President Fernando Henrique Cardoso's term. A lack of discipline within the ruling coalition remains a threat to the structural reforms needed to put the public finances on a sound long-term footing. In 2000 the fiscal deficit will narrow as the government meets its target of a primary surplus of 3.25% of GDP and lower interest rates reduce debt-service costs. After two years of stagnation the economy will return to growth. The recovery will be led by exports, boosted by an upturn in regional markets and strong world demand. The trade balance will move into surplus, but the current-account deficit and the external financing requirement will remain large. Inflation will stay under control, although rising US interest rates could cause volatility in the foreign-exchange market.

Key changes from last month

Political forecast
- The budget and the Fiscal Responsibility Law have been approved, which will support the fiscal adjustment in 2000 and in the medium and long term.

Economic policy outlook
- The risk of hidden public-sector liabilities was highlighted by a recent court case involving claims on the Fondo de Garantia por Tempo de Serviço (private-sector pension fund). Claims on the government could increase the public debt by R15-45bn.

Economic forecast
- Recovery after two years of stagnation was confirmed by seasonally adjusted GDP growth of 1.2% in the first quarter of 2000. Inflation remains under control: the annual IPCA rate declined to 6.8% in the first quarter. Expectations of further rises in short-term US interest rates will limit scope for monetary easing in Brazil in the short term.

June 2000

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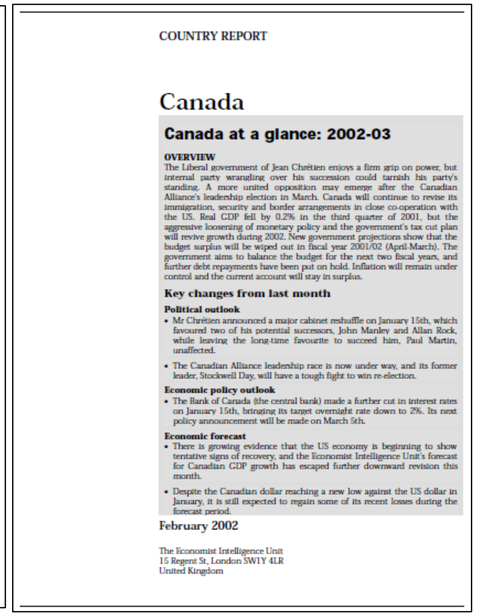

COUNTRY REPORT

Canada

Canada at a glance: 2002-03

OVERVIEW
The Liberal government of Jean Chrétien enjoys a firm grip on power, but internal party wrangling over his succession could tarnish his party's standing. A more united opposition may emerge after the Canadian Alliance's leadership election in March. Canada will continue to revise its immigration, security and border arrangements in close co-operation with the US. Real GDP fell by 0.2% in the third quarter of 2001, but the aggressive loosening of monetary policy and the government's tax cut plan will revive growth during 2002. New government projections show that the budget surplus will be wiped out in fiscal year 2001/02 (April-March). The government aims to balance the budget for the next two fiscal years, and further debt repayments have been put on hold. Inflation will remain under control and the current account will stay in surplus.

Key changes from last month

Political outlook
- Mr Chrétien announced a major cabinet reshuffle on January 15th, which favoured two of his potential successors, John Manley and Allan Rock, while leaving the long-time favourite to succeed him, Paul Martin, unaffected.
- The Canadian Alliance leadership race is now under way, and its former leader, Stockwell Day, will have a tough fight to win re-election.

Economic policy outlook
- The Bank of Canada (the central bank) made a further cut in interest rates on January 15th, bringing its target overnight rate down to 2%. Its next policy announcement will be made on March 5th.

Economic forecast
- There is growing evidence that the US economy is beginning to show tentative signs of recovery, and the Economist Intelligence Unit's forecast for Canadian GDP growth has escaped further downward revision this month.
- Despite the Canadian dollar reaching a new low against the US dollar in January, it is still expected to regain some of its recent losses during the forecast period.

February 2002

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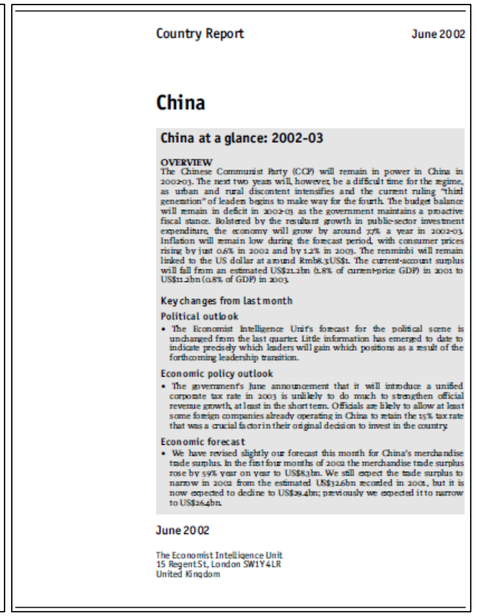

Country Report June 2002

China

China at a glance: 2002-03

OVERVIEW
The Chinese Communist Party (CCP) will remain in power in China in 2002-03. The next two years will, however, be a difficult time for the regime, as urban and rural discontent intensifies and the current ruling "third generation" of leaders begins to make way for the fourth. The budget balance will remain in deficit in 2002-03 as the government maintains a proactive fiscal stance. Bolstered by the resultant growth in public-sector investment expenditure, the economy will grow by around 7.3% a year in 2002-03. Inflation will remain low during the forecast period, with consumer prices rising by just 0.6% in 2002 and by 1.2% in 2003. The renminbi will remain linked to the US dollar at around Rmb8.3:US$1. The current-account surplus will fall from an estimated US$21.2bn (1.8% of current-price GDP) in 2001 to US$11.2bn (0.8% of GDP) in 2003.

Key changes from last month

Political outlook
- The Economist Intelligence Unit's forecast for the political scene is unchanged from the last quarter. Little information has emerged to date to indicate precisely which leaders will gain which positions as a result of the forthcoming leadership transition.

Economic policy outlook
- The government's June announcement that it will introduce a unified corporate tax rate in 2003 is unlikely to do much to strengthen official revenue growth, at least in the short term. Officials are likely to allow at least some foreign companies already operating in China to retain the 15% tax rate that was a crucial factor in their original decision to invest in the country.

Economic forecast
- We have revised slightly our forecast this month for China's merchandise trade surplus. In the first four months of 2002 the merchandise trade surplus rose by 5.9% year on year to US$8.3bn. We still expect the trade surplus to narrow in 2002 from the estimated US$32.6bn recorded in 2001, but it is now expected to decline to US$26.4bn; previously we expected it to narrow to US$26.4bn.

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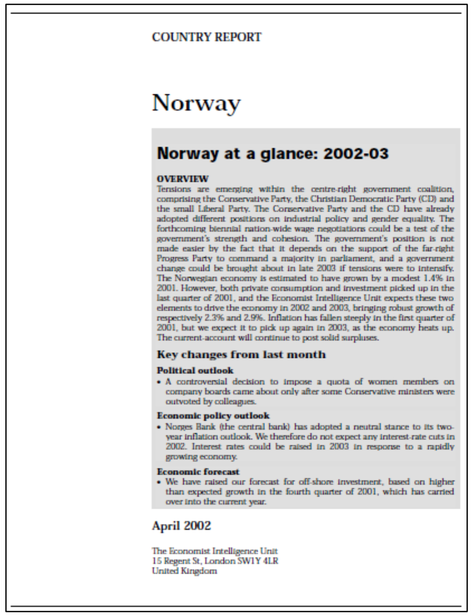

COUNTRY REPORT

Norway

Norway at a glance: 2002-03

OVERVIEW
Tensions are emerging within the centre-right government coalition, comprising the Conservative Party, the Christian Democratic Party (CD) and the small Liberal Party. The Conservative Party and the CD have already adopted different positions on industrial policy and gender equality. The forthcoming biennial nation-wide wage negotiations could be a test of the government's strength and cohesion. The government's position is not made easier by the fact that it depends on the support of the far-right Progress Party to command a majority in parliament, and a government change could be brought about in late 2003 if tensions were to intensify. The Norwegian economy is estimated to have grown by a modest 1.4% in 2001. However, both private consumption and investment picked up in the last quarter of 2001, and the Economist Intelligence Unit expects these two elements to drive the economy in 2002 and 2003, bringing robust growth of respectively 2.3% and 2.9%. Inflation has fallen steeply in the first quarter of 2001, but we expect it to pick up again in 2003, as the economy heats up. The current-account will continue to post solid surpluses.

Key changes from last month

Political outlook
- A controversial decision to impose a quota of women members on company boards came about only after some Conservative ministers were outvoted by colleagues.

Economic policy outlook
- Norges Bank (the central bank) has adopted a neutral stance to its two-year inflation outlook. We therefore do not expect any interest-rate cuts in 2002. Interest rates could be raised in 2003 in response to a rapidly growing economy.

Economic forecast
- We have raised our forecast for off-shore investment, based on higher than expected growth in the fourth quarter of 2001, which has carried over into the current year.

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Construction of the WUI-The EIU Reports

Focus

- The country report typically covers politics, economic policy, the domestic economy, foreign and trade payments events, and on their overall impact on the country risk. In short, these reports examine and discuss the main economic, financial, and political trends in a country.

Process

- In the *writing* the report step, field experts prepare a draft and send it to country experts based at headquarters.
- In the e*diting* step, country experts at headquarters integrate the draft with their own inputs, and make sure the structure of the report is consistent and standardized. They also check that the report is consistent with the EIU's global and regional views.
- In the second *check* step, a senior staff at headquarters does a thorough check of the draft.
- In the *sub-editing* step, sub-editors do a check to make sure that the report is well drafted, consistent, accurate, and do fact checking.
- In the *production* step, the report is checked to make sure that the report is properly coded and styled adequately.

Construction of the WUI

- We count the number of times uncertainty is mentioned in the EIU country reports. Specifically, for each country and quarter, we search through the EIU country reports for the words “uncertain”, “uncertainty”, and “uncertainties”.

- To make the WUI comparable across countries, we scale the raw counts by the total number of words in each report. (note: no systematic difference in the number of words across countries and over time).

Construction of the WUI

Pros

- Comparability of the WUI across countries:
  - The index is based on a single source that has specific topic coverage—economic and political developments.

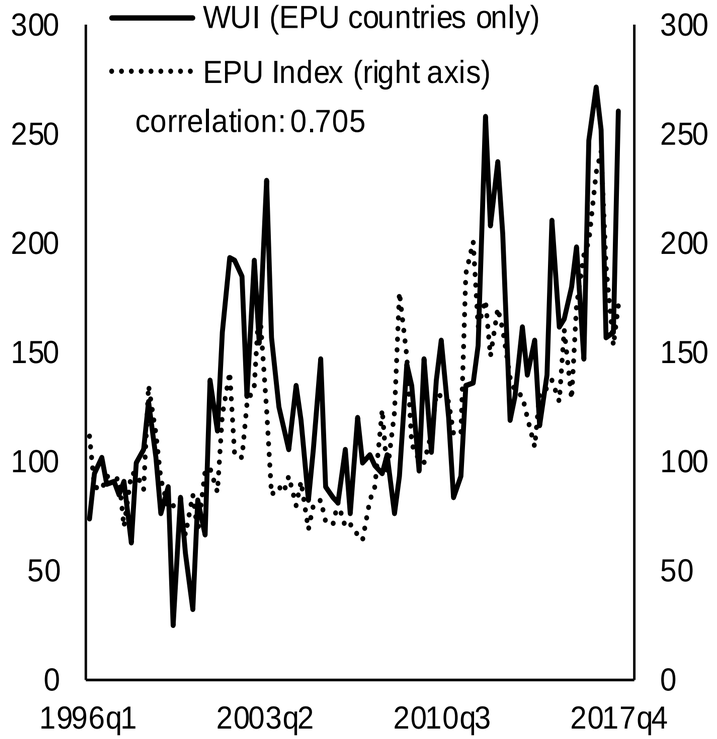
  - The reports follow a standardized process and structure which helps to mitigate concerns about the accuracy, ideological bias and consistency of the WUI.

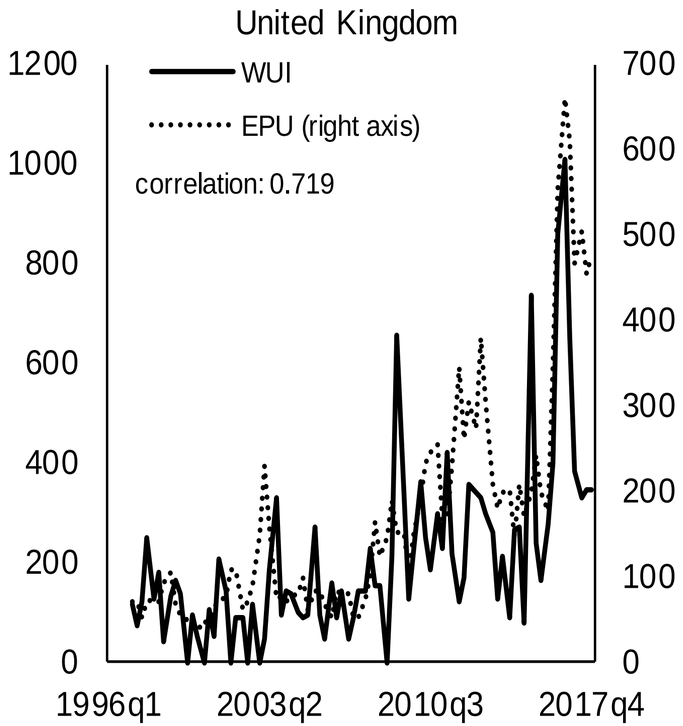
Cons

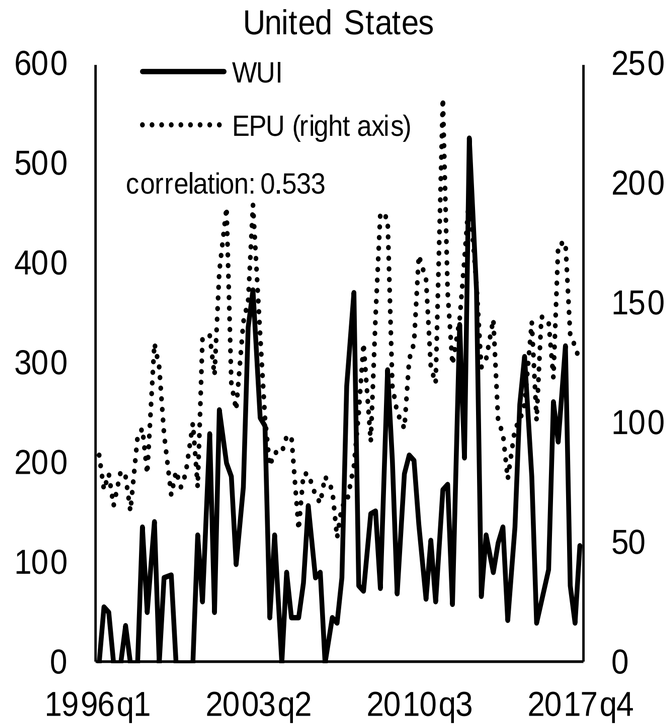
- We only have one EIU report per country per quarter, so a far smaller body of text than the EPU index, so the sampling noise is likely to be substantial higher.

- We are reliant on the accuracy of the EIU reports, which to our knowledge are extremely high quality, but it still raises potential concerns over reliance on one underlying source.

Reliable? WUI vs EPU



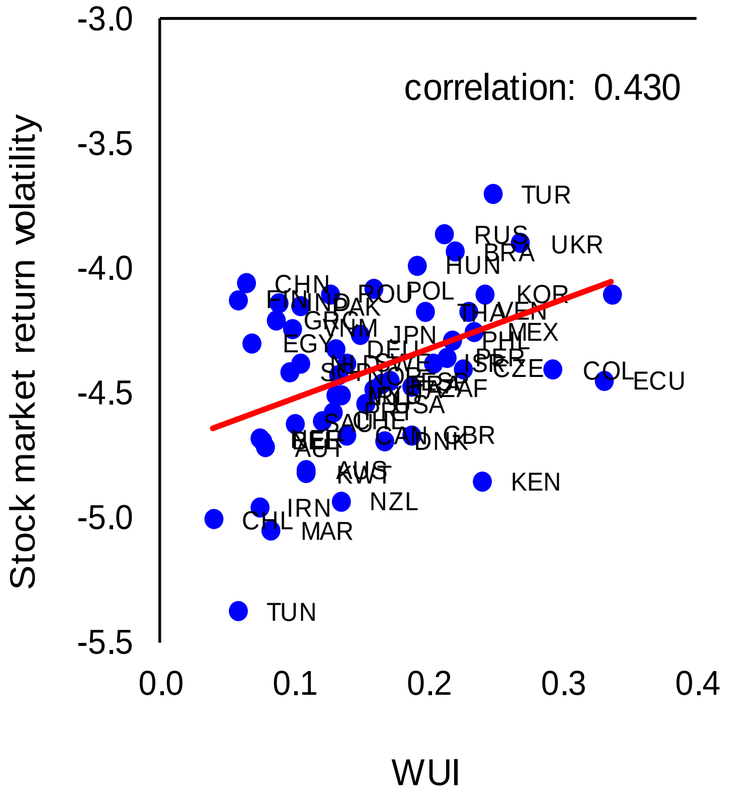


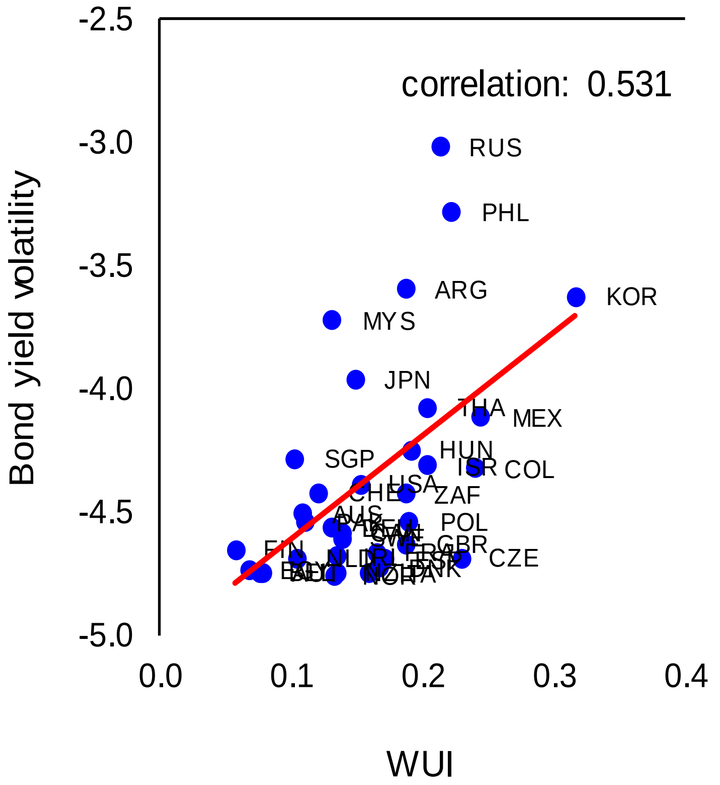


Note: The World Uncertainty Index (WUI) is computed by counting the frequency of uncertain (or the variant) in EIU country reports. The WUI is then normalized by total number of words, rescaled by multiplying by 1,000. Here is also rescaled by the global average of 1996Q1 to 2010Q4 such that 1996Q1-2010Q4=100. A higher number means higher uncertainty and vice versa. For the other countries covered by the EPU the median correlation is about 0.4.

EPU more global in nature, WUI more country-specific (Chile a remarkable example).

Reliable? Level of WUI vs. Level of volatility





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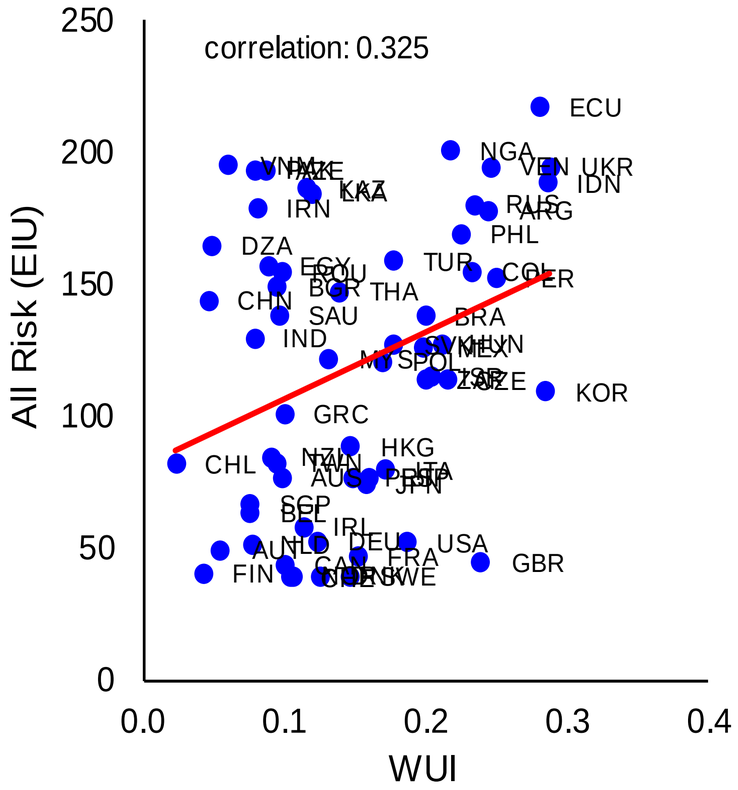
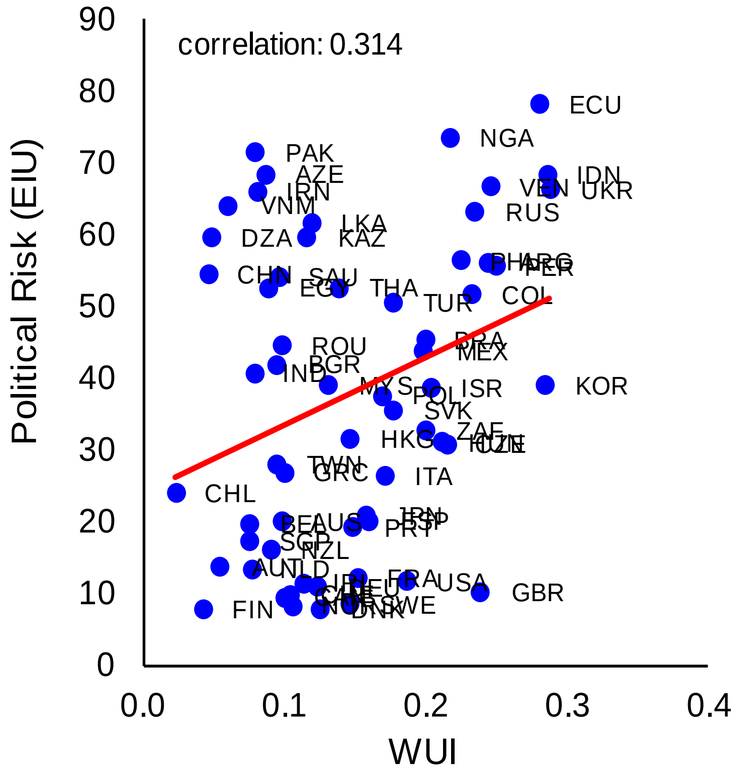
Reliable? Level of WUI vs. Level of risk





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Reliable? WUI vs. EPU & Volatility—panel framework

Dependent Variable WUI									
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)
EPU	123.843*** (2.96)	129.064*** (4.60)	59.941*** (3.52)						
Stock Vol				0.353*** (3.30)	0.131** (2.08)	0.128** (2.19)			
Growth							-0.025*** (-4.41)	-0.017*** (-3.58)	-0.007* (-1.90)
Country FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	No	No	Yes	No	No	Yes	No	No	Yes
N	1558	1558	1558	3766	3766	3766	4768	4768	4768
R^2 (within R2)	0.10	0.10	0.42	0.02	0.00	0.38	0.01	0.01	0.29

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*,**,*** denote statically significance at 10, 5, and 1 percent respectively. T-statics in columns (I), (IV) and (VII) based on clustered standard errors.
T-statics in the remaining columns based on Driscoll-Kraay standard errors. R^2 reported for columns (I), (IV) and (VII); otherwise within R^2 reported.

Reliable? WUI & Elections

	t-2	t-1	t	t+1	t+2
All elections	-0.002 (-0.29)	0.022*** (2.63)	0.044*** (4.64)	0.047*** (4.78)	0.023** (2.90)
Exogenous	-0.003 (-0.19)	0.036** (2.44)	0.074*** (4.21)	0.053*** (3.54)	0.015 (1.17)

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t denotes time (quarter) of election. Dates for elections from Alesina et al. (2019). Sample: 377 election in 72 "democratic" countries, among which 166 are exogenous.
*,**,*** denote statically significance at 10, 5, and 1 percent respectively. T-statics in columns (I), (IV) and (VII) based on clustered standard errors.
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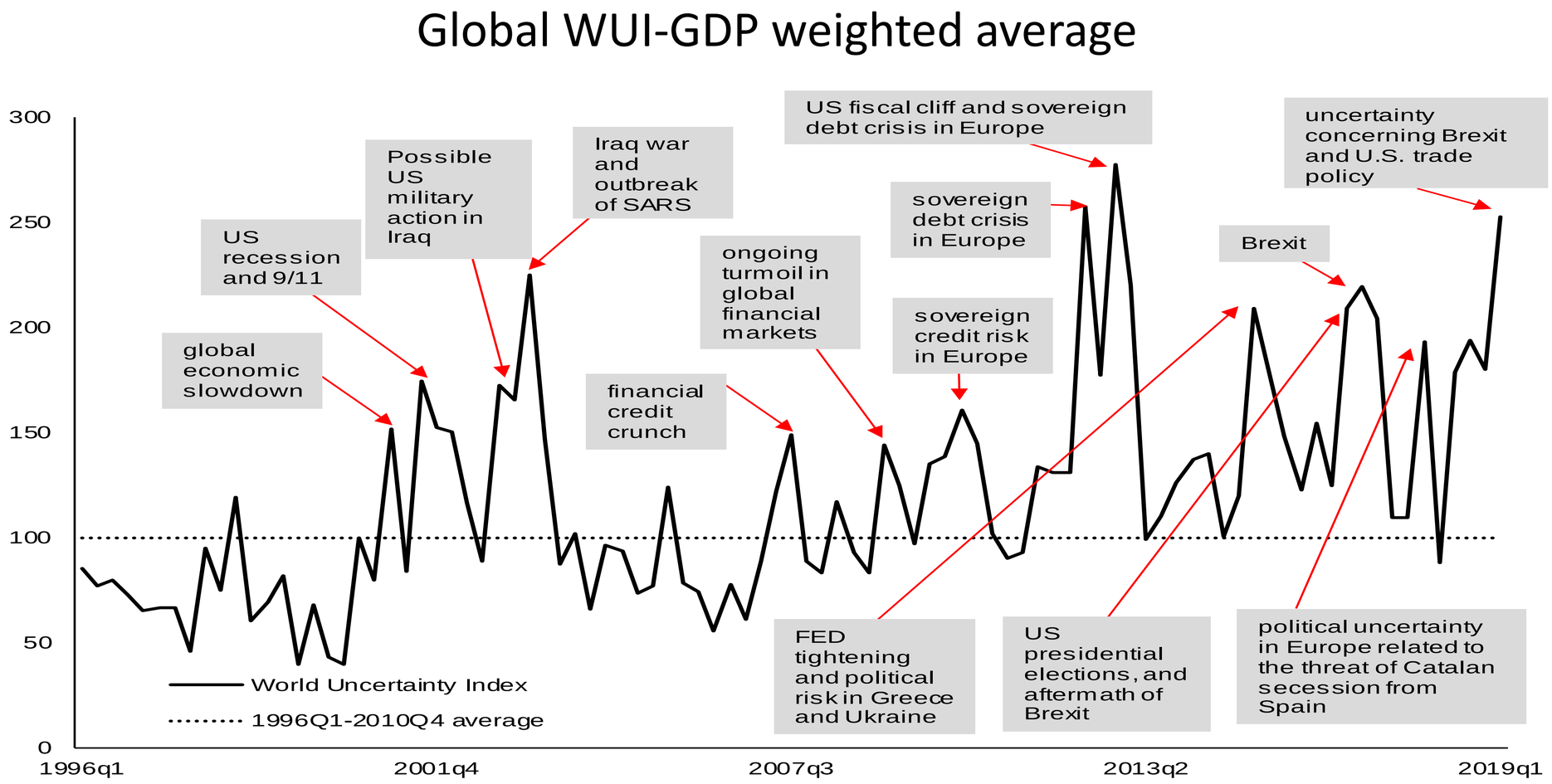
Stylized fact 1-Global uncertainty at historical high



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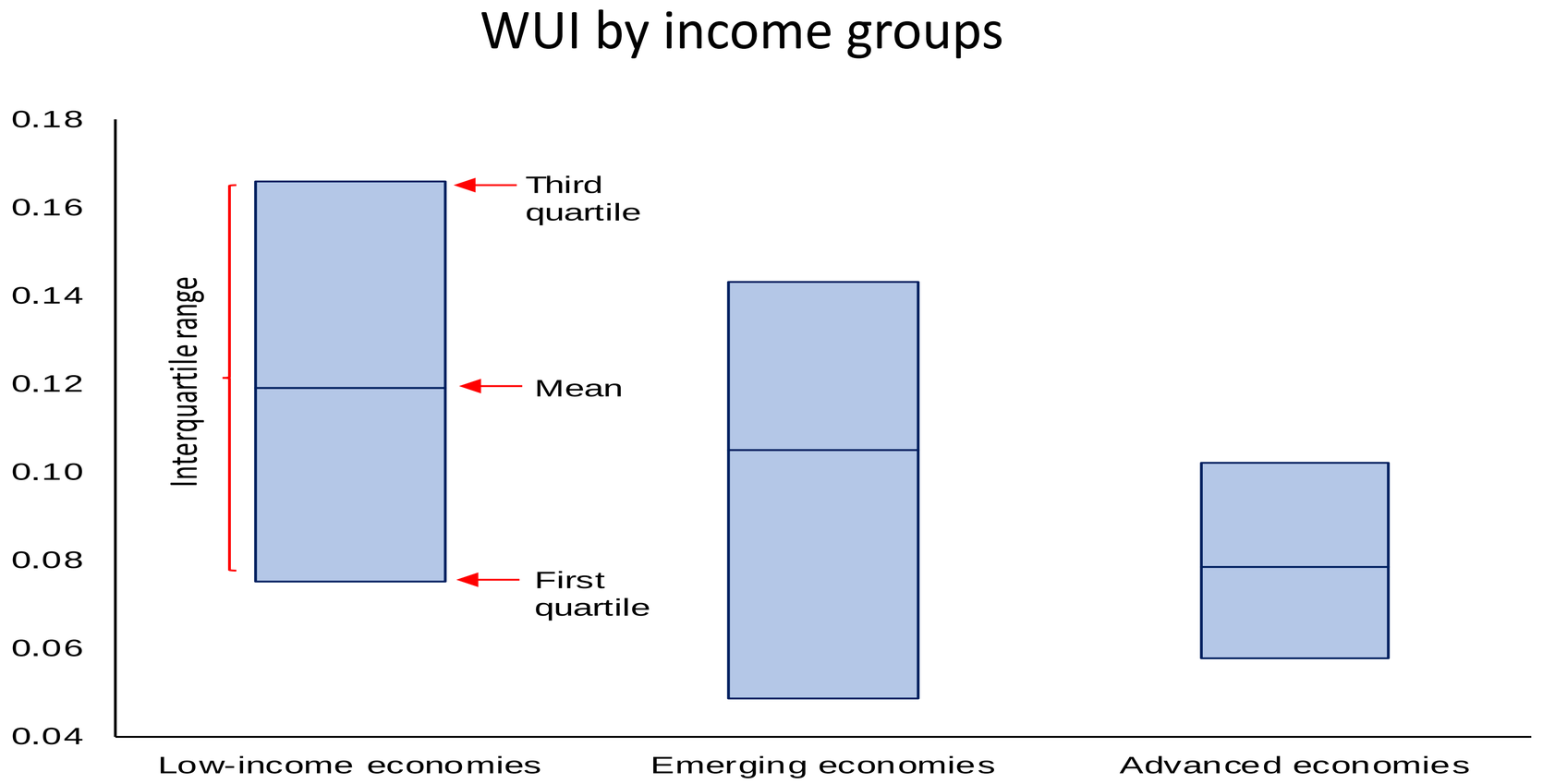
Stylized fact 2-Uncertainty higher in developing economies



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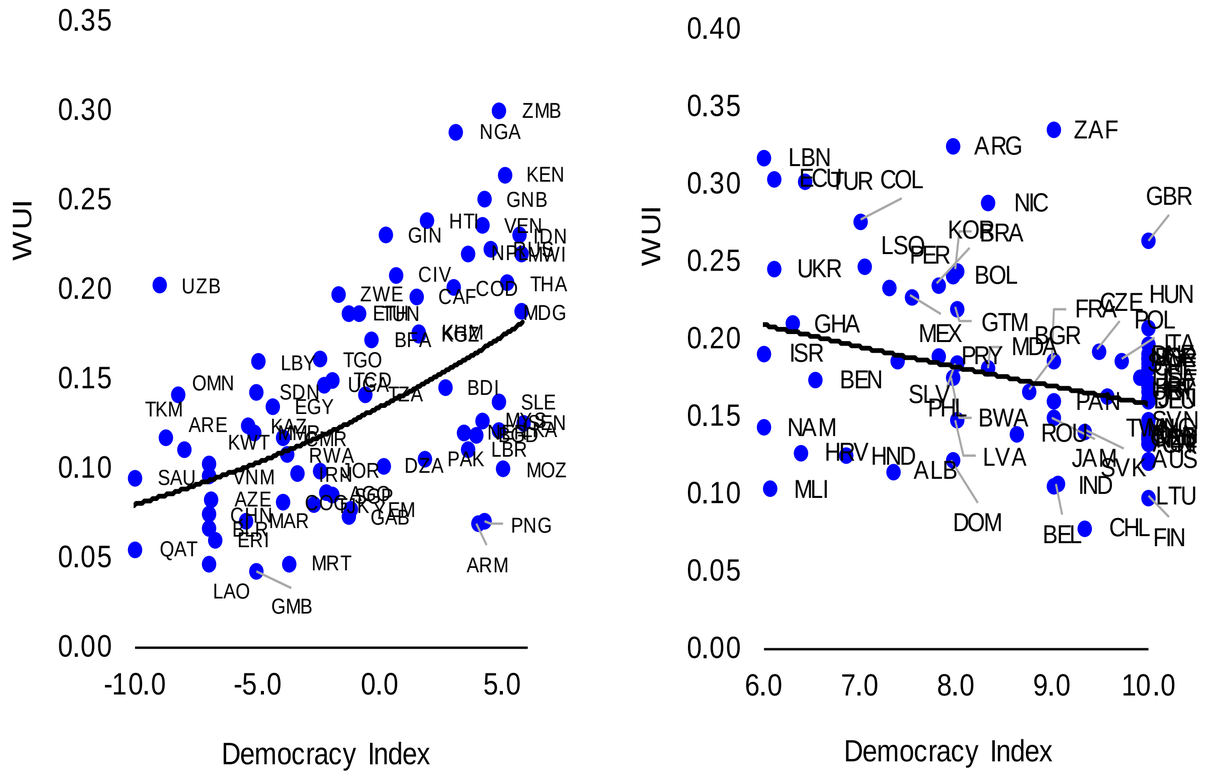
Stylized fact 3- inverted U-shape between uncertainty and democracy

WUI and democracy



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Stylized fact 4-Uncertainty spikes more synchronized in advanced economies

	Synchronization	Correlation	Variance Explained by 1st Factor—PCA
All countries	-0.167	0.071	0.150
Advanced economies	-0.146	0.121	0.221
Emerging and low-income economies	-0.185	0.011	0.144
European	-0.134	0.224	0.283

Note: synchronization between country *i* and *j* at time *t* defined as: $\varphi_{i,j,t} = -\left|U_{i,t} - U_{j,t}\right|$, where *U* denotes the WUI.

Stylized fact 4-with higher trade and financial linkages

	(I)[a]	(II)[a]	(III)	(IV)	(V)	(IV)
Trade linkages	0.113**		0.741**		0.738**	0.746**
	(2.37)		(2.47)		(2.49)	(2.52)
Financial linkages		0.131**		0.314**	0.313**	0.317**
		(2.32)		(1.95)	(2.01)	(2.06)
Output synchronization						0.011***
						(3.10)
Country-pair FE	No	No	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
N	15,393	15,393	15,393	15,393	15,393	15,393

Note: synchronization between country *i* and *j* at time *t* defined as: $\varphi_{i,j,t} = -\left|U_{i,t} - U_{j,t}\right|$, where *U* denotes the WUI.
Estimates are based on the following equation: $\varphi_{i,j,t} = \alpha_{i,j} + \gamma_t + \beta_1 TR_{i,j,t} + \beta_1 FI_{i,j,t} + \delta O_{i,j,t} + \varepsilon_{i,j,t}$ where $TR_{i,j}$ denotes trade linkages—defined as bilateral trade between country *i* and *j*, normalized by the sum of total trade of country *i* and *j*; $FI_{i,j}$ denotes financial linkages—defined as bilateral assets and liabilities between country *i* and *j*, normalized by the sum of total assets and liabilities of country *i* and *j*. $O_{i,j}$ denotes output synchronization—defined as minus the absolute value GDP growth difference between country *i* and *j*, normalized by the sum of GDP growth of country *i* and *j*. **,*** denote significance at 5 and 1 percent, respectively. Country-pair and time fixed effects included but not reported.
[a] dummy for common language and past or present colonial relationship included.

Approaches

- Effect of uncertainty shocks on output
  - ❑ quarterly data (smaller sample)
  - ❑ VAR approach
  - ❑ IV-SVAR using exogenous elections as instruments

- Heterogeneity across countries➔ larger effects in countries with weaker institutions
  - ❑ annual data (entire sample)
  - ❑ looking both at output and investment
  - ❑ local projection
  - ❑ role of institutions

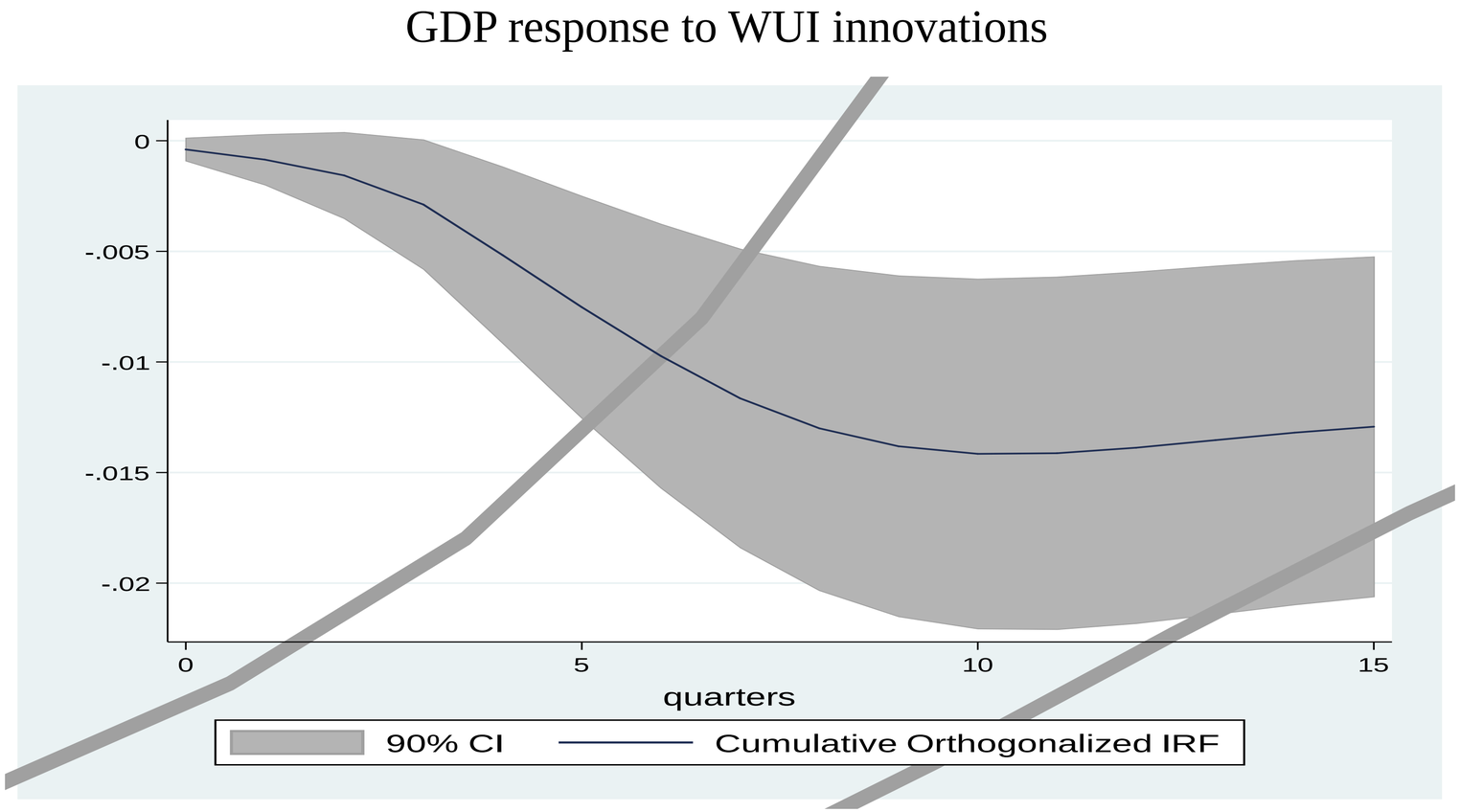
- Heterogeneity across sectors➔larger effects in sectors that are more financially constrained
  - ❑ annual data for 22 industries
  - ❑ looking both at output and investment
  - ❑ role of financial constraints

Ongoing work and next steps

- Extend time coverage back to 1952
- Trade uncertainty (new measure and analysis)
- Other categories (monetary, fiscal, political, external vs. domestic..)

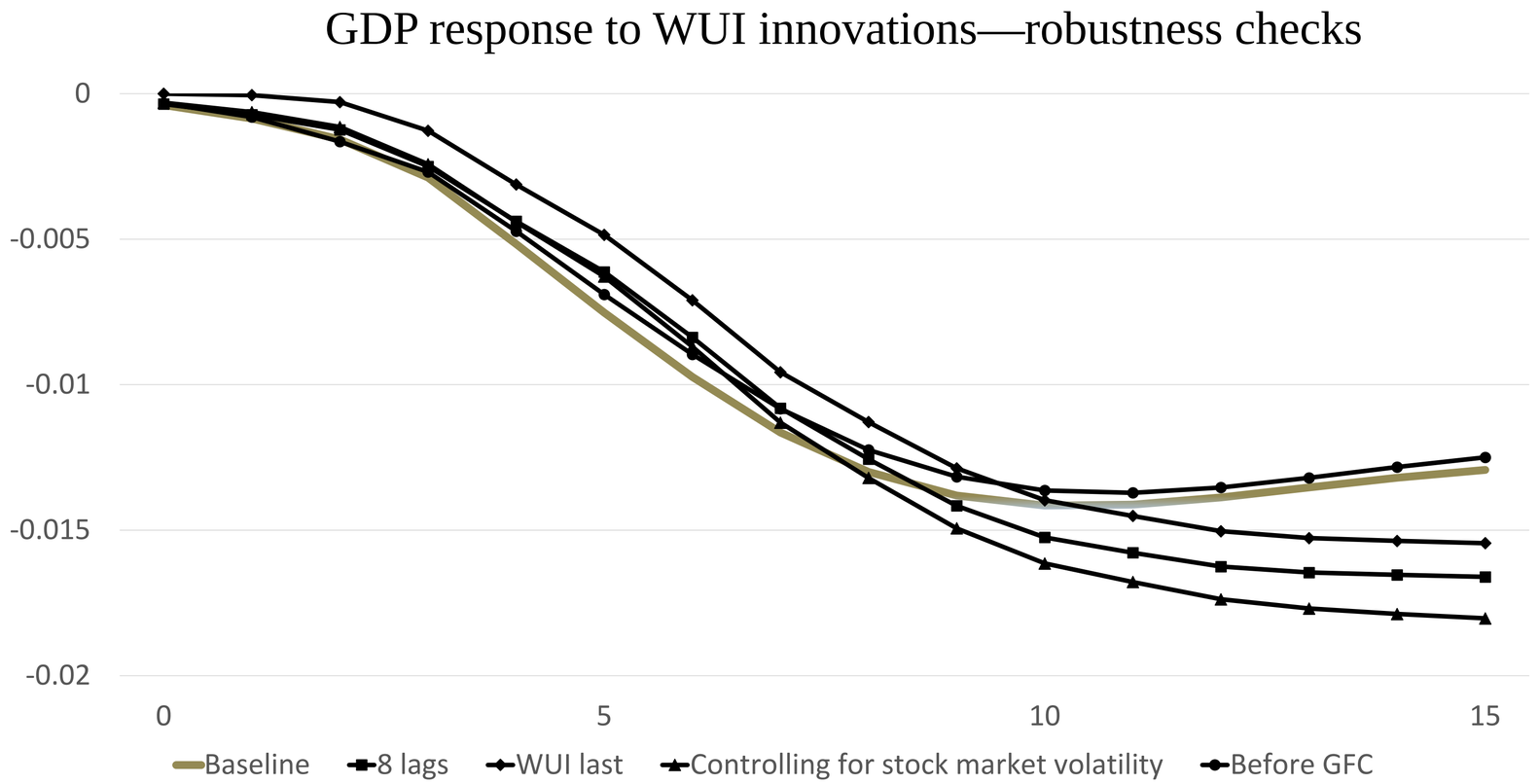
Additional Slides

Effect of uncertainty on economic activity-quarterly



Note: VAR fit to quarterly data for a panel of 46 countries from 1996q1 to 2018q2. Impulse responses of GDP to a one-standard deviation increase in the WUI—equal to the change in average value in the index from 2014 to 2016—based on a Cholesky decomposition with the following order: the log of average stock return, the WUI and GDP growth.
The specification includes four lags of all variables. Country and time fixed effects are included.

Effect of uncertainty on economic activity-quarterly



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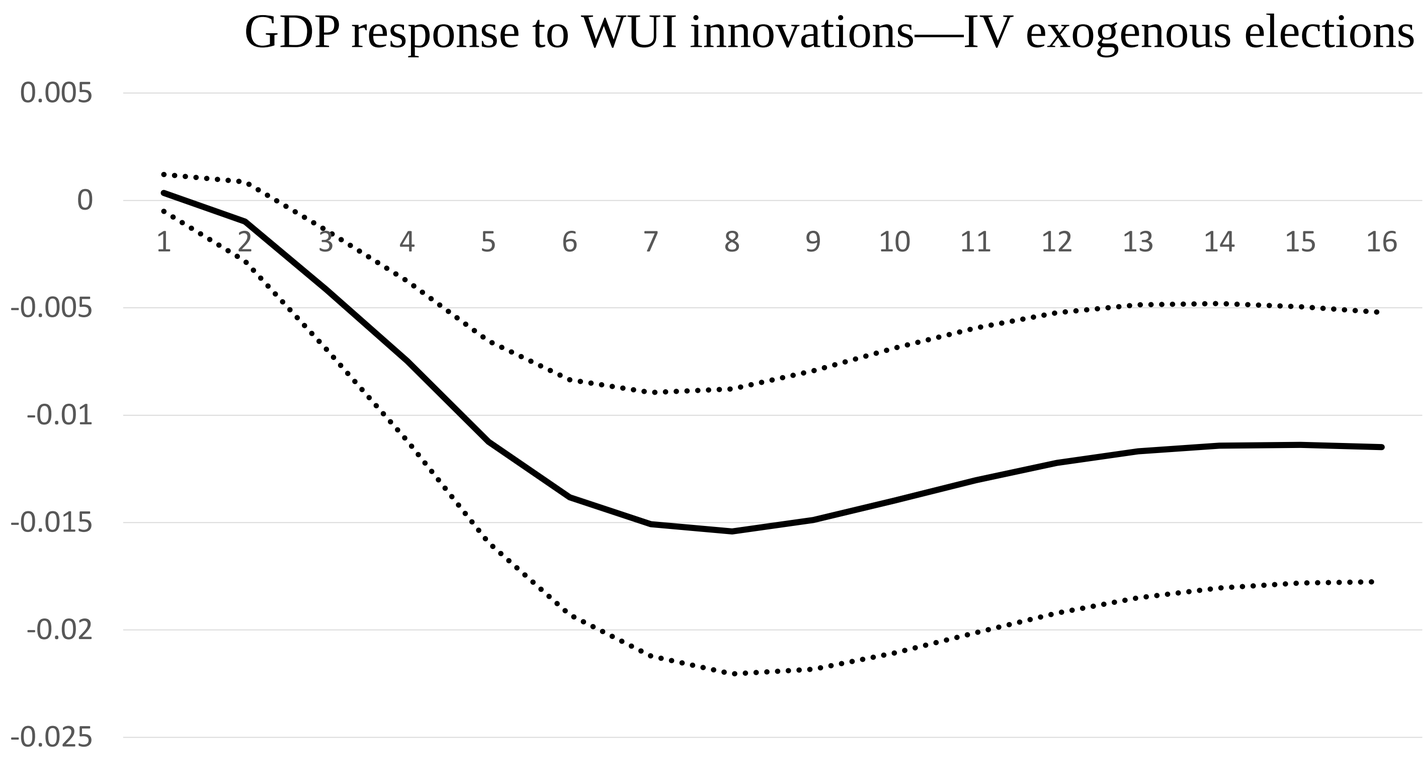
Effect of uncertainty on economic activity-quarterly



Note: VAR fit to quarterly data for a panel of 42 countries from 1996q1 to 2018q2. Impulse responses of GDP to a one-standard deviation increase in WUI—equal to the change in average value in the index from 2014 to 2016—using as instrument exogenous elections and based on a Cholesky decomposition with the following order: exogenous elections, the log of average stock return, the WUI and GDP growth. The specification includes four lags of all variables. Country and time fixed effects are included. SVAR-IV approach of Plagborg-Moller and Wolf (2019).

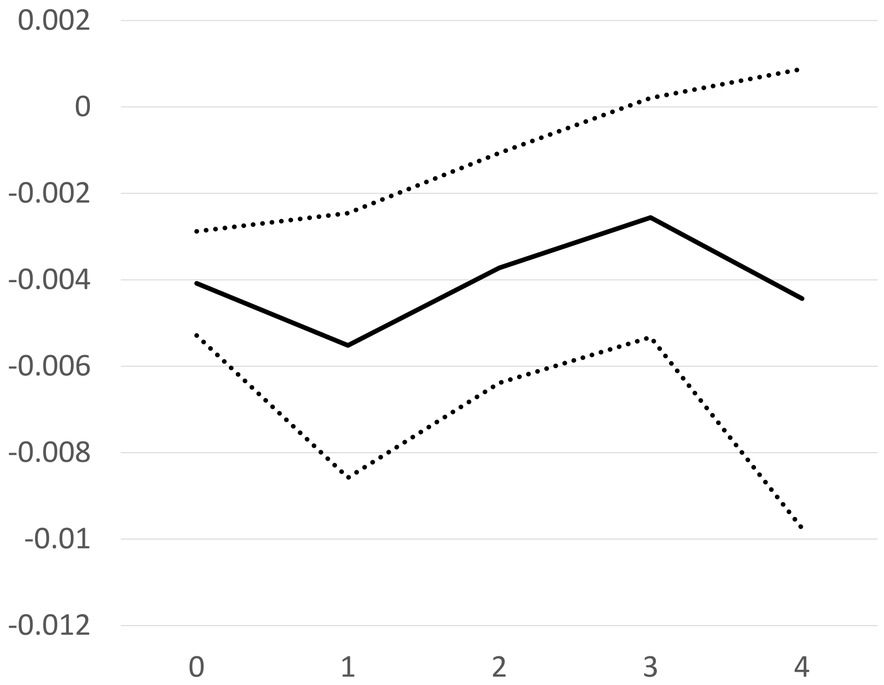
First stage: $WUI_{i,t} = 0.183 + 0.098 Exogenous$

(6.47)

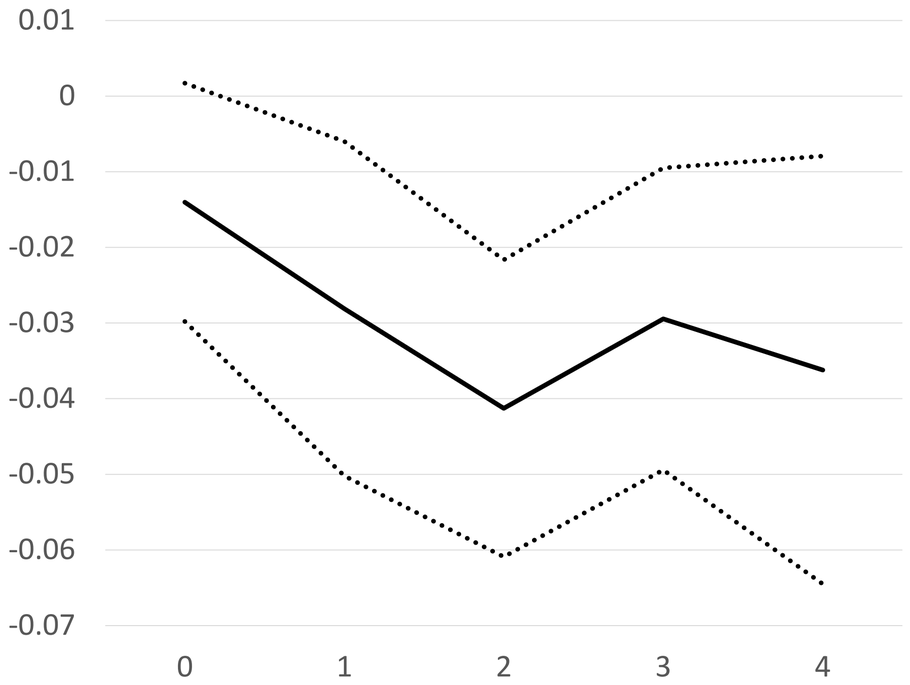
t-statistics in parenthesis.

Effect of uncertainty on economic activity-annual

GDP response to WUI innovations



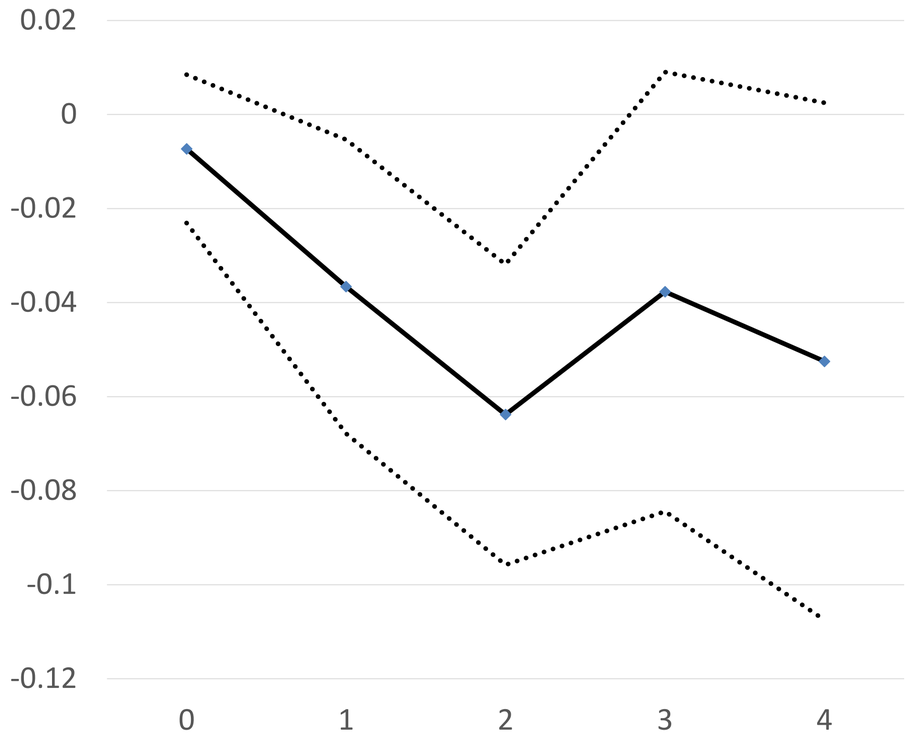
Investment response to WUI innovations



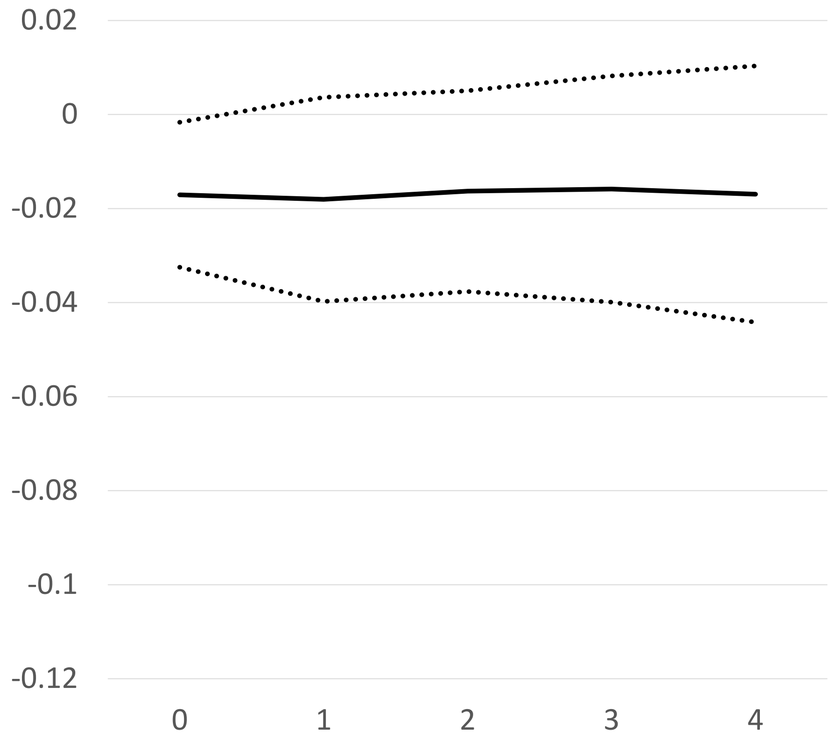
Note: Response estimated using the local projection method (Jorda 2005) :$y_{i,t+k} - y_{i,t-1} = \alpha_i + \gamma_t + \beta WUI_{i,t} + \theta' X_{i,t} + \varepsilon_{i,t}$
where y is the log of output (investment); α_i are country-fixed effects; γ_t are time-fixed effects; *X* is a set of controls including lags of the growth rate of output and of the WUI index. Estimates based on annual data for a panel of 143 countries from 1996 to 2017. Solid line denoted the impulse responses of GDP to a one-standard deviation increase in the WUI—equal to the change in average value in the index from 2014 to 2016. Dotted lines denote 90 percent confidence bands.

Effect of uncertainty on investment-role of institutions

Below-median rule of law



Above-median rule of law

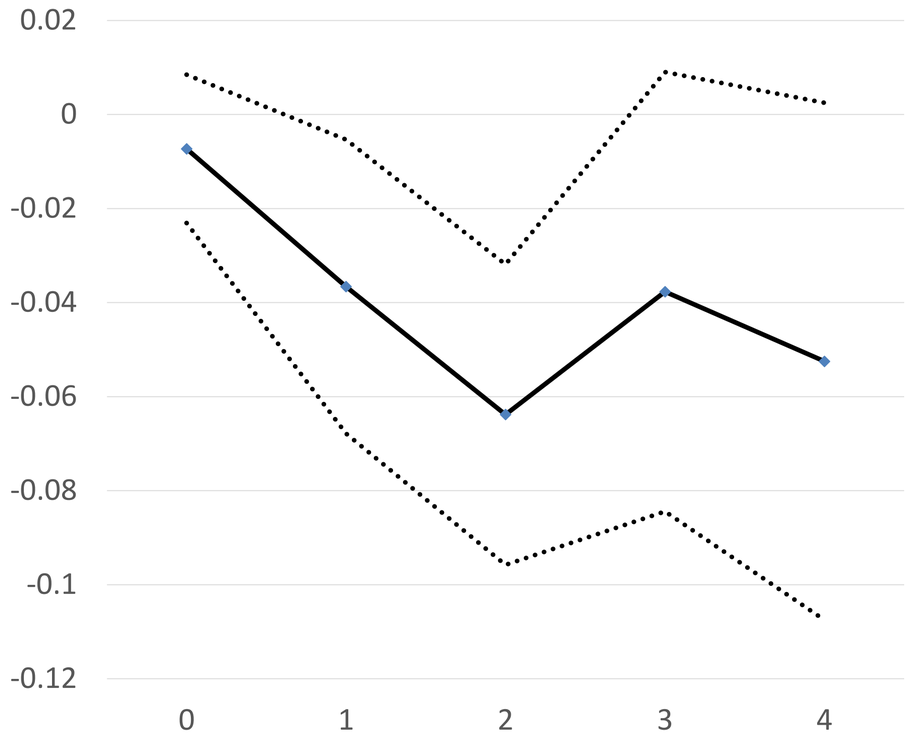


Note: Response estimated using the local projection method (Jorda 2005) :$y_{i,t+k} - y_{i,t-1} = \alpha_i + \gamma_t + \beta^l D_i WUI_{i,t} + \beta^h (1 - D_i) WUI_{i,t} + \theta' X_{i,t} + \varepsilon_{i,t}$
where y is the log of output (investment); α_i are country-fixed effects; γ_t are time-fixed effects; *X* is a set of controls including lags of the growth rate of output and of the WUI index. Estimates based on annual data for a panel of 143 countries from 1996 to 2017. Solid line denoted the impulse responses of GDP to a one-standard deviation increase in the WUI—equal to the change in average value in the index from 2014 to 2016. Dotted lines denote 90 percent confidence bands. Rue of law based on WDI.

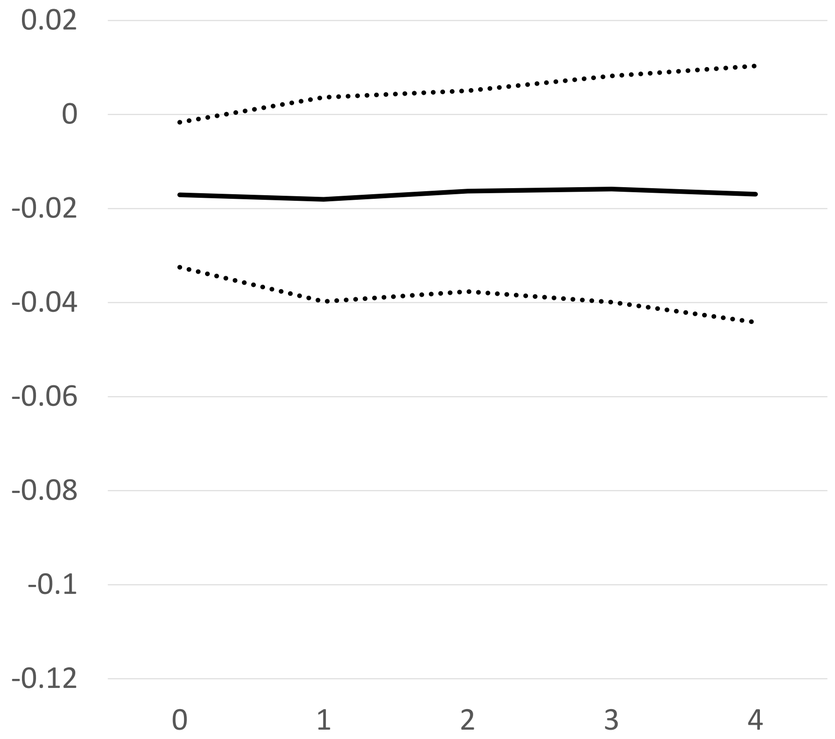
Results robust for different measures of institutional quality, to different thresholds, controlling for the level of development, unsegmenting rule of law with European settle mortality rates.

Effect of uncertainty on investment-role of institutions

Below-median rule of law



Above-median rule of law

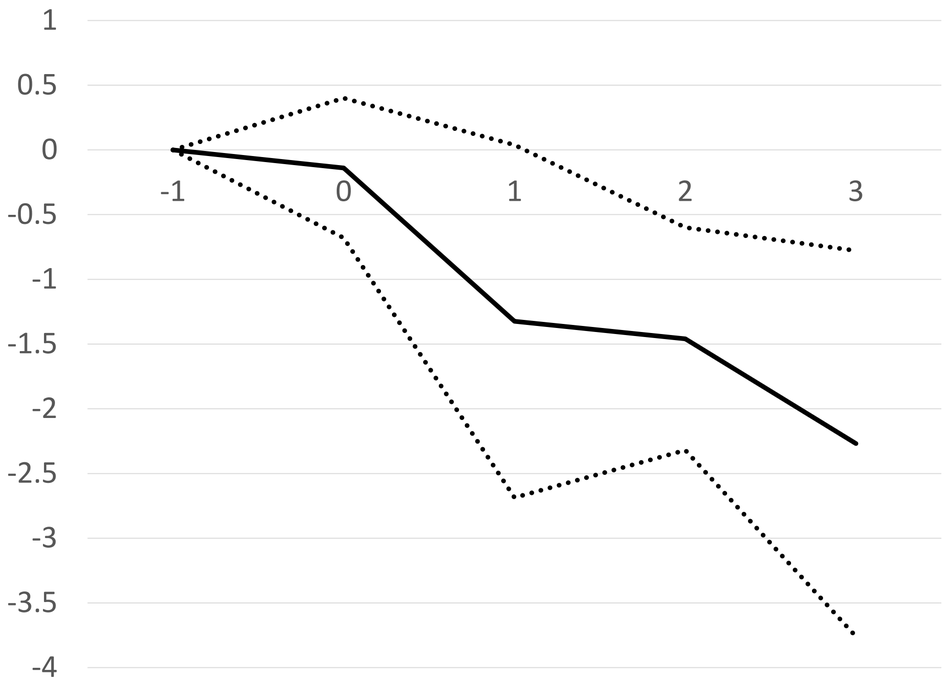


Note: Response estimated using the local projection method (Jorda 2005) :$y_{i,t+k} - y_{i,t-1} = \alpha_i + \gamma_t + \beta^l D_i WUI_{i,t} + \beta^h (1 - D_i) WUI_{i,t} + \theta' X_{i,t} + \varepsilon_{i,t}$
where y is the log of output (investment); α_i are country-fixed effects; γ_t are time-fixed effects; *X* is a set of controls including lags of the growth rate of output and of the WUI index. Estimates based on annual data for a panel of 143 countries from 1996 to 2017. Solid line denoted the impulse responses of GDP to a one-standard deviation increase in the WUI—equal to the change in average value in the index from 2014 to 2016. Dotted lines denote 90 percent confidence bands. Rue of law based on WDI.

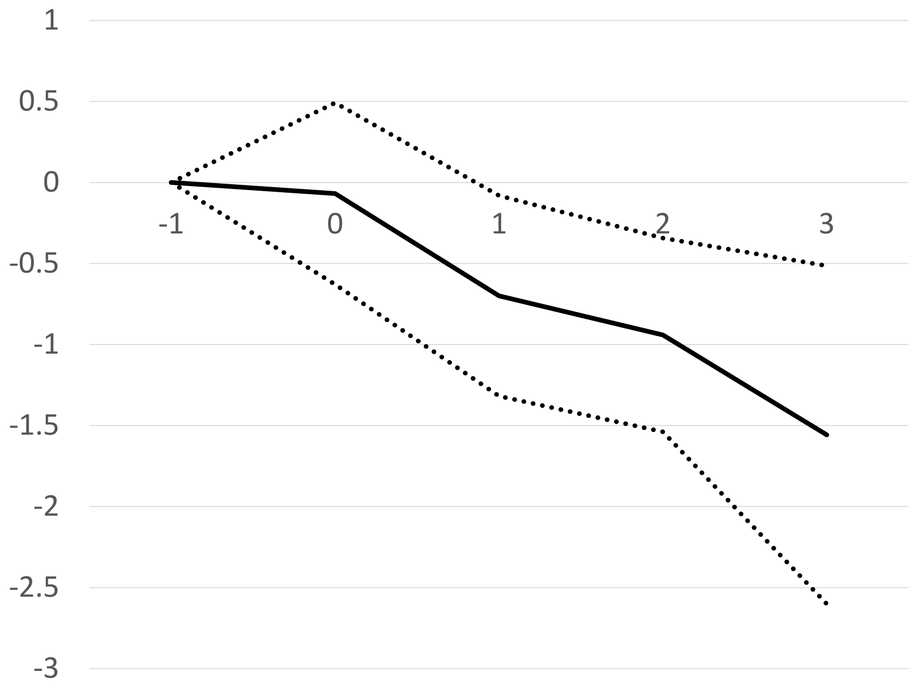
Results robust for different measures of institutional quality, to different thresholds, controlling for the level of development, unsegmenting rule of law with European settle mortality rates.

Effect of uncertainty on economic activity- sectoral data and role of financial constraints

Differential output response

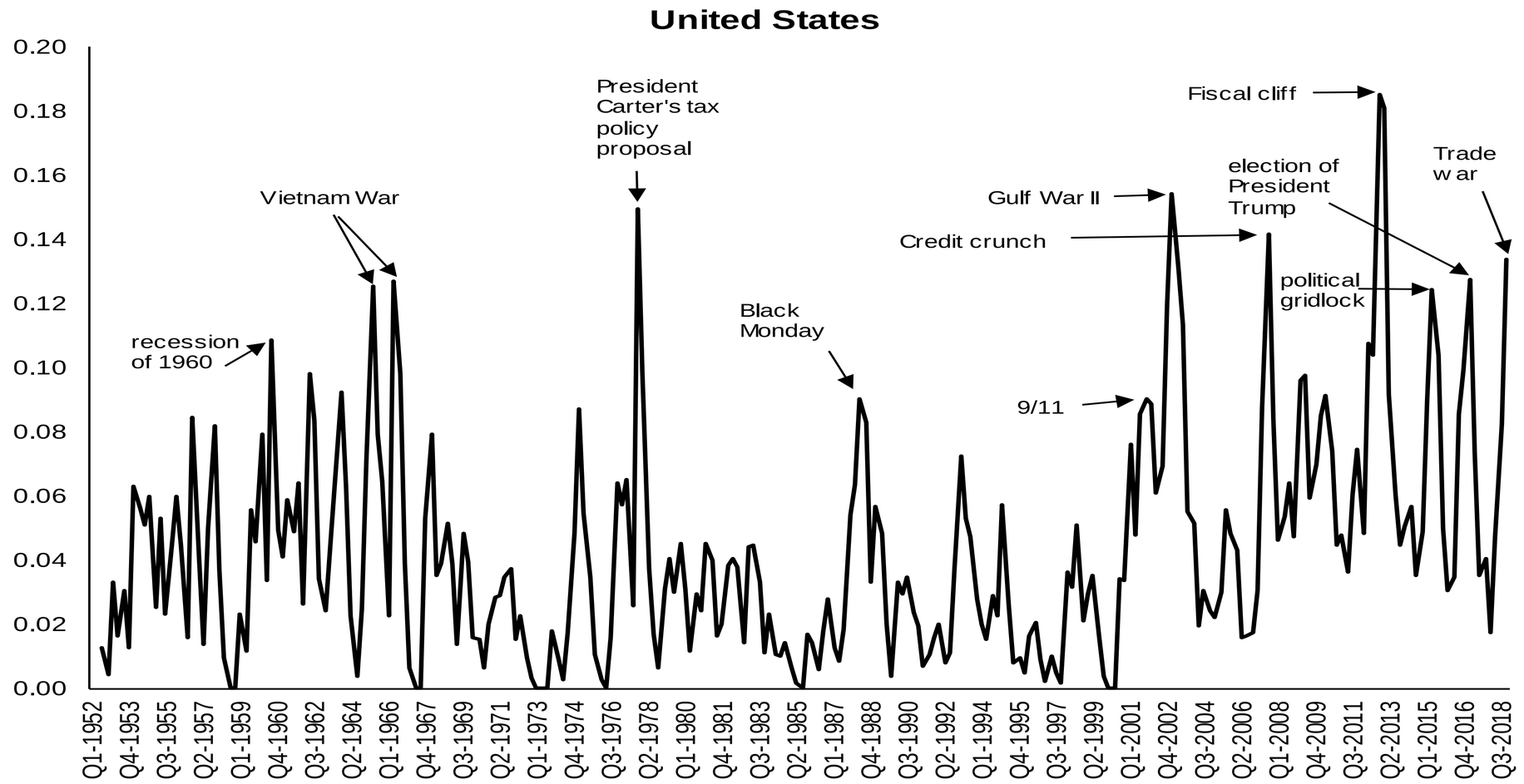


Differential productivity response

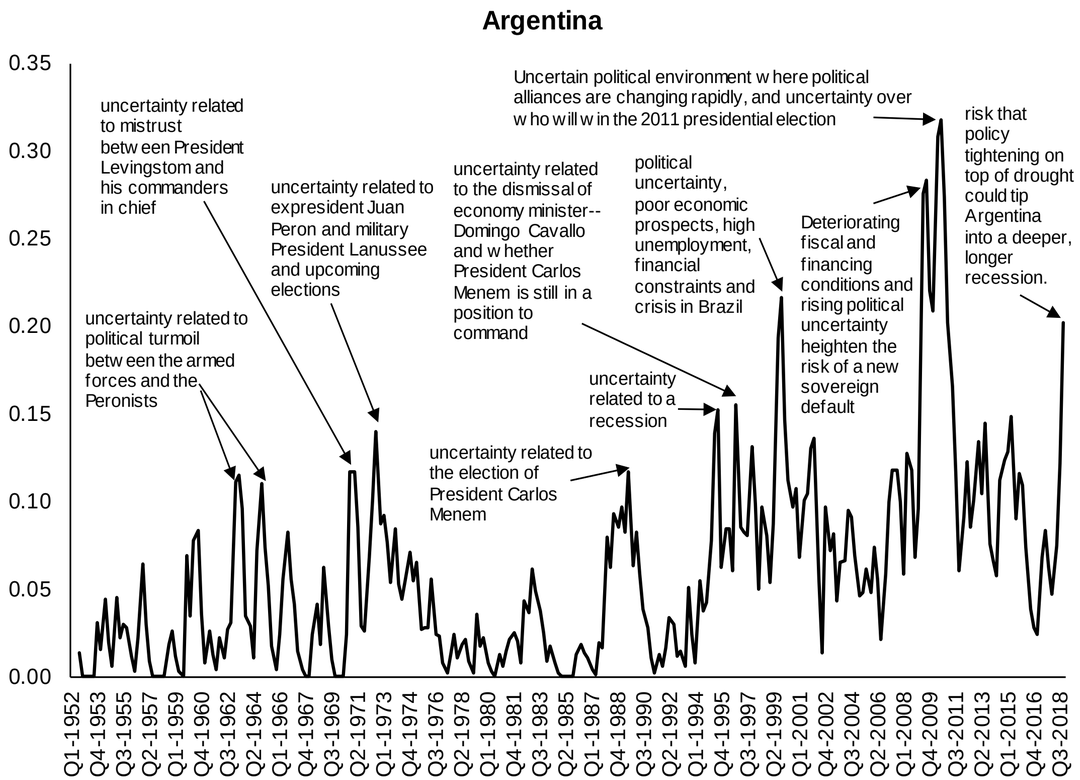


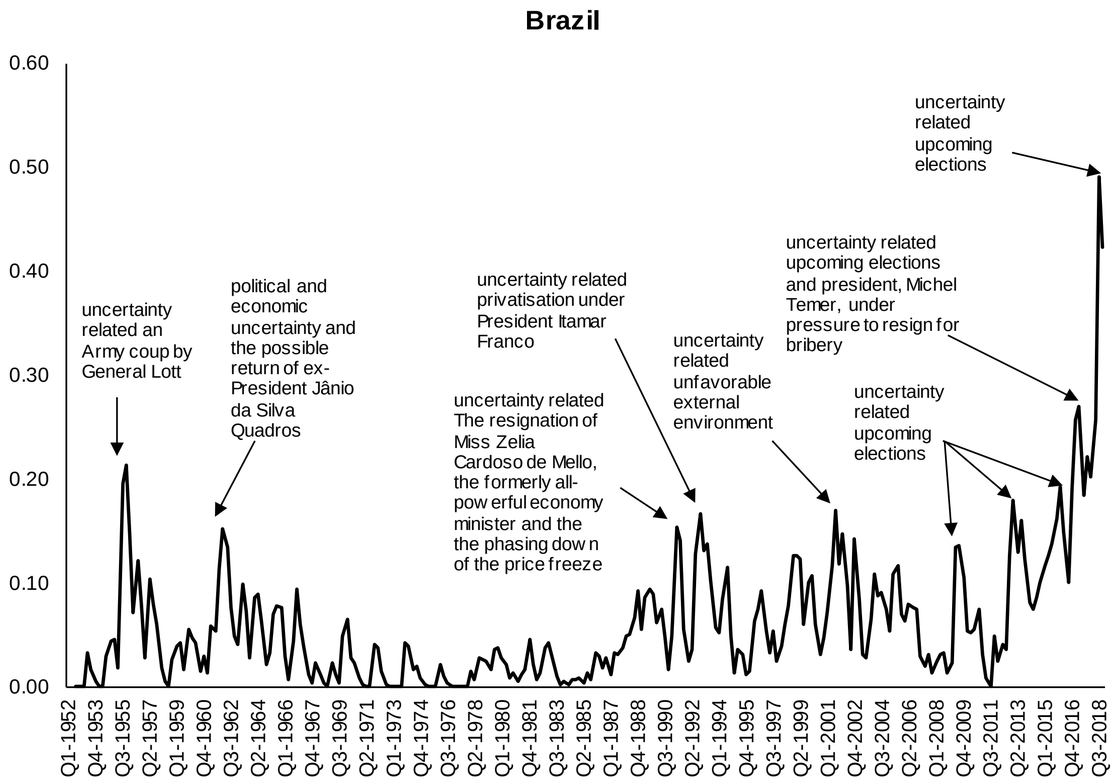
Note: Response estimated using the following specification: $\Delta y_{jit} = \alpha_{ij} + \gamma_{it} + \delta_{jt} + \sum_{k=0}^{3} \beta_k WUI_{i,t-k} EFD_j + \varepsilon_{jit}$
where y is the log of sectoral output; α_{ij} are sector-country fixed effects; γ_{it} are country-time fixed effects; δ_{jt} are sector-time fixed effects; EFD is the Rajan and Zingales's (1998) measure of the degree of dependence on external finance in each industry—measured as the median across all U.S. firms, in each industry, of the ratio of total capital expenditures minus the current cash flow to total capital expenditures. Estimates based on annual data for a panel of 22 industries, 56 countries from 1995 to 2017 (the size of the estimation sample is 25,618 observations).
Solid line denotes the differential output effect to a one-standard deviation increase in the WUI—equal to the change in average value in the index from 2014 to 2016—of an industry with high external financial dependence (at the 75th percentile distribution of the indicator) compared to an industry with low external financial dependence (at the 25th percentile distribution of the indicator). Dotted lines denote 90 percent confidence bands.

Time coverage

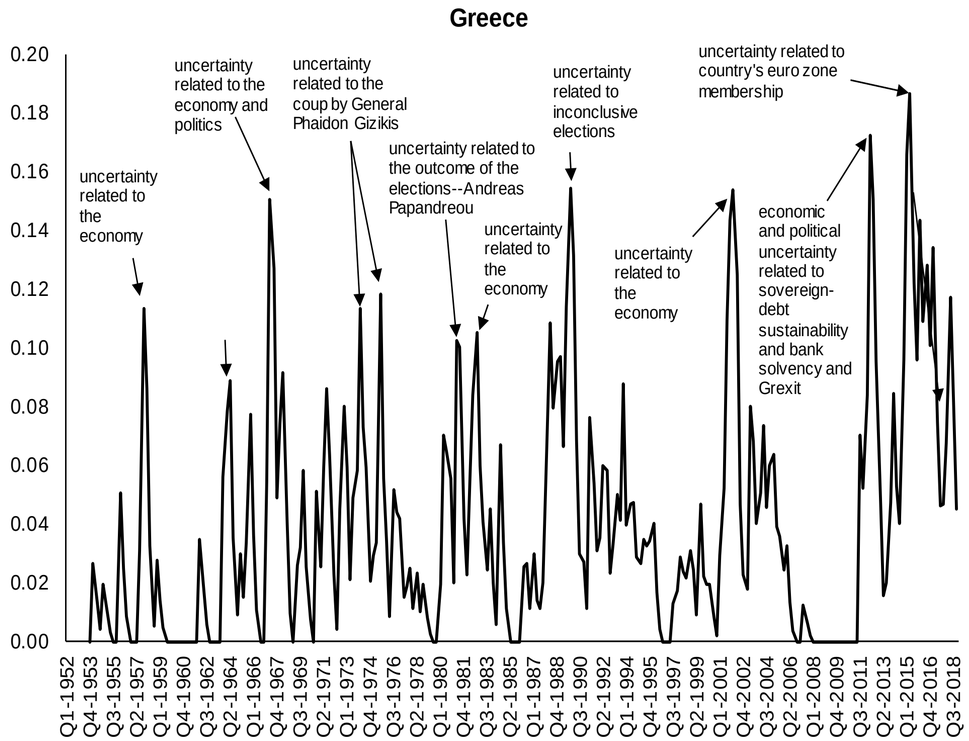


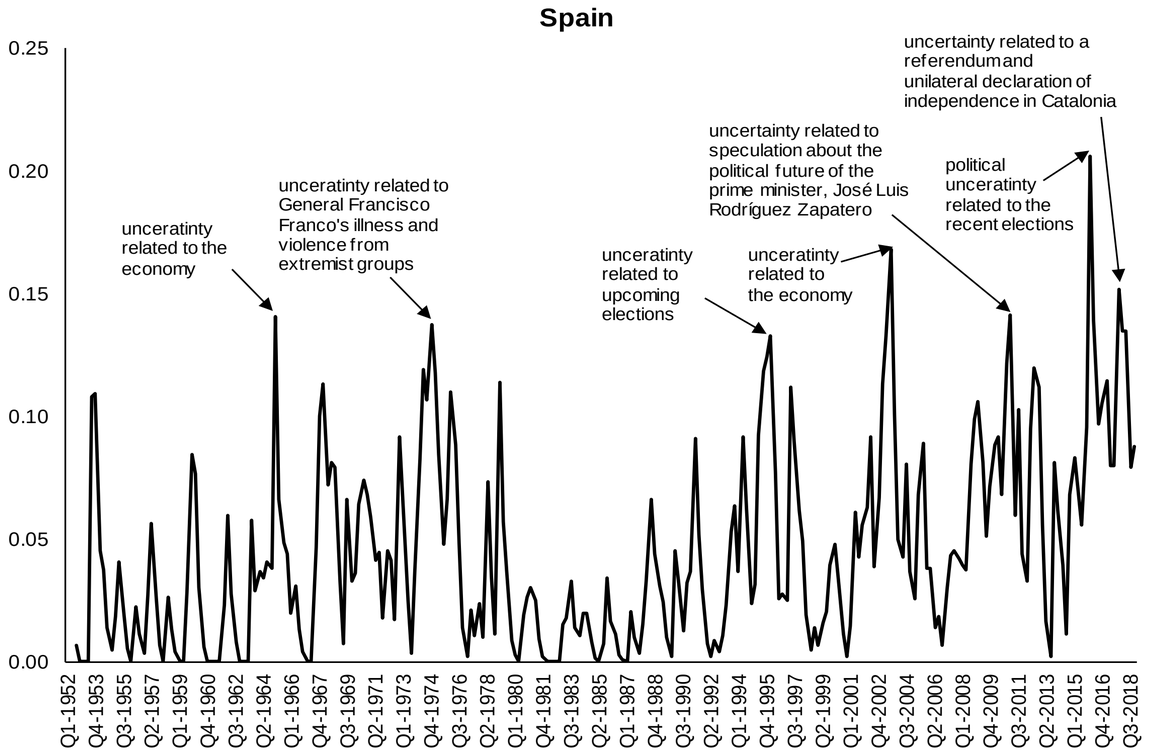
Time coverage



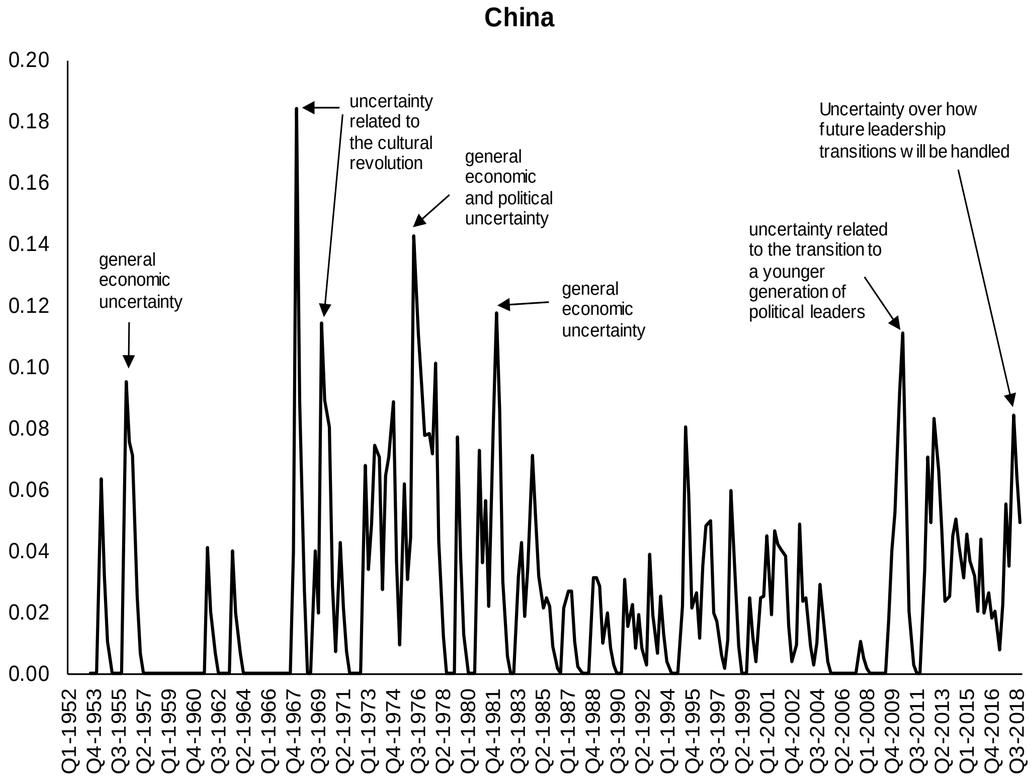


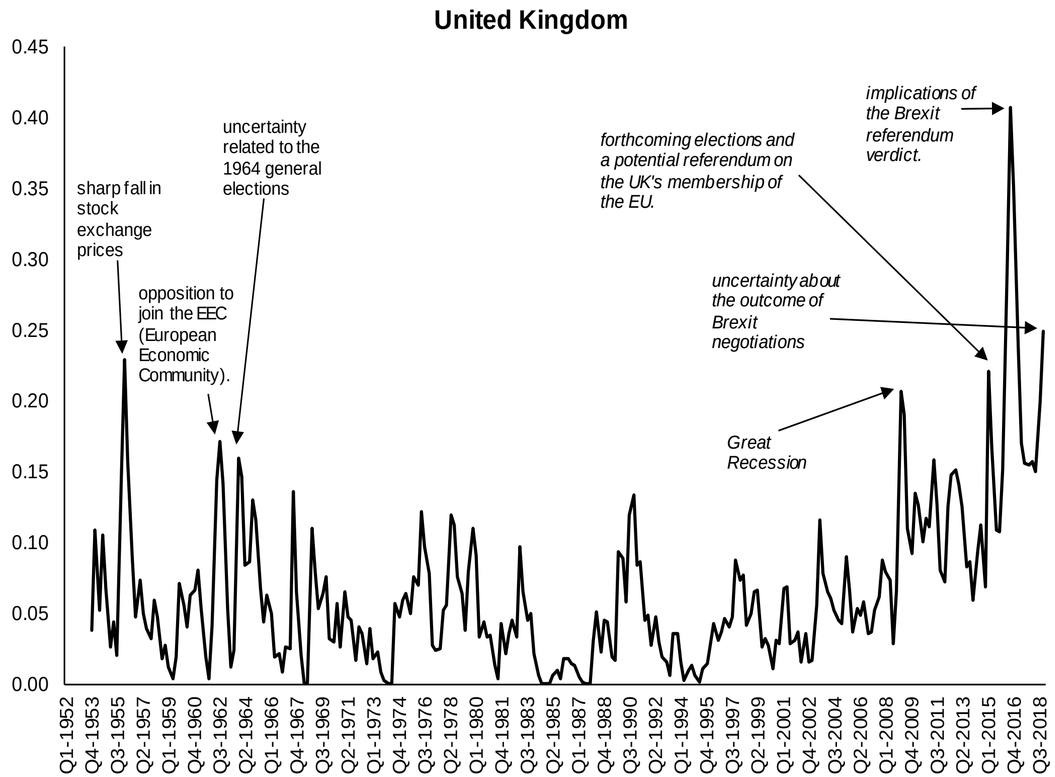
Time coverage



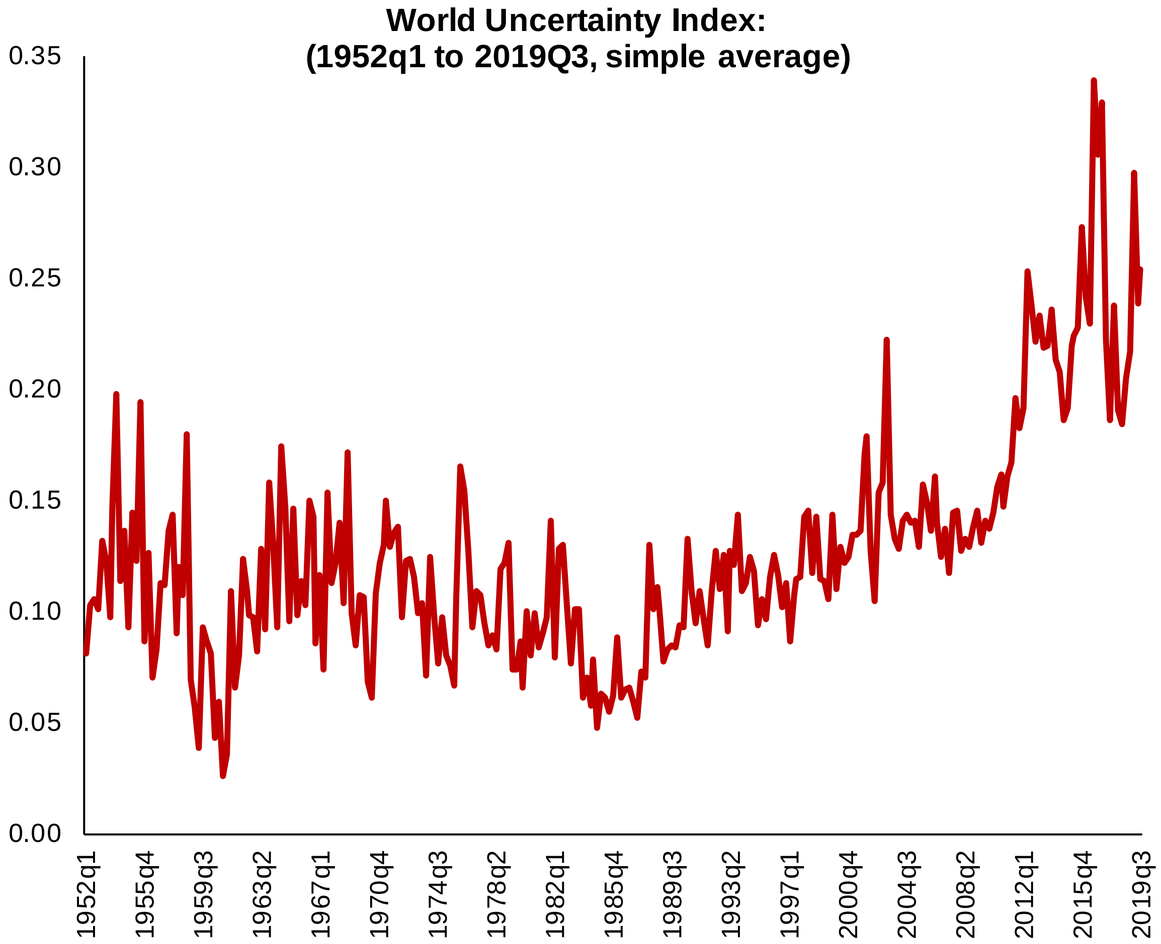


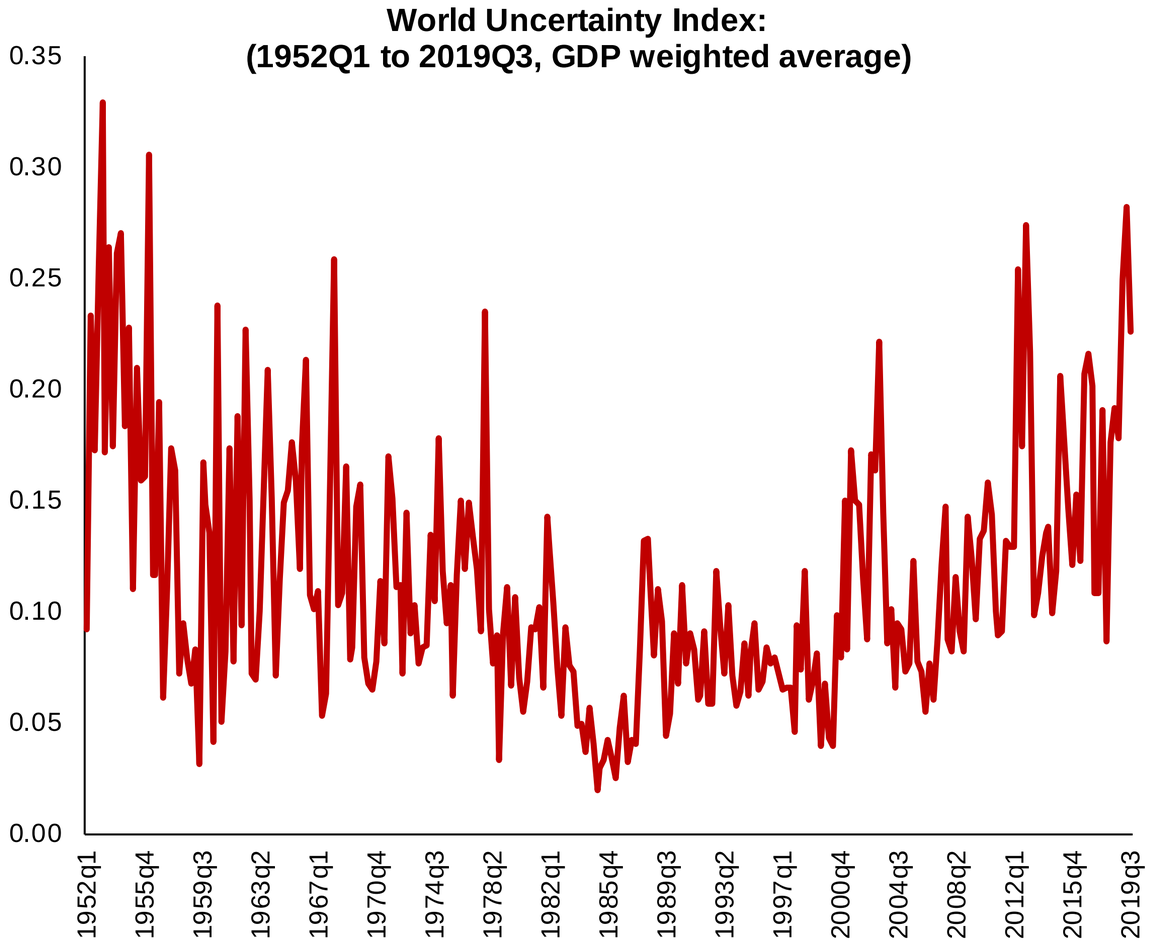
Time coverage



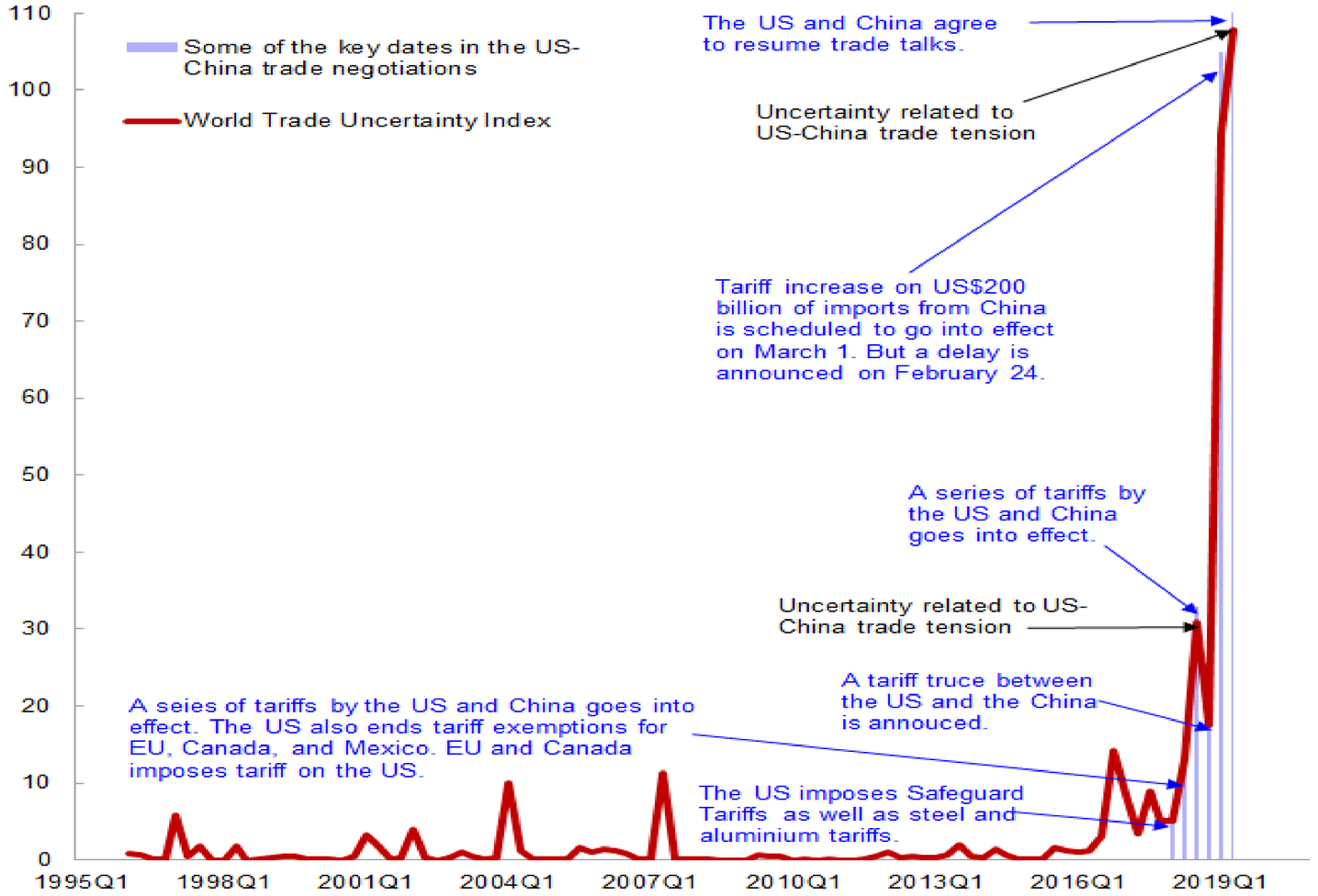


Time coverage



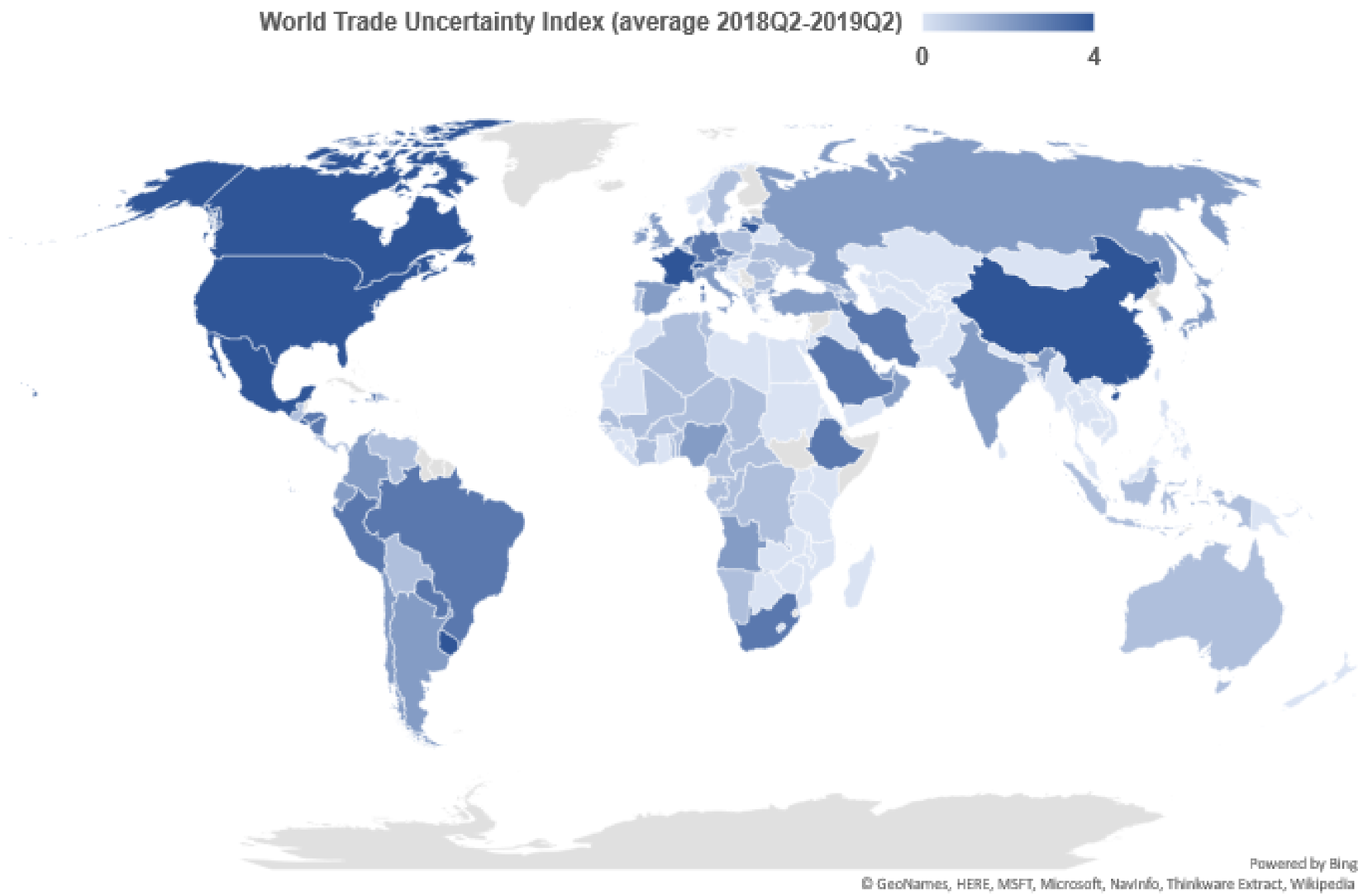


Trade uncertainty (WTU)

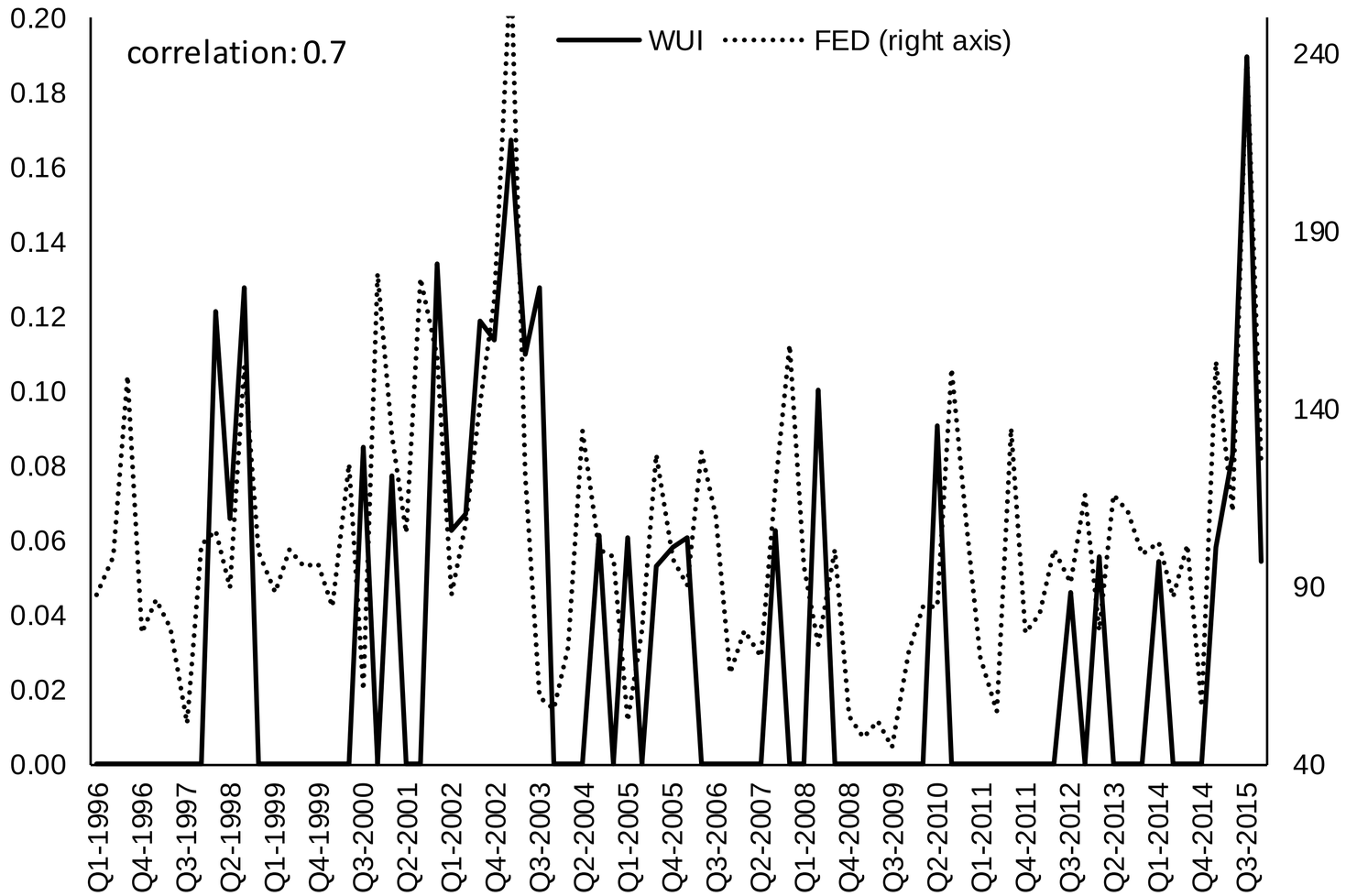


Note: The font in blue indicates the tariff measure taken, and the font in black indicates the narrative of the World Trade Uncertainty index. A higher number means higher trade uncertainty and vice versa. The source for the data on key dates in the US-China trade negotiations comes from Bown and Kolb (2019).

Trade uncertainty (WTU)



Monetary policy uncertainty



The World Uncertainty Index

Hites Ahir (IMF), Nick Bloom (Stanford University) and Davide Furceri (IMF)

ASSA San Diego—January 2020