Twitter-Based Economic Policy Uncertainty Index for Chile

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Motivation

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  - Civil protests and riots in mid-October 2019
  - Covid-19 pandemic in mid-March 2020

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- **This paper**
  - ▶ Develop an uncertainty measure at a daily frequency (DEPUC) using the informational content of tweets
  - ▶ Methodology based on Baker *et al.* (2016)
    - ★ Coverage frequency of keywords
    - ★ 5-steps procedure

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5. For each day, average the standardized series across type of Twitter accounts

Results
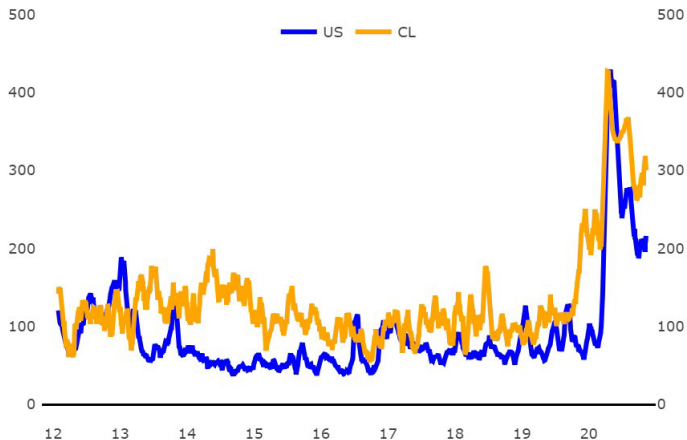
Uncertainty Measure for Chile

Figure: Daily Economic Policy Uncertainty for Chile
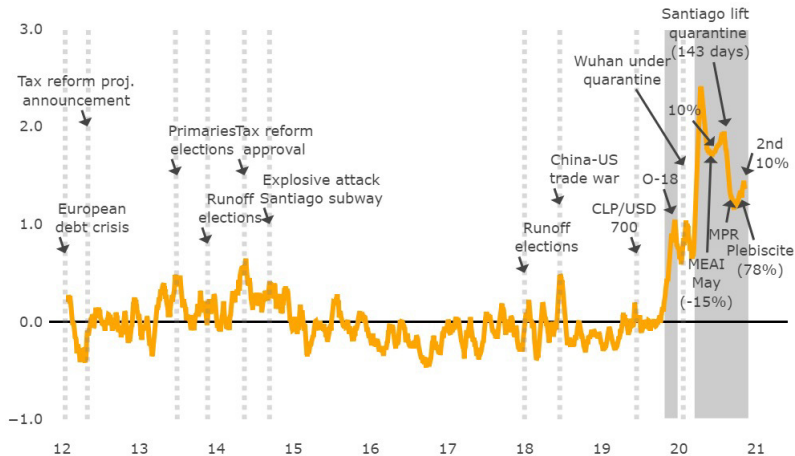
Results

Uncertainty Measure for Chile

Figure: Economic Policy Uncertainty in Chile and US

Results

Exchange Rate and Uncertainty

- Dynamics of the Chilean peso - US dollar exchange rate

$$e_{t+h} = \alpha_{s_t}^h + \beta_{s_t}^{h\prime} X_t + u_{t+h}, \qquad h = 0, 1, 2, \ldots, \quad s_t \in \{L, H\}$$

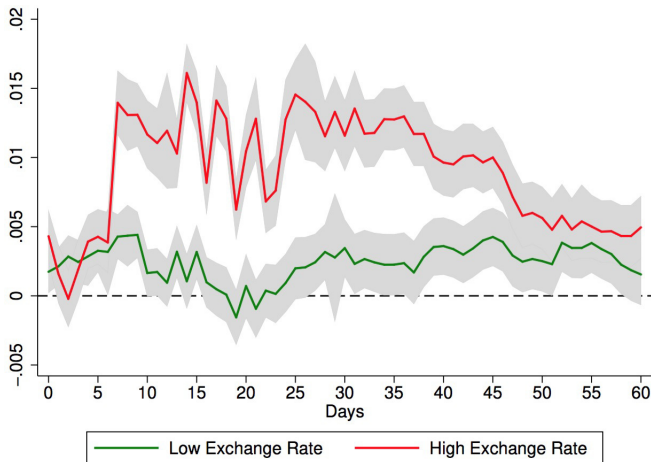- ▶ Regressors in X_t Graphs
  - ★ Broad index
  - ★ EMBI Global
  - ★ Copper and oil price
  - ★ Inflation in Chile and in the US
  - ★ Interest rate differential
  - ★ VIX or IPSA volatility
  - ★ DEPUC

Estimation results

Results
Exchange Rate and Uncertainty

Figure: Effects of DEPUC on Exchange Rate

Conclusions

- Development of daily-frequency measure of economic uncertainty for Chile based on information obtained from Twitter

- Tweets coverage frequency of keywords related to the economy, economic policies, uncertainty, and current local economic situation

- Dynamics of the measure coincides with several episodes of substantial economic uncertainty of both local and international origin

- Proposed measure is a significant determinant of the nominal exchange rate in Chile

Appendix

Twitter Accounts Considered

(thousands)

Category	Official Twitter Account	Joined	Followers	Tweets since start
Newscasts	@CHVNoticias	Jun-09	1,154.7	78.1
	@T13	Mar-09	3,234.7	564.4
	@CNNChile	Dec-08	3,300.1	353.7
	@24HorasTVN	Nov-09	3,696.7	706.0
	@Puntonoticias_	Sep-14	4.0	1.6
Newspapers	@Emol	May-10	1,981.2	555.5
	@DFinanciero	Aug-09	203.0	194.3
	@EYN_ELMERCURIO	Sep-09	63.3	86.5
	@elmostrador	Jan-08	1,769.5	236.7
	@pulso_tw	Nov-11	101.9	142.7
	@Estrategiacl	Jul-10	74.4	73.8
	@latercera	Apr-07	1,944.7	931.6
Radios	@biobio	May-08	3,213.6	792.5
	@adnradiochile	Oct-10	2,054.9	392.8
	@cooperativa	Jul-07	2,935.3	999.9

All statistics as of June 22, 2020.

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Dictionary of Keywords

Category	Subcategory	Words / Terms
Economy (E)		Any word / term beginning with "econ"
Policy (P)	Fiscal policy	"politica fical", "impuesto", "gasto publico", "deficit fiscal", "presupuesto", "tributaria", "deuda publica", "gasto fiscal", "presupuesto fiscal", "Ministerio de Hacienda", "Hacienda"
	Monetary policy	"Banco Central", "politica monetaria", "Reserva Federal", "FED", "tipo de cambio", "BCCh", "dolar"
	Trade policy	"arancel", "tratado de libre comercio", "TLC", "comercio internacional"
Uncertainty (U)		Any word / term beginning with "incer" and "incier"
Economic situation Chile (C)		"pais", "estallido social", "crisis", "crisis social", "nomasafp", "AFP", "colusion", "pensiones", "nueva constitucion", "constitucion", "asamblea constituyente", "asamblea", "constituyente", "COVID", "coronavirus", "pandemia"

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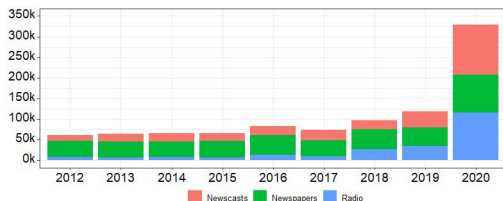# Appendix

Tweets by Type of Account

Figure: Tweets by Type of Account
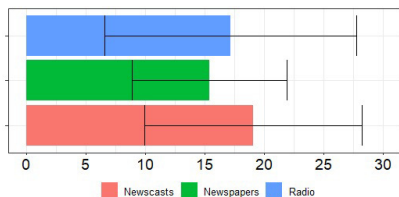
(a) Words per Tweet

(b) Tweets per Year

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Estimation Variables

Appendix

Estimation Variables

(g) Inflation Chile

(h) Interest Rate Differential

(i) VIX

(j) Volatility of IPSA
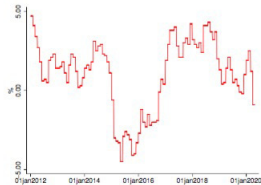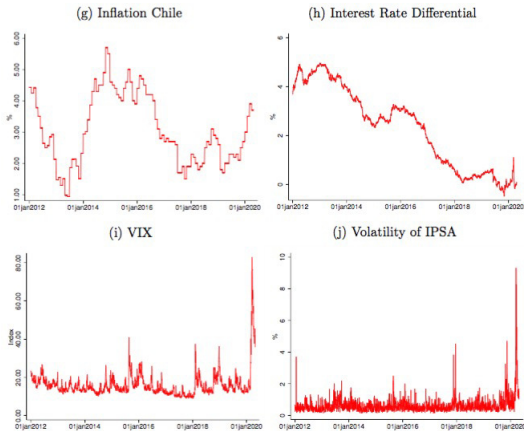
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Estimation Results

	(1)		(2)		(3)	
	Low	High	Low	High	Low	High
Broad Index	0.844	0.684	0.760	0.660	0.834	0.691
	(0.022)	(0.019)	(0.040)	(0.023)	(0.038)	(0.021)
EMBI Global	0.020	0.052	-0.003	0.065	0.018	0.047
	(0.007)	(0.006)	(0.008)	(0.007)	(0.007)	(0.005)
Oil Price	0.013	-0.022	0.020	-0.013	0.012	-0.021
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)
Copper Price	-0.197	-0.199	-0.191	-0.205	-0.203	-0.200
	(0.010)	(0.008)	(0.013)	(0.008)	(0.014)	(0.008)
Inflation US	-0.001	-0.002	-0.004	-0.003	0.000	-0.003
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Inflation Chile	0.013	0.013	0.013	0.013	0.013	0.013
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Interest Rate Diff.	-0.046	-0.030	-0.051	-0.031	-0.045	-0.029
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
DEPUC	0.002	0.003	0.001	0.002	0.002	0.003
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
VIX			0.015	0.016		
			(0.004)	(0.003)		
IPSA Volatility					0.005	0.010
					(0.001)	(0.001)
Constant	4.156	4.770	4.568	4.860	4.261	4.763
	(0.129)	(0.140)	(0.276)	(0.162)	(0.252)	(0.157)
p_{HH}	0.995		0.995		0.995	
	(0.002)		(0.002)		(0.002)	
p_{LH}	0.011		0.009		0.011	
	(0.004)		(0.004)		(0.004)	
Observations	2,170		2,170		2,170	
Log Likelihood	5,697.6		5,722.0		5,738.9	
SBIC	-5.177		-5.192		-5.208	

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