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Measuring Economic Policy Uncertainty in Pakistan¹

M. Ali Choudhary², Farooq Pasha³ and Mohsin Waheed⁴

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Abstract

We develop an economic policy uncertainty (EPU) index for Pakistan in accordance with Baker, Bloom and Davis (2016) by extracting newspaper articles from Websites (i.e., Web-scraping) and we divided this into two indices. The main index, is based on four leading English-language Pakistan newspapers for the period of January 2015 to April 2020. To cover more historical ground, we also present a second index which uses two of the four newspapers and for which Web harvesting is plausible for a longer period of August 2010 to April 2020. The two indices are highly correlated thus they move in tandem and between them they capture events such as: the great floods of 2010; high terrorism activity; heightened exchange rate volatility; political turmoil; reshuffling of economic managers; the IMF program of 2019, and most recently the COVID-19 pandemic.

Keywords: Uncertainty Index, Developing Economy, Event Study

JEL Classification: D80, E22, E66, G18, L50.

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1. Introduction

The pioneering work of Baker, Bloom and Davis (2016) has led to a greater focus on news-based measures of economic policy uncertainty (EPU)⁵. In this paper we develop a newspaper-based index of EPU for Pakistan, the fifth most populated country in the world.

Uncertainty is an important concept that goes back to Keynes (1921) and Knight (1921) who distinguished it from insurable risk. In separate ways, both Keynes and Knight argued that the uncertainty regarding the future leads to underemployment, as the economic agents are unable to commit their irreversible resources. Indeed, the important contribution Bernanke of (1983) documents the adverse relationship between uncertainty and investment and employment decisions. An example of a negative effect of uncertainty includes precautionary spending cutbacks by households (Fernández-Villaverde et al., 2015). Moreover, Hassett and Metcalf (1999), among others, consider the detrimental economic effects of uncertainty in monetary, fiscal, and regulatory policy.

Given the growing evidence demonstrating that uncertainty is relevant for the business cycle and the political economy, we develop an EPU for Pakistan which to the best of our knowledge is the first time this has been done. Pakistan is a large emerging economy and the importance of uncertainty for this country with its 22 International Monetary Fund (IMF) bailouts and one of the lowest credit to GDP ratios in South Asia cannot be understated. Indeed, Bloom et al. (2014) established that for emerging economies the EPU is of particular relevance because often such countries have non-diversified sectors, volatile goods prices, and political instability and these are relevant features for Pakistan.

While developing an EPU for Pakistan, we also highlight periods of high uncertainty in that country and corroborate these periods with an event-based explanation using a simple event study.

The rest of the paper proceeds as follows. We first describe the methodology followed by the event study. We conclude in the last Section.

2. Methodology

Following Baker et al. (2016), we extracted articles from digital archives of four⁶ leading newspapers on monthly basis from January 2015 to April 2020. Two⁷ of the four newspapers are available for Web harvesting for a longer period of August 2010 to April 2020 and for which we develop a separate EPU index. This latter is a worthwhile exercise as it allows us to go back in

⁵ EPU indices for a large number of countries are regularly updated at <https://www.policyuncertainty.com/>.

⁶ (i) Business Recorder (ii) Express Tribune (iii) DAWN (iv) The NEWS

⁷ (i) Business Recorder (ii) Express Tribune

time to corroborate events leading to heightened levels of economic policy uncertainty (EPU) since 2010.

The protocol for extracting data from the Web search results is that a given article must necessarily accompany at least a single word from the wordlist contained in Table 1 in each of the three categories that make up the index: Economic (**E**), Policy (**P**), and Uncertainty (**U**).

Table 01: Economic Policy Uncertainty Word Sets.

Category	Wordlist
Economic ‘E’	‘economic’, ‘economy’
Policy ‘P’	‘regulation’, ‘monetary policy’, ‘fiscal policy’, ‘policy’, ‘SBP’, ‘FBR’, ‘policymakers’, ‘parliament’, ‘deficit’, ‘central bank’, ‘state bank’, ‘government’, ‘reserves’, ‘taxes’, ‘tariffs’, ‘legislation’, ‘regulation’, ‘deficit’, ‘central bank’, ‘government’, ‘budget’
Uncertainty ‘U’	‘uncertain’, ‘uncertainty’, ‘unpredictable’, ‘unclear’, ‘unstable’

The wordlist of each category is based on our reading of the literature and internal deliberations. The algorithm uses Boolean logic⁸: ‘**AND**’ and ‘**OR**’. This exercise collects the count for monthly articles with and without the article-extraction protocol by newspaper. These counts form the basis of the monthly and aggregate EPU index value as follows.

The index for each newspaper is constructed with respect to Baker et al. (2016) as follows. One: The raw count of uncertainty-marked articles is scaled by the total number of articles published by each newspaper in each month. Two: We compute the standard deviation of this scaled count for each newspaper between August 2010 and April 2020⁹. Three: We divide the scaled count for each newspaper with its respective standard deviation to obtain a normalized series for each newspaper. Four: For each month we take a simple average of these normalized measures for each newspaper to obtain an aggregate EPU index. Finally, we adjust the aggregate EPU index to have a mean value of 100.

The resulting aggregate EPU indices titled EPU-2 and EPU-4 are shown in Figures 1 & 2 in the Appendix 2¹⁰. As evidenced, the longer EPU Index for Pakistan (EPU-2) starts from August 2010 and ends in April 2020. At the onset, the index captures the highly uncertain period for the Pakistani economy in the early part of the last decade until June 2012. The period from July 2012

⁸ Boolean Logic is based on Boolean Algebra-- It assigns each list a score of ‘**1**’ if at least a single word from a list is found and ‘**0**’ otherwise.

(economic **OR** economy) **AND** (regulation **OR** monetary policy **OR** fiscal policy **OR** policy **OR** SBP **OR** FBR **OR** policymakers **OR** parliament **OR** deficit **OR** central bank **OR** state bank **OR** government **OR** reserves **OR** taxes **OR** tariffs **OR** legislation **OR** regulation **OR** deficit **OR** central bank **OR** government **OR** budget) **AND** (uncertain **OR** uncertainty **OR** unpredictable **OR** unclear **OR** unstable)

⁹ This is the period for aggregate EPU index based on two newspapers (EPU-2). For the aggregate EPU index based on four newspapers (EPU-4) this period is from January 2015 to April 2020.

¹⁰ For reference, Appendix A contains our indices.

to July 2014 remained quite uneventful in terms of any significant or consistent increase in economic uncertainty. However, this calm was shattered with the largest spikes in the index witnessed in August 2014 and September 2014. The index remained elevated until November 2014 and thereafter subsided and remained subdued for the entire 2015. The initial months of 2016 until June 2016 are also marked by less uncertainty. Thereafter, uncertainty picks up in a staccato fashion (i.e., each event being sharply separated from the other events) which rises in July 2016, is moderated in the following month, then picks up again, and then recedes. In the context of our study, economic policy uncertainty (EPU) remained persistently high from July 2017 until July 2019. The period from August 2019 to February 2020 witnessed a gradual reduction in uncertainty, however it spiked significantly in March 2020 and remains at a significantly elevated level in April 2020. In aiming at unfolding the causes of recent uncertainty, a detailed exposition on the economic outlook and high-uncertainty periods is provided below.

We also conducted a ‘Human Audit’ exercise to verify the accuracy of our Web-scraping algorithm. Sixteen undergraduate students conducted the audit activity during their summer internship at the State Bank of Pakistan (SBP) in July 2019. The audit exercise was quite extensive and covered years 2011, 2015, 2017, and 2019. The years were chosen randomly to ensure that both periods of low and high economic uncertainty were covered. Around 20 percent of uncertainty-marked articles from all newspapers for each year were assigned randomly to two different interns to verify the presence of “E”, “P” and “U” words as well as the general theme of the article. Other than a few outliers, our audit exercise provided independent and strong support for the accuracy of the aggregate EPU indices developed in this study.

3. Event Study

In this Section, we map actual events with Pakistan’s EPU index (EPU-2) in Figure 1. For this section, we focus our event study based on the EPU-2 index as it covers a period of 10 years instead of 5 years by the EPU-4 index. Furthermore, Figure 3 shows that the two indices co-move tightly with a correlation of 0.94. Furthermore, all high uncertainty events captured by the EPU-4 index are also identified by our preferred EPU-2 index. Therefore, we briefly discuss high economic policy uncertainty (EPU) events identified by the EPU-2 index in the rest of this Section.

Regarding event analysis, at the onset the aggregate EPU index captures a troublesome period for the Pakistani economy. The year 2010 marked the devastating floods of July 2010 with damage that was unprecedented and which affected 78 districts covering an area of over 100,000 square km, impacting a population of more than 20 million people and causing over 1,980 reported deaths. The floods also severely affected the livelihoods destroying 23,831 km of roads, 2,085,400 hectares of cropped lands and 1.6 million houses. The aftershocks of the floods kept the EPU index elevated for early 2010 and then most of 2010.

In addition, during the earlier years of the last decade, particularly late 2010 to 2012, Pakistan saw another flashpoint of a bloody and intense battle against terrorism captured by the consistently elevated level of the EPU index throughout 2011 and 2012. Almost 20,000 people

lost their lives due to terrorist incidents in Pakistan between 2010 and 2012. This war on terrorism together with acute energy shortages may explain in the “event sense” a consistently elevated level of EPU index from 2010 to middle of 2012.

The year 2013 was uneventful in terms of any significant event leading to an increase in policy uncertainty as captured by our index. This was also an election year and for the first time in the 67-year history of Pakistan, an elected government completed tenure and passed over the reins to a newly democratically-elected team. Furthermore, Pakistan signed an agreement with the IMF during 2013 thus laying the foundation for the future economic policy direction.

However, this relative calm and economic stability of 2013 was short-lived and the first half of 2014 was quite uneventful. However, this benign economic and political outlook was shattered by the launch of a countrywide protest against the election results of 2013. The Freedom March (i.e., Azadi March, tsunami march or Dharna) started in August 2014 and continued until December 2014. The first two months of this march are associated with the highest levels of the EPU index during the period covered from 2010 to 2020. This event really shook the foundation of both the economic and political structure of the country and literally brought the economic wheel of the country to a halt for a significant period. The Freedom March was only called after the tragedy of the Taliban attack on the Army Public School, Peshawar in December 2014.

Initially, the EPU stayed low throughout 2015 and during that year the economy was well¹¹ on track with improving macroeconomic indicators such as inflation, fiscal balance, and current account balance. Further, there were no abrupt movements in the exchange rate and the FX reserves were at an all-time high of 18.7 billion US\$. These factors coupled with low oil prices may plausibly explain a subdued EPU during the entire year.

Turning to 2016, the EPU mostly remained low along with low inflation and the historical low interest rate of 5.75 percent. However, some negative factors started surfacing during the year such as the widening of the current account deficit and rising inflation. These factors led to a slight spike in July 2016, October 2016 and November 2016. However, on all of these three occasions the index remained below or around its long-run mean of 100.

In 2017, the EPU started picking up momentum, and during the year, at two particular instances, it spiked alarmingly high with one observation i.e., October 2017 that is one of the highest in the sample. This spike and unprecedented incidence of uncertainty may have been primarily caused by three factors, i.e., political crisis, stock market volatility¹², and pressures on the local currency. Another instance of a sharp increase in the EPU could be attributed to the ‘Panama Verdict’ that was announced by the Supreme Court of Pakistan on July 28, 2017 subsequent to a detailed inquiry following the ‘Panama-Papers’ incident (i.e., a massive leak of financial files) against the sitting Prime Minister that resulted in his disqualification.

¹¹ As reported in the State Bank’s Annual ‘State of Pakistan’s Economy’

¹² Pakistan Stock Exchange www.psx.com.pk. For historical data: <https://dps.psx.com.pk/>.

The year 2018 started with relatively modest levels of uncertainty that surged in February 2018 owing to messy Senate Elections (i.e., pressure, dirty deals and rivalries). Afterwards, the uncertainty remained moderately high until July 2018. Subsequently, uncertainty dipped for one period and moved up again in September because of the presidential elections. During the latter parts of the year, uncertainty started soaring. The one obvious driver of uncertainty was persistent exchange rate depreciation, and another factor that might have caused higher uncertainty was the attack on the Chinese Consulate in Karachi in November 2018.

The rising EPU from 2018 spilled over into 2019 which reflected in the January 2019 EPU statistic. During December 2018 and January 2019, there were some unusual episodes of political turmoil fueled by the investigations of Pakistan's National Accountability Bureau (NAB) against Pakistani politicians for their alleged embezzlements involving the banking system and fake accounts. Moreover, during the month of January, the government vigorously carried out a countrywide campaign against anti-encroachments resulting in the demolition of thousands of illegally built stores, and this measure affected the business activity in urban centers. Thereafter, a brief period of respite was observed in March 2019 when uncertainty dwindled for a single period before reaching new highs. From April 2019 to July 2019, there was persistently high uncertainty that was initially due to a change of economic team including the finance minister and central bank governor in April 2019.

Subsequent to major changes in the key economic decision makers, the government commenced its comprehensive talks with the IMF regarding seeking a bailout package to address balance of payments (BOP) imbalances. After several rounds of discussions held during May-June 2019, the IMF's Extended Fund Facility (EFF) for Pakistan of 6 Billion US\$ was approved on July 3, 2019. However, at the time many believed that the IMF program was inevitable and deemed it important for resuscitating the economy. The IMF-EFF program did not receive much appreciation from the business persons, who continued to stage protests across the country. On the contrary, the government believed that it was an appropriate time to broaden the tax base and curtail tax evasion in order to end chronic fiscal deficits.

After August 2019, the uncertainty level started to gradually recede until February 2020, reflecting the gains to achieve economic stabilization in close coordination with the IMF and due to an increase in foreign exchange reserves through an increase in external inflows (exports, remittances, capital flows). However, the spread of the Coronavirus (COVID-19) pandemic throughout the world starting from China in December 2019 and engulfed almost the entire globe including Pakistan by March 2020 thus creating an increased in the economic policy uncertainty (EPU) to unprecedented high levels that are captured by the latest values in our aggregate EPU index.

4. Conclusion

In this paper, we produce monthly Economic Policy Uncertainty (EPU) Indices for Pakistan utilizing four (and two for a longer horizon) of Pakistan's prominent English-language daily newspapers from August 2010 to April 2020. Our aggregate index earmarks some high uncertainty events in the sample period that have some firm underpinnings and background relating to Pakistan's recent economic and political history.

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APPENDIX-1A

Month	EPU - 2	EPU - 4	Month	EPU - 2	EPU - 4
Aug-10	154.77		Jul-15	56.58	71.80
Sep-10	101.16		Aug-15	59.54	65.51
Oct-10	115.20		Sep-15	59.35	64.30
Nov-10	96.62		Oct-15	58.65	61.39
Dec-10	132.41		Nov-15	49.88	66.01
Jan-11	123.11		Dec-15	74.71	71.51
Feb-11	133.38		Jan-16	35.46	53.74
Mar-11	107.61		Feb-16	66.49	66.18
Apr-11	161.66		Mar-16	56.57	60.08
May-11	109.23		Apr-16	64.87	49.13
Jun-11	136.87		May-16	61.68	70.03
Jul-11	78.80		Jun-16	74.07	91.42
Aug-11	110.29		Jul-16	99.29	109.16
Sep-11	119.25		Aug-16	58.04	40.57
Oct-11	119.03		Sep-16	53.19	68.78
Nov-11	94.70		Oct-16	90.06	94.89
Dec-11	133.33		Nov-16	101.70	89.36
Jan-12	93.44		Dec-16	63.31	61.73
Feb-12	123.12		Jan-17	81.27	77.11
Mar-12	89.95		Feb-17	70.61	54.73
Apr-12	105.52		Mar-17	81.55	61.02
May-12	120.34		Apr-17	81.24	77.08
Jun-12	129.07		May-17	110.01	105.88
Jul-12	101.05		Jun-17	47.22	68.47
Aug-12	83.47		Jul-17	138.47	147.03
Sep-12	46.94		Aug-17	121.61	118.72
Oct-12	67.59		Sep-17	83.19	99.24
Nov-12	72.51		Oct-17	207.30	174.43

Dec-12	71.74		Nov-17	112.99	110.64
Jan-13	75.54		Dec-17	100.52	114.74
Feb-13	99.23		Jan-18	91.98	111.98
Mar-13	54.72		Feb-18	76.14	61.75
Apr-13	75.96		Mar-18	107.93	117.71
May-13	83.62		Apr-18	140.43	115.27
Month	EPU - 2	EPU - 4	Month	EPU - 2	EPU - 4
Jun-13	75.21		May-18	78.34	113.78
Jul-13	56.74		Jun-18	91.95	110.19
Aug-13	66.90		Jul-18	90.67	108.95
Sep-13	85.13		Aug-18	69.48	78.72
Oct-13	91.01		Sep-18	116.00	109.71
Nov-13	93.08		Oct-18	99.20	131.56
Dec-13	118.31		Nov-18	141.72	137.85
Jan-14	103.13		Dec-18	113.37	133.31
Feb-14	51.40		Jan-19	163.70	159.67
Mar-14	92.98		Feb-19	125.92	128.70
Apr-14	61.34		Mar-19	92.42	89.11
May-14	81.95		Apr-19	120.13	151.22
Jun-14	86.50		May-19	148.39	153.97
Jul-14	63.92		Jun-19	168.26	161.50
Aug-14	193.12		Jul-19	188.52	181.24
Sep-14	209.96		Aug-19	110.44	119.39
Oct-14	127.84		Sep-19	135.67	119.46
Nov-14	96.80		Oct-19	118.27	132.03
Dec-14	94.63		Nov-19	105.79	101.73
Jan-15	45.46	46.06	Dec-19	110.90	100.23
Feb-15	94.89	75.22	Jan-20	120.20	106.16
Mar-15	79.16	71.55	Feb-20	114.75	98.35
Apr-15	68.89	56.70	Mar-20	169.02	174.25
May-15	76.34	69.36	Apr-20	261.88	231.18
Jun-15	73.17	77.48			

APPENDIX-1B

Month	EPU- Business Recorder	EPU- Express Tribune	EPU-DAWN	EPU-THE NEWS	EPU - 2	EPU - 4
Jan-05	80.47					
Feb-05	21.34					
Mar-05	53.68					
Apr-05	54.74					
May-05	70.34					
Jun-05	36.08					
Jul-05	46.13					
Aug-05	68.30					
Sep-05	51.15					
Oct-05	29.73					
Nov-05	49.42					
Dec-05	29.72					
Jan-06	44.89					
Feb-06	49.05					
Mar-06	40.94					
Apr-06	37.95					
May-06	62.46					
Jun-06	46.63					
Jul-06	36.72					
Aug-06	48.21					
Sep-06	29.42					
Oct-06	17.17					
Nov-06	18.07					
Dec-06	26.10					
Jan-07	47.91					
Feb-07	40.81					
Mar-07	20.91					

Apr-07	21.83				
May-07	45.45				
Jun-07	29.97				
Jul-07	29.05				
Aug-07	59.98				
Sep-07	54.12				
Oct-07	78.57				
Nov-07	132.24				
Dec-07	63.16				
Jan-08	79.89				
Feb-08	113.55				
Mar-08	92.54				
Apr-08	87.53				
May-08	131.70				
Jun-08	130.73				
Jul-08	129.19				
Aug-08	217.01				
Sep-08	136.36				
Oct-08	110.98				
Nov-08	119.38				
Dec-08	79.59				
Jan-09	58.90				
Feb-09	89.90				
Mar-09	129.11				
Apr-09	100.27				
May-09	127.19				
Jun-09	103.46				
Jul-09	112.11				
Aug-09	106.39				
Sep-09	128.87				
Oct-09	172.00				
Nov-09	126.08				
Dec-09	145.41				
Jan-10	177.93				
Feb-10	153.16				
Mar-10	146.83				
Apr-10	120.84				
May-10	116.05				

Jun-10	203.20				
Jul-10	177.62				
Aug-10	208.59	101.96			154.77
Sep-10	114.10	96.59			101.16
Oct-10	155.31	75.82			115.20
Nov-10	115.89	82.96			96.62
Dec-10	175.22	91.57			132.41
Jan-11	139.48	116.71			123.11
Feb-11	149.76	128.26			133.38
Mar-11	131.94	88.51			107.61
Apr-11	120.66	237.40			161.66
May-11	125.72	100.88			109.23
Jun-11	133.32	159.04			136.87
Jul-11	98.71	62.00			78.80
Aug-11	129.24	98.79			110.29
Sep-11	115.21	139.84			119.25
Oct-11	153.16	88.18			119.03
Nov-11	101.80	97.18			94.70
Dec-11	154.95	121.16			133.33
Jan-12	104.55	90.35			93.44
Feb-12	132.25	126.47			123.12
Mar-12	117.90	63.74			89.95
Apr-12	115.09	106.05			105.52
May-12	147.69	98.79			120.34
Jun-12	166.93	94.48			129.07
Jul-12	62.33	166.03			101.05
Aug-12	130.23	31.12			83.47
Sep-12	86.23	0.00			46.94
Oct-12	102.41	29.28			67.59
Nov-12	72.12	82.24	99.43		72.51
Dec-12	95.03	49.50	35.92		71.74
Jan-13	95.93	57.66	178.89		75.54
Feb-13	111.69	95.04	88.53		99.23
Mar-13	71.86	38.59	121.42		54.72
Apr-13	92.45	63.40	151.65		75.96
May-13	91.08	84.20	86.92		83.62
Jun-13	123.96	19.12	126.61		75.21
Jul-13	85.02	25.87	95.28		56.74

Aug-13	101.38	28.96	49.23		66.90	
Sep-13	100.32	75.49	108.82		85.13	
Oct-13	118.50	65.55	89.42		91.01	
Nov-13	120.97	67.34	68.44		93.08	
Dec-13	136.59	108.71	92.48		118.31	
Jan-14	101.62	118.25	53.16		103.13	
Feb-14	75.31	25.72	69.06		51.40	
Mar-14	123.58	63.59	38.23		92.98	
Apr-14	75.73	49.76	66.43		61.34	
May-14	120.75	40.11	87.90		81.95	
Jun-14	111.56	63.74	9.08		86.50	
Jul-14	117.41	0.00	61.11		63.92	
Aug-14	204.59	202.19	102.67		193.12	
Sep-14	311.01	100.55	188.16		209.96	
Oct-14	143.39	123.15	56.47	93.05	127.84	
Nov-14	100.92	103.55	99.21	68.87	96.80	
Dec-14	77.54	129.66	86.43	49.04	94.63	
Jan-15	43.02	54.51	75.64	17.52	45.46	46.06
Feb-15	119.23	74.17	53.11	59.04	94.89	75.22
Mar-15	101.73	58.83	64.85	63.20	79.16	71.55
Apr-15	107.14	26.13	48.21	38.31	68.89	56.70
May-15	82.83	77.30	81.72	43.81	76.34	69.36
Jun-15	115.62	25.31	101.74	57.30	73.17	77.48
Jul-15	88.01	21.45	108.87	61.17	56.58	71.80
Aug-15	77.18	43.34	65.38	77.95	59.54	65.51
Sep-15	89.07	26.88	89.07	46.08	59.35	64.30
Oct-15	28.52	106.67	76.40	57.30	58.65	61.39
Nov-15	22.39	93.23	78.40	91.67	49.88	66.01
Dec-15	102.95	46.17	41.35	96.64	74.71	71.51
Jan-16	41.35	32.04	68.34	76.26	35.46	53.74
Feb-16	90.15	43.07	64.71	66.57	66.49	66.18
Mar-16	89.59	19.30	53.14	72.58	56.57	60.08
Apr-16	73.88	60.97	46.23	21.19	64.87	49.13
May-16	74.60	52.11	45.22	114.77	61.68	70.03
Jun-16	81.37	73.65	124.18	93.79	74.07	91.42
Jul-16	122.33	80.86	130.69	107.12	99.29	109.16
Aug-16	24.61	110.43	0.00	55.28	58.04	40.57
Sep-16	61.41	48.88	76.21	93.93	53.19	68.78

Oct-16	83.37	110.51	117.74	84.70	90.06	94.89
Nov-16	78.76	145.50	62.77	99.87	101.70	89.36
Dec-16	40.80	101.66	58.32	67.78	63.31	61.73
Jan-17	54.43	127.72	105.40	44.91	81.27	77.11
Feb-17	64.33	88.04	49.51	31.30	70.61	54.73
Mar-17	80.41	93.43	44.55	39.92	81.55	61.02
Apr-17	82.31	90.12	79.73	68.79	81.24	77.08
May-17	127.63	100.25	110.93	93.95	110.01	105.88
Jun-17	36.63	67.48	104.28	76.99	47.22	68.47
Jul-17	130.55	166.72	168.38	148.30	138.47	147.03
Aug-17	120.38	138.72	108.89	128.43	121.61	118.72
Sep-17	62.56	121.53	140.41	94.03	83.19	99.24
Oct-17	199.73	243.83	135.67	157.87	207.30	174.43
Nov-17	107.81	134.32	124.47	96.14	112.99	110.64
Dec-17	89.19	128.55	113.03	151.52	100.52	114.74
Jan-18	99.13	94.02	143.83	121.56	91.98	111.98
Feb-18	79.32	81.54	48.77	48.74	76.14	61.75
Mar-18	111.80	116.44	104.67	155.76	107.93	117.71
Apr-18	137.46	162.25	87.52	99.44	140.43	115.27
May-18	78.75	87.75	161.78	138.13	78.34	113.78
Jun-18	65.52	139.23	139.43	123.53	91.95	110.19
Jul-18	70.48	129.37	113.80	147.83	90.67	108.95
Aug-18	55.33	97.38	74.90	106.61	69.48	78.72
Sep-18	127.20	115.66	117.88	91.06	116.00	109.71
Oct-18	98.76	112.40	161.36	170.16	99.20	131.56
Nov-18	153.37	144.03	152.45	118.22	141.72	137.85
Dec-18	139.44	92.66	165.85	140.30	113.37	133.31
Jan-19	145.62	208.84	108.38	215.82	163.70	159.67
Feb-19	135.54	128.96	143.73	121.98	125.92	128.70
Mar-19	80.83	119.76	77.18	100.49	92.42	89.11
Apr-19	137.37	112.17	169.67	197.89	120.13	151.22
May-19	156.68	156.06	171.67	151.22	148.39	153.97
Jun-19	165.63	193.17	170.46	145.02	168.26	161.50
Jul-19	161.76	248.49	145.05	216.57	188.52	181.24
Aug-19	86.90	156.16	159.41	102.27	110.44	119.39
Sep-19	149.02	134.92	102.44	108.07	135.67	119.46
Oct-19	170.47	62.98	136.20	153.58	118.27	132.03
Nov-19	112.73	109.88	102.76	95.56	105.79	101.73

Dec-19	95.05	146.34	87.97	98.12	110.90	100.23
Jan-20	98.83	164.24	102.69	88.70	120.20	106.16
Feb-20	73.37	185.06	109.52	62.72	114.75	98.35
Mar-20	145.63	221.99	220.40	145.19	169.02	174.25
Apr-20	206.70	369.45	191.75	228.52	261.88	231.18

APPENDIX-2

Figure 1 - Pakistan EPU Index based on Two Newspapers (EPU-2)

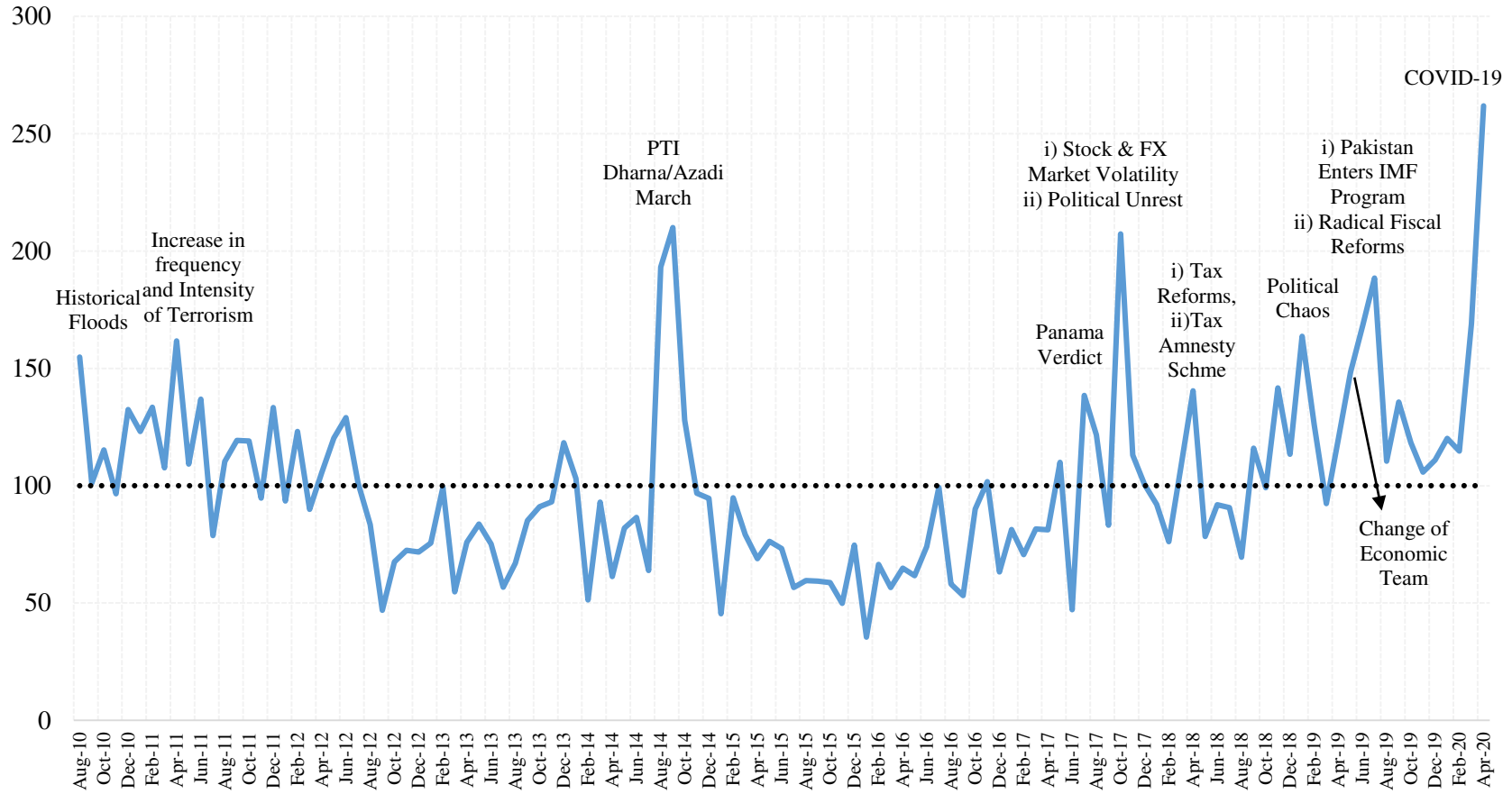


Figure 2 - Pakistan EPU Index based on Four Newspapers - (EPU-4)

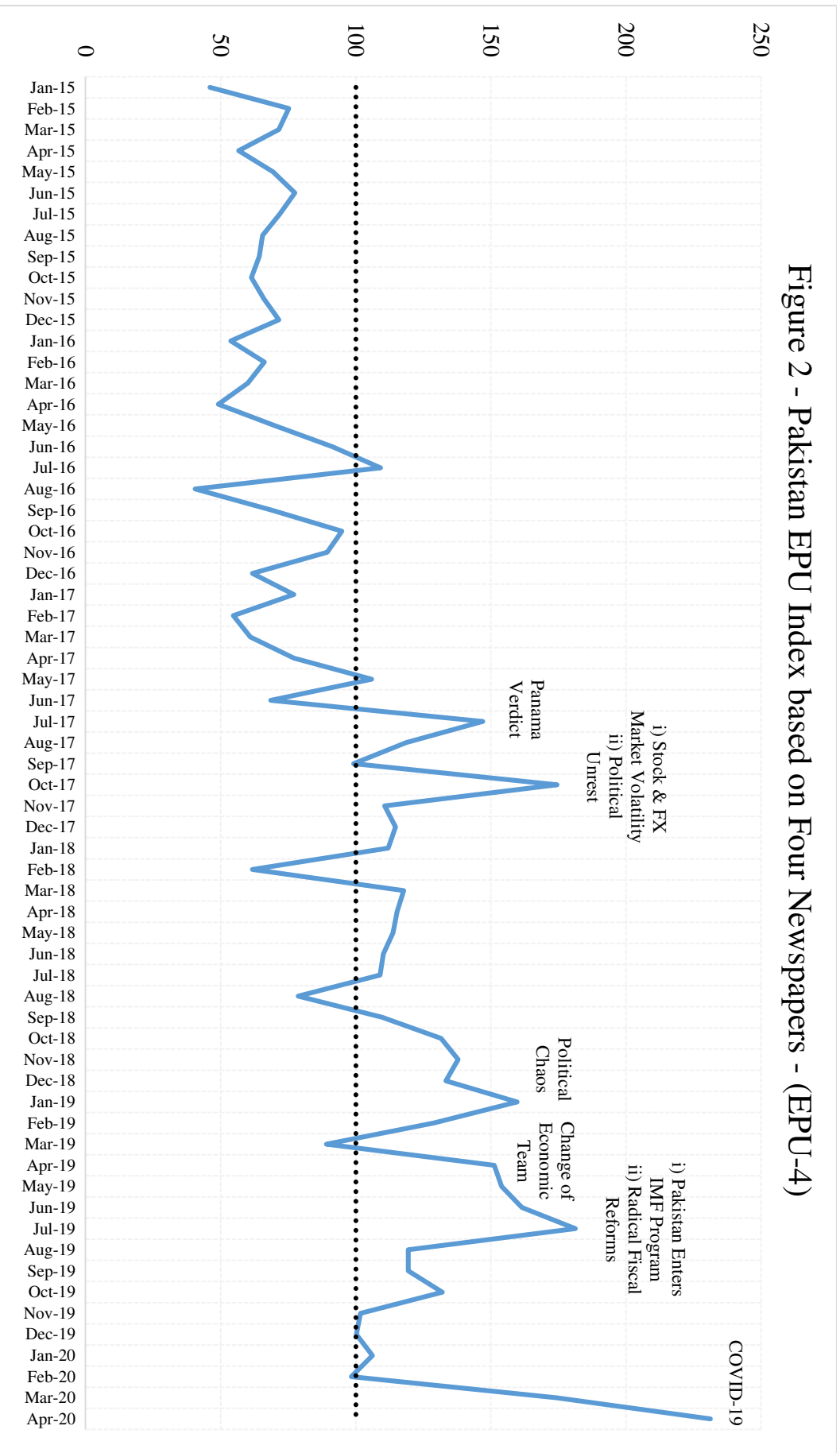
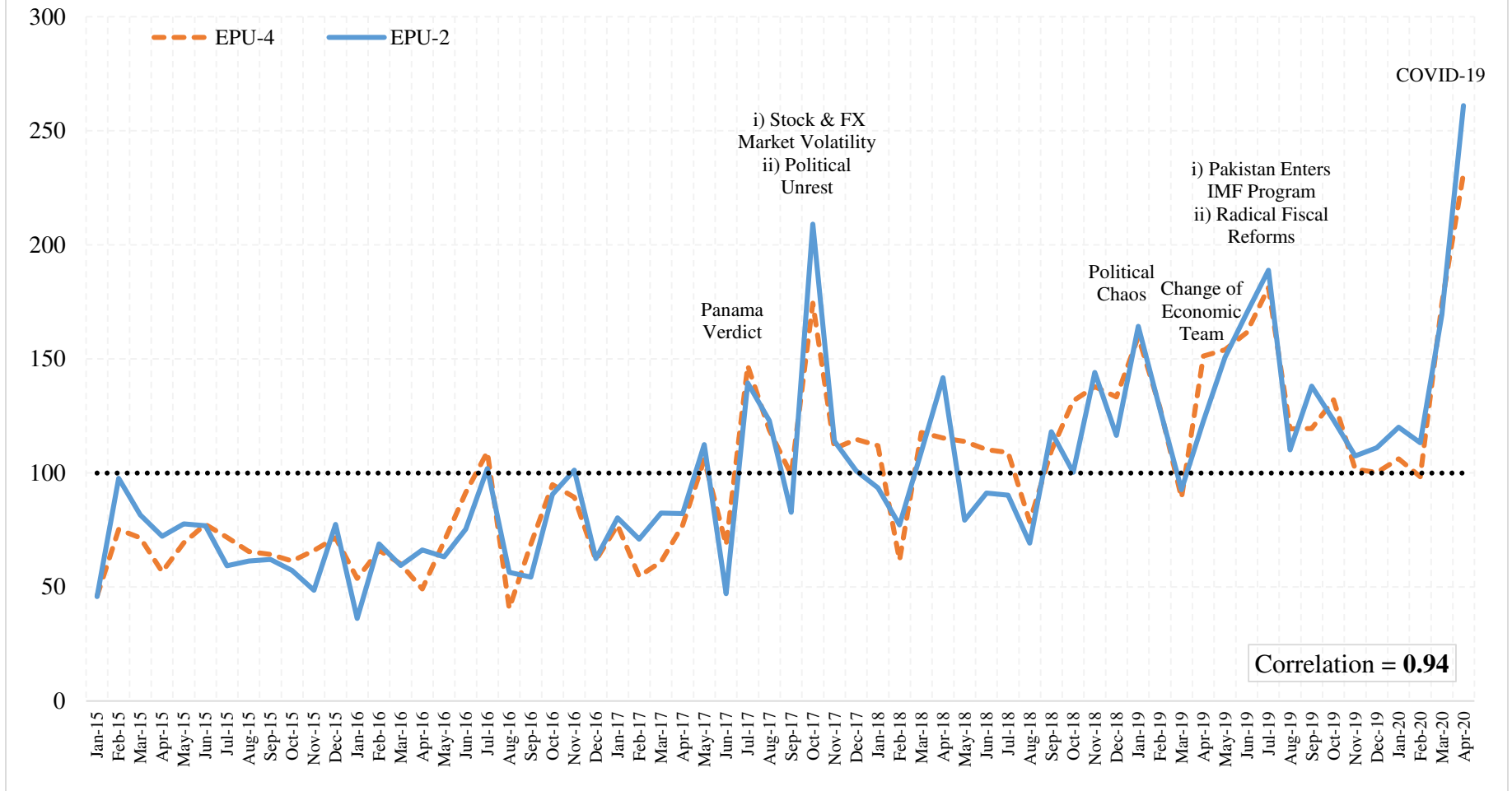


Figure 3 - Comparison of Pakistan EPU Indices (EPU-2 & EPU-4)



APPENDIX-3

