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Once bitten, twice bold?

Early life tragedy and central bankers' reaction to COVID-19

Maqsood Aslam*

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March 2021

Abstract

Have negative experiences (in particular, natural disasters) that central bankers' have known in their early life influenced monetary policy decisions in front of the COVID-19 pandemic? We answer this question using a sample of 19 developing countries. We show that central bankers who experienced episodes of epidemics in their early life lowered interest rates faster and lower during the COVID-19 pandemic. Personal experience of decision-makers has contributed strongly to explain their behavior during the crisis.

JEL codes: E58; E71; G41; O23

Keywords: policy rate, COVID-19, pandemic, central banks

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1. Introduction

The COVID-19 pandemic is characterized as the most lethal health and financial shock after World-War II and the Great Depression. Almost across the world, in order to limit the spread and confine pandemic effects, a wide range of restrictions were imposed, which turned an exceptional sanitary situation into an adverse shock, simultaneously on the demand and supply sides.

The pandemic is an unprecedented shock and has led to exceptional measures by monetary authorities to invigorate economies across the world. Central banks stepped in and played a key role during this highly uncertain time period, if only to ensure a smooth and normal functioning of financial systems. One of the most important actions that has been taken is a significant reduction in their policy rates by central banks. Given that central banks have cut swiftly and significantly their interest rate in wake of the COVID-19 pandemic breakout, it becomes increasingly important to explore the determinants of the reaction of central bankers.

We here consider if the personal characteristics and the experiences of central bank leaders, in particular the previous disasters they have encountered during their “impressionable years” (Eichengreen et al., 2021), have contributed to the decision-making process? If yes, then, how much do the experiences lived through during the impressionable years shape behaviors and preferences?

The extant literature explains the long-lasting effects of human made and natural shocks on life trajectories, attitudes, social preferences as well as on risk-taking behaviors of exposed individuals and household. When these individuals reach leadership positions, the consequences of such shocks are even more important. And earlier studies have confirmed the role of formative years in shaping the attitudes and preferences of leaders (see, e.g., Alesina and Fuchs-Schuendeln, 2007;

Bernile et al., 2017). More specifically, it has been shown that the background and careers of central bankers also matter to explain their behavior (see, e.g., Eichler and Lahner, 2013, Farvaque et al., 2014, Gohlmann and Vaubel, 2007). Moreover, a closely related paper shows that central bankers exposed to recessions in their early life tend to lower interest, as compared with their counterparts (Farvaque et al., 2020).

However, so far, the literature has mostly investigated the role of early life experiences on monetary policy, but mostly for a single country or for the more advanced economies. The case of emerging and developing countries is for the moment largely unexplored (see, however, Aguilar and Cantú, 2020).

Thus, we study if and how the exposure to natural disasters during the formative years of central bank governors in developing economies shapes their reaction in front of the COVID-19 pandemic during the year 2020. This paper therefore stands at the crossroads of the literatures on financial macroeconomics, psychology and natural disasters. To our knowledge, the role of past natural shocks (epidemics, earthquakes, floods and storms) on the decision making of central bankers in relation to COVID-19 crisis has not been contemplated before.

We find that having been confronted to natural disasters, and especially epidemics, during the early life, the survivors who became central bankers tend to favor interest rate cuts and act as rescuers during the COVID-19 pandemic. The effects are sizeable and reveal that past experiences have a long-lasting impact on decision-makers.

Section 2 introduces the data and methodology used in the paper. Section 3 provides the results, and section 4 presents our conclusions.

2. Data and methodology

The data used in this analysis comes from multiple sources on (i) COVID-19 deaths and cases (ii) economic indicators (iii) various central bankers' characteristics (iv) natural disasters (v) country level control.

The monthly data on COVID-19 deaths and cases is collected from Johns Hopkins University from January, 2020 to November, 2020. The data on interest rates comes from International Financial Statistics (IFS). Central bankers' biographical information is hand-collected from central banks website, biographies and archives. Natural disasters data is gathered form EM-DAT database. And we control for the exchange rate regime and interventions, using IMF sources. Table 1 provides the descriptive statistics of the variables used in the analysis.¹

Table 1. Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Monthly growth in interest rate	126	0.29	0.46	0	1
Log COVID-19 deaths	126	0.25	0.63	0	5.48
Log COVID-19 cases	126	0.13	0.42	0	4.51
Gender	126	1.89	0.32	1	2
Economics background	126	1.74	0.44	1	2
Age	126	58.45	7.44	49	77
Reappointment	126	0.14	0.35	0	1
Past number of epidemics	126	1.30	1.88	0	6
Past number of earthquakes	126	4.83	4.84	0	14
Past number of floods	126	7.83	5.89	0	22
Past number of storms	126	6.06	6.71	0	21
Past natural disasters numbers index	126	0.28	1.37	-1.72	2.96
Exchange rate regime	126	0.85	0.36	0	1
Exchange rate interventions	126	-0.06	0.58	-2.89	1.75

¹ Countries included in the sample are the following: Albania, Argentina, Bangladesh, Brazil, China, Colombia, Georgia, Indonesia, Jamaica, Jordan, Malaysia, Mexico, Nigeria, Peru, Philippines, Russia, South Africa, Thailand, and Turkey.

Figure 1 displays the monthly COVID-19 deaths trend in the countries covered in our sample. Brazil ranked top with the highest number of deaths. In the case of China, the curve gets flatter over the months due to the strong actions implemented in terms of locking people at home on a very large scale.

Figure 2 presents the corresponding evolution of the policy rates. As can be seen, the tendency has been for almost all the countries in the sample to implement large reductions in policy rates, before reaching a plateau. The parallelism between the two figures is striking, although the different speeds of change in the degree of monetary adaptation to the crisis deserves an explanation, which is the topic of this study.

The empirical strategy used in this paper is in line with a companion paper (Farvaque et al., 2020 – in which the authors do not cover the pandemic period). In order to capture the effect of past traumas on central bankers' decision making, we estimate the following equation by logistic regression:

$$P(\text{lower policy rate})_{ijt} = \alpha + \beta \text{Covid} - \text{deaths}_{it} + \gamma \text{Biographical background}_{ij} + \delta \text{Early} - \text{life disasters}_{ij} + \lambda \text{FXRegime}_{it} + \text{Governor}_{ij} + \varepsilon_{ijt}, \quad (1)$$

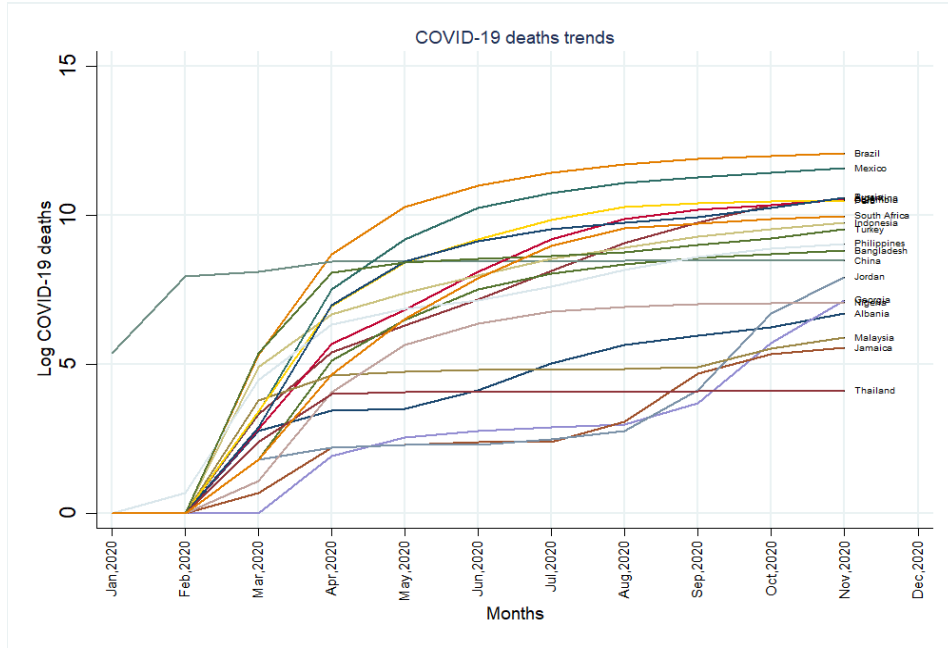
where $P(\text{lower policy rate})_{ijt}$ is the dependent variable (here, the probability of reducing the policy rate). It represents the decisions taken by the monetary institutions of country i that a central banker j in our sample manages during period t . We consider that the decision taken is the change in the monthly policy rate, and it is coded as a dummy variable, coded 1 if the policy rate is decreased, and 0 when there is no change (status quo).² This justifies the use of a logistic regression

² Given the period, almost no central bank has increased its policy rate. For the ones that have (in particular, this is the case for Argentina and Turkey), they did it at the end of the period, allowing us to implement this clear classification by removing the last observations. Added to some data limitations, it results that the panel is unbalanced.

method, and we use the maximum likelihood. $Covid - deaths_{it}$ represents the intensity of the pandemic, and we use the monthly growth rate of COVID-19-related deaths.³ $Biographical\ background_{ijt}$ is a vector of central bankers' characteristics (in particular, we include age, reappointment, an economics background, and gender). $Early - life\ disasters_{ij}$ is a vector composed of past natural disasters that each central banker has known in her impressionable years (Eichengreen et al., 2021- here considered as the first 26 years, including the year before birth to cover for a womb effect). $FXRegime_{it}$ stands for the adoption of a fixed or floating exchange rate regime. First, we have used the IMF's classification, as published in its Report on Exchange Arrangements and Exchange Restrictions (2019 version). This relies on de facto judgements by experts, not de jure declarations by country representatives. We create a dummy variable indicating the countries with fixed versus flexible regimes. However, this dates from 2019, and does not allow for any variation over the course of our sample period. Hence, we also use a second measure, relying on foreign exchange interventions by central banks (Adler et al., 2021). This provides monthly data, in percentage of GDP. The drawback is that it may not fully reflect the de facto arrangements of a country, as the period of the pandemic may have changed the practices and choices of the countries covered in our sample. We provide results with the two measures. $Governor_{ij}$ is a governor fixed effect included in all specifications to control for any omitted variables bias. In some specifications, a time fixed effect will also be included to check the robustness of our results. And, finally, ε_{ijt} represents the error term.

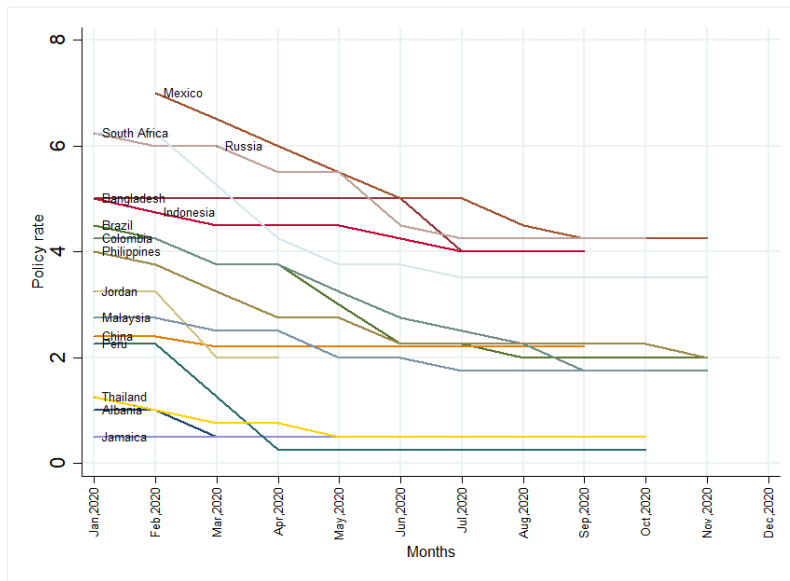
³ It may be the case that developing countries under-report cases of deaths, for many reasons. We have also used the number of reported cases of COVID-19. The results are very similar (and available upon request).

Figure 1. Monthly COVID-19 deaths trend for sample countries



Source: authors, based on Johns Hopkins University data.

Figure 2. Evolution of policy rates for sample countries



Source: authors, based on IFS data, for all countries with interest rates inferior to 8% at the beginning of the period.

3. Results

Table 2 presents the main results. From column 1 to 3, we include the number of epidemics, earthquakes, floods and storms, that have been experienced by a central banker in her early life.

Interestingly, for what concerns our variables of interest, that is the past disasters, they appear as significant, but they do not have the same type of influence. Strikingly, past epidemics are positively and significantly associated with the probability of lowering the policy rate, while the other natural disasters receive an opposite sign (except for floods, with a coefficient positive but not always significant, which may indicate a link between epidemics and floods). This clearly reveals that central bankers confronted with the same type of event that they have faced during their formative years react more strongly, to fend off the impact of the new epidemic on their fellow citizens.

The results also indicate that a male central banker has a higher probability to reduce policy rates, while central bankers with an economics background have a lower probability to cut policy rates. Older central bankers tend to have a lower probability to cut rates, which may reveal that the influence of experiences may decay over time, and inducing laxer reactions. On the opposite, reappointed central bankers behave in a more conservative way.⁴

In columns 4 to 6, we include the foreign exchange regime variables as well as an index of past number of disasters. We perform a widely used dimension reduction method – namely, a Principal Component Analysis (PCA) -, to obtain a single disaster variable representative of the many original disasters variables that central bankers have faced during their impressionable years. The first principal component (PC-1) was extracted as it explains the largest proportion of variation in

⁴ The gender-related variable loses significance when we include the exchange rate regime. This is because in our sample no female central banker works under the constraint of a fixed regime. Inversely, all reappointed central bankers work under a fixed exchange rate regime, explaining that the variable changes sign.

the data. This reduction shows that an increase in the past natural disasters numbers index is clearly associated with a significantly higher probability of lowering policy rates.

Table 2. Impact of early life disasters on the probability to reduce policy rates

	[1]	[2]	[3]	[4]	[5]	[6]
COVID-19 deaths	0.656 (0.471)	0.208 (0.867)	0.208 (0.867)	0.656 (0.471)	0.208 (0.867)	0.156 (0.863)
Male central banker	2.005*** (0.414)	5.569*** (0.908)	5.569*** (0.908)	0.190*** (0.059)	0.104 (0.104)	0.172 (0.156)
Central banker with economics background	-2.344*** (0.232)	-4.958*** (0.633)	-4.958*** (0.633)	-1.297*** (0.021)	-1.773*** (0.226)	-1.892*** (0.320)
Age of central banker	-0.035*** (0.005)	-0.019* (0.011)	-0.019* (0.011)	-0.023*** (0.000)	-0.069*** (0.014)	-0.068*** (0.015)
Central banker reappointment	-0.226*** (0.058)	-0.715*** (0.164)	-0.715*** (0.164)	0.275*** (0.064)	1.317*** (0.318)	1.357*** (0.315)
Past numbers of epidemics	0.162*** (0.011)	0.253*** (0.028)	0.253*** (0.028)			
Past numbers of earthquakes	0.022** (0.009)	-0.038** (0.017)	-0.038** (0.017)			
Past numbers of floods	0.020*** (0.006)	0.015 (0.019)	0.015 (0.019)			
Past numbers of storms	-0.070*** (0.012)	-0.211*** (0.036)	-0.211*** (0.036)			
Exchange rate regime (ref = fixed)			5.595*** (0.673)	0.174*** (0.024)	1.652*** (0.552)	
Past natural disasters numbers index				0.439*** (0.003)	0.636*** (0.058)	0.648*** (0.062)
Exchange rate based on interventions						-0.313 (0.659)
Constant	0.611*** (0.194)	-2.009 (1.300)	-7.604*** (1.605)	0.285*** (0.026)	-0.274 (1.359)	1.351 (1.077)
Observations	111	102	102	111	102	102
Governor FEs	Yes	Yes	Yes	Yes	Yes	Yes
Time FEs	No	Yes	Yes	No	Yes	Yes

Notes: COVID-19 deaths are monthly growth rate. Robust standard errors (in brackets) clustered at the country level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 3 reports the average marginal effects, calculated from the estimation of equation (1). As can be seen, an additional past episode of epidemic faced by a central banker is associated with a significantly higher probability of lowering the policy rate, and the effect is as large as 3.1 to 4.3 percent. The last three columns reveal that the index of past disasters has an even larger impact, as it increases the probability of decreasing the policy rate by 8.4 to 11.0 percent. These effects are thus quite large, and policy relevant.

Table 3. Average Marginal Effects

	[1]	[2]	[3]	[4]	[5]	[6]
Past numbers of epidemics	0.031*** (0.003)	0.043*** (0.006)	0.043*** (0.006)			
Past natural disasters numbers index				0.084*** (0.002)	0.109*** (0.005)	0.110*** (0.006)
Observations	118	109	109	118	109	
Governor FEs	Yes	Yes	Yes	Yes	Yes	Yes
Time FEs	No	Yes	Yes	No	Yes	Yes
Past disaster control	Yes	Yes	Yes	No	No	No
Central banker control	Yes	Yes	Yes	Yes	Yes	Yes
COVID-19 deaths control	Yes	Yes	Yes	Yes	Yes	Yes
Country level control	No	No	Yes	Yes	Yes	Yes

Notes: COVID-19 deaths are monthly growth rate. Robust standard errors (in brackets) clustered at the country level. *, **, and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

4. Conclusion

Natural disasters are traumatic events that wreak havoc, leaving a scar, shaping social preferences and life trajectories of the agents that have exposed to them. How much do such events influence the behavior of policy-makers? The present pandemic context presents a way to answer this question and, thus, to make progress on the agenda designed by Goodell (2020). Using a novel hand-picked dataset on the characteristics of central bankers and disasters for 19 emerging and developing countries, this study confirms that early life traumas and shocks have long-lasting effects and play an important role in shaping preferences and decision-making. We find that central

bankers who have faced episodes of epidemics in their impressionable years have a significantly higher probability to favor policy rate cuts to fend off the negative effects the COVID-19 has imposed on their economies.

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