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RESEARCH ARTICLE

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Multinational data show that conspiracy beliefs are associated with the perception (and reality) of poor national economic performance

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Abstract

While a great deal is known about the individual difference factors associated with conspiracy beliefs, much less is known about the country-level factors that shape people's willingness to believe conspiracy theories. In the current article we discuss the possibility that willingness to believe conspiracy theories might be shaped by the perception (and reality) of poor economic performance at the national level. To test this notion, we surveyed 6723 participants from 36 countries. In line with predictions, propensity to believe conspiracy theories was negatively associated with perceptions of current and future national economic vitality. Furthermore, countries with higher GDP per capita tended to have lower belief in conspiracy theories. The data suggest that conspiracy beliefs are not just caused by intrapsychic factors but are also shaped by difficult economic circumstances for which distrust might have a rational basis.

KEYWORDS
conspiracies, conspiracy beliefs, economic vitality, GDP, political trust

1 | INTRODUCTION

Conspiracy theories are 'explanations for important events that involve secret plots by powerful and malevolent groups' (Douglas et al., 2017, p. 538). Many of these conspiracy theories are not harmless: they are used to fuel racism (Bilewicz et al., 2013; Jolley et al., 2020), promote political violence (Imhoff et al., 2020; Jolley & Paterson, 2020), commit crime (Jolley et al., 2019) and undercut public health

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measures (Hornsey, 2020; Hornsey et al., 2018a, 2020, 2021; Imhoff & Lamberty, 2020; Lamberty & Imhoff, 2018; Pummerer et al., 2022; see Douglas et al., 2017; Douglas & Sutton, 2018, for reviews). Despite this, empirical analysis of the predictors of believing in conspiracy theories is a relatively young endeavour. Indeed, bibliometric analyses show that the first empirical, psychological analysis of the drivers of conspiracy theorising did not emerge until the 2000s, and more than half of the publications on conspiracy theories in psychology have been published since 2019 (at the time of writing, 412 out of 644 according to the Web of Science).

The research to date has tended to focus on individual differences associated with being more or less prone to believe conspiracy theories. For example, we know that willingness to believe conspiracy theories is associated with higher levels of paranoia (Imhoff & Lamberty, 2018; Van der Linden et al., 2021), Machiavellianism (March & Springer, 2019) and narcissism (Cichocka et al., 2016). Conspiracy theorists are more likely to feel marginalised, lacking feelings of power (Biddlestone et al., 2020; Van Prooijen, 2017), self-esteem (Galliford & Furnham, 2017) and control (Van Prooijen & Acker, 2015). They are also more likely to have an intuitive (as opposed to analytical) thinking style (Swami et al., 2014) and to see patterns and agency in random events (Douglas et al., 2016).

Other individual differences factors that have been examined with respect to conspiracy theories—for example, education (Van Prooijen, 2017) and socio-economic status (Mao et al., 2020)—are in turn shaped by 'macro' forces: the economic, political, ecological and historical contexts that their country offers. This reminds us that conspiracy beliefs do not simply exist 'under the skull', but they are also shaped by socio-structural forces that can be located at the country-level. However, direct examinations of these country-level realities are rare. This is a problem: conspiracy beliefs are typically formed as ways of understanding the economic and/or political system, and so failure to consider these contexts leads to an impoverished understanding of the phenomenon.

In addition, examining country-level variables provides the opportunity for a tonal shift away from a deficit model of conspiracy theorists—they have 'dark' personalities, irrational cognitive styles, unmet psychological needs—towards a less pejorative perspective: an understanding that conspiracist thinking might be a worldview that has emerged in response to a history of propaganda, the prevalence of actual conspiracies, lack of accountability, and incompetence from governments and other institutions. From this perspective, conspiracy beliefs might (at least in part) be a process of sense-making in contexts where official versions of information are unreliable; a form of rational distrust.

Empirical research on nation-level factors implicated in willingness to believe conspiracies is still in its infancy. However, scholars have found patterns consistent with the notion that culture may play a role: nations high in collectivism and masculinity, for example, tend to be higher in conspiracist thinking (Adam-Troian et al., 2021; Biddlestone et al., 2020; Van Prooijen & Song, 2021). There is also some evidence that the perception (and to an extent the reality) of high economic inequality in a nation is associated with propensity to believe conspiracy theories (Casara et al., 2022).

In the current article we examine another economic factor that might shape willingness to believe conspiracy theories: the perception (and reality) of poor economic performance at the national level. Underpinning this question is the argument that economic vitality is a proxy for the competence and integrity of the country's governance; a key performance indicator of whether the system is trust*worthy*. This idea is sometimes discussed under the umbrella of institutional theories (which argue, in part, that the quality of bureaucracies shape views on government; Peters, 2019) and democratic theories (which argue, in part, that citizens hold governments accountable for their performance; Wroe, 2016). In short, it is expected that office holders will uphold their responsibilities for high-integrity decision-making, and the consequence for violating that expectation is withdrawal of trust. In line with this notion, there is a significant amount of research in the United States (e.g., Chanley et al., 2000; Hetherington, 1998; Lawrence, 1997) and Europe (e.g., Armingeon & Ceka, 2014; Foster & Frieden, 2017; Van Erkel & Van der Meer, 2016;) showing that trust in government can ebb and flow as a function of economic vitality, climbing higher in times of strong economic performance and dropping lower in times of economic struggle.

Of course, it would be unwise to presume that insights from the literature on trust in government could be unproblematically extrapolated to provide insights into conspiracy beliefs, because the two constructs are qualitatively different. Despite these differences, the political science research does suggest a novel hypothesis: that conspiracy beliefs will be more prominent among people who live in countries experiencing economic difficulty, and among those who *perceive* that their nation is experiencing economic difficulty. This notion speaks to the rational distrust notion: rather than locating conspiracy beliefs as part of an ecosystem of individual irrationality, we argue that a contributor may be the competence and integrity of the national system, a key indicator of which is the vitality of the economy.

1.1 | Methodological challenges

In describing our study below, we note three methodological challenges associated with conducting research of this nature. First, we know of little existing data that track levels of conspiracy theorising over a significant period. Because of this, we do not have the capacity to use time series analyses to track the relationship between economic conditions and conspiracy beliefs. Nor do we have the luxury of conducting secondary analyses on pre-existing datasets. Instead, we have collected primary data across 36 countries to examine our questions cross-sectionally.[1]

Second, we note measurement challenges associated with collecting conspiracy data across countries. Many studies in the last decade have used scales such as the Belief in Conspiracy Theories Inventory, which asks respondents to rate their level of endorsement

[1] We use the term 'country' as a term of convenience, but note that Hong Kong was never an independent country. Post-handover, the colony of Hong Kong became the Hong Kong Special Administrative Region and for official purposes is a part of the People's Republic of China.

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with specific, real-world conspiracy theories (e.g., that NASA faked the moon landing, that Princess Diana was murdered, or that the US government allowed the 9/11 attacks to take place; Hornsey et al., 2018b; Lewandowsky et al., 2013, 2015; Lewandowsky, Oberauer, & Gignac, 2013). Although extremely useful for examining individual-level factors that are associated with conspiracy theorising, they are less useful for examining country-level factors. This is because different conspiracies have a different foothold on the cultural psyche of different countries: a 9/11 insider conspiracy would have different cultural relevance in Afghanistan than it would in the United States, just as conspiracy theories about the death of Princess Diana might have different cultural relevance in the United Kingdom than they do in China. As such, we have chosen in the current study to use a generic measure of willingness to believe that authorities are colluding to hide the truth from the population in a socially coordinated, planned manner.

A third challenge of conducting cross-national research on conspiracy theories is the potential for ecological fallacies. The term 'ecological fallacy' refers to a cluster of statistical fallacies that together highlight why group-level data can be misleading proxies for population processes. To avoid ecological fallacies, it is reassuring if truly country-level data can dovetail with individual-level data to tell a compatible story. To provide robustness to our analysis, we examined two levels of data: (1) GDP per capita, which could be construed as a country-level index of economic vitality, and (2) individual-level data tapping into *perceptions* of the country's economic vitality. For the economic performance argument to be sustained, one would need to observe that variation in GDP per capita across countries was associated with variation in conspiracist ideation *and* that individual variation in perceptions of economic performance was associated with conspiracist ideation (Hornsey & Pearson, 2022; Imhoff, 2022).

1.2 | Hypotheses and research questions

In sum, we tested the following hypotheses:

H1: Across countries, levels of conspiracy belief will be negatively related to GDP; that is, the lower the GDP, the higher the conspiracy belief

H2: Within countries, levels of conspiracy belief will be negatively related to perceptions of economic performance; that is, the weaker the perception of economic performance, the higher the conspiracy belief.

We note that we measured three dimensions of economic performance, relating to perceptions of past, current and future performance. H2 is relevant to perceptions of current and future economic performance. Because perceptions of the past are not a proximal index of government performance—and because they tap into (potentially nostalgic) remembrances—we did not expect past economic performance to necessarily be associated with conspiracy beliefs, and instead include this variable as part of an open research question.

2 | METHOD

2.1 | Sampling

We sampled 6723 university students from 36 countries across five continents. Most were sampled through online processes although, as made clear in the online supplementary Table S1, some were sampled using pencil-and-paper methods as well. Of the participants who reported gender, 65.4% were female, 34.3% were male, and 0.3% responded 'other'. The average age was 21.83 years (*SD* = 5.67).

2.2 | Protocol for translation

For any sites where the country was delivered in a language other than English, the collaborators at the relevant site arranged a translation of the original English survey. The collaborator then arranged an independent English back-translation of the translated survey, which was reviewed by the project leads for any deviations in meaning from the original English survey. Any changes were marked on the back-translation and sent back to the relevant collaborator for review. Upon receiving the back-translation, the collaborator provided responses to the suggested changes, including whether the identified issues did indeed derivate from the original meaning, or were simply artefacts of the back-translation process. These responses were again reviewed by the project leads before final clearance was given to the collaborator to begin local data collection.

2.3 | Survey measures

The individual-level data were drawn from a larger survey conducted in 2017 and 2018 (i.e., pre-COVID).[2] It is from this survey that we extracted four key variables relevant to our theorizing.

Participants recorded their perception of the economic performance of their country. They did this three times. First, they were asked to 'think about the economic situation in [country] at the moment. How would you describe the current economic situation in [country]?' (1 = *very bad*, 7 = *very good*). This variable was labelled *current economic perception*.

Second, participants were asked to 'think about [country]'s economic situation in the next 3 years. To what extent do you expect [country]'s economic situation to be worse, the same, or better in the next

[2] Other variables were moral expansiveness, moral vitality, solidarity with animals, satisfaction with life, emotions, social wealth inequality, attitudes towards older people, values, moral foundations, identity fusion, anomie, support for a strong leader, collective angst, opposition to immigration, social mindfulness, religiosity, conservatism, relative discrimination, generalised trust and social expectancies of anxiety, depression and happiness. Only one variable from our data has been included in another published study. Scores on the MacArthur Subjective Social Status Scale, which we included in our study as a control variable, were also included in control variables by Kirkland et al. (in press).

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3 years?' (1 = *a lot worse*, 7 = *a lot better*). This variable was labelled *future economic perception*.

Third, participants were asked to 'think about [country]'s economic situation 3 years ago. To what extent would you describe [country]'s economic situation three years ago to be worse, the same, or better than it is now?' (1 = *a lot worse*, 7 = *a lot better*). This variable was labelled *past economic perception*.

The outcome variable was a measure of conspiracy belief, which was based on a well-validated single-item scale developed by Lantian et al. (2016). This scale starts with the following preamble:

'Some political and social events are debates and it is suggested that the "official version" of events could be an attempt to hide the truth to the public. This "official version" could mask the fact that these events have been planned and secretly prepared by a covert alliance of powerful individuals or organisations (for example secret services or government). What do you think?'

Participants were then asked to rate the extent to which they found the following statement to be true 'I think that the official version of the events given by the authorities very often hides the truth' (1 = *Completely false* to 9 = *Completely true*).

In addition to these focal variables, we included three control variables: age, gender and socio-economic status (SES). SES was measured using an adaptation of the MacArthur Subjective Social Status Scale (Goodman et al., 2001). Participants were presented with a ladder with 10 rungs and were asked to select a number corresponding to the rung where 'you think you stand at this time in your life', relative to other people in their country. These numbers ranged from 1 (lowest rung) to 10 (highest rung).[3]

2.4 | Country-level data

The key cultural dimension we examined was GDP per capita, operationalised in terms of purchasing power parity (PPP). PPP is a well-used macroeconomic metric—developed through the international comparison programme in 1968—that compares economic productivity and standards of living between countries, adjusting for different currencies. The current analysis draws on the 2018 data published by the World Bank.[4]

3 | RESULTS

Also included in the OSF are figures (S1–S3) that elaborate on the range and distribution of the key variables.

To provide a preliminary heuristic to examine H1, we grouped the mean conspiracy belief scores as a function of GDP per capita. As can be seen in Figure 1, there was a general tendency for conspiracy beliefs to be lower the higher the GDP per capita of the country sampled. The data suggest Singapore is an outlier, given that GDP per capita was more than three standard deviations higher than the mean GDP for the 36 countries. However, removing Singapore from analyses did not change the results reported below.

To formally examine the hypotheses, we conducted multi-level analyses using the 'lme4' package in the R statistics program. The multi-level model estimated the fixed effects of person-level (level 1) and country-level (level 2) variables. For each analysis, *p*-values were calculated using the 'lmerTest' package in R, which runs the lme4 models through a Satterthwaite approximation test to calculate degrees of freedom. All variables were standardised. Maximal random effect structure was specified in accordance with Barr et al. (2013).

Table 1 summarises the intercorrelations among Level 1 variables, and Table 2 summarises results of three models that were tested. All three models used GDP per capita as the Level 2 variable, and incorporated gender, age and SES as Level 1 variables. Where the models differed was in relation to the type of economic perception data included among the Level 1 variables: Model 1 analysed current economic perception, Model 2 analysed future economic perception, and Model 3 analysed past economic perception. We separated the economic perceptions into separate models to maximise the precision with which each economic indicator was estimated. It should be noted, however, that when every economic perception was included as predictors in the same model, the results did not change in significance or direction (see OSF for results).[5]

Depending on the model, the country-level explained 4.8%–8.10% of variance after taking into account the Level 1 variables. As can be seen in Table 2, the negative relationship between GDP per capita and conspiracy belief that was visible in the scatterplot was significant in all three models. As GDP per capita increased, levels of conspiracy belief decreased (Model 1 $\beta = -.09$, $p = .036$, 95% *CI* [−.168, −.009]; Model 2: ($\beta = -.12$, $p = .011$, 95% *CI* [−.202, −.033]; Model 3: ($\beta = -.15$, $p = .005$, 95% *CI* [−.243, −.053]). This pattern is consistent with H1.

Importantly (in light of the earlier discussion about ecological fallacies) conclusions from the Level 2 analyses aligned with conclusions from the Level 1 analyses. The more participants perceived the economy to be doing well currently ($\beta = -.17$, $p < .001$, 95% *CI* [−.22, −.12]) and the better participants perceived the economy would function in the near future ($\beta = -.11$, $p < .001$, 95% *CI* [−.15, −.08]), the lower their scores on conspiracy belief. Both these findings are consistent with H2. As expected, when participants reflected on *past* economic performance, the pattern changed: indeed, there was a *positive* association between conspiracy belief and perception of past economic performance ($\beta = .05$, $p < .001$, 95% *CI* [.02, .07]).

[3] The rate of missing data was relatively low (<4%) on every variable except for SES, for which data were not collected in the Senegalese sample. There were no missing data for the country-level variable (GDP). Analyses reported in this manuscript are reported using listwise deletion for missing data.

[4] Note that we chose GDP instead of Gross National Income (GNI) because the latter incorporates elements such as foreign investment income and foreign aid. To the extent that foreign aid, for example, can be seen as compensation for economic under-performance, we reasoned that GNI would be a noisier proxy for economic performance than GDP per capita.

[5] The residuals of each model were skewed, so we also ran each multi-level analysis using ordinal logit models (see OSF folder for details). The findings were consistent in both cases, so we report the Gaussian analyses here.

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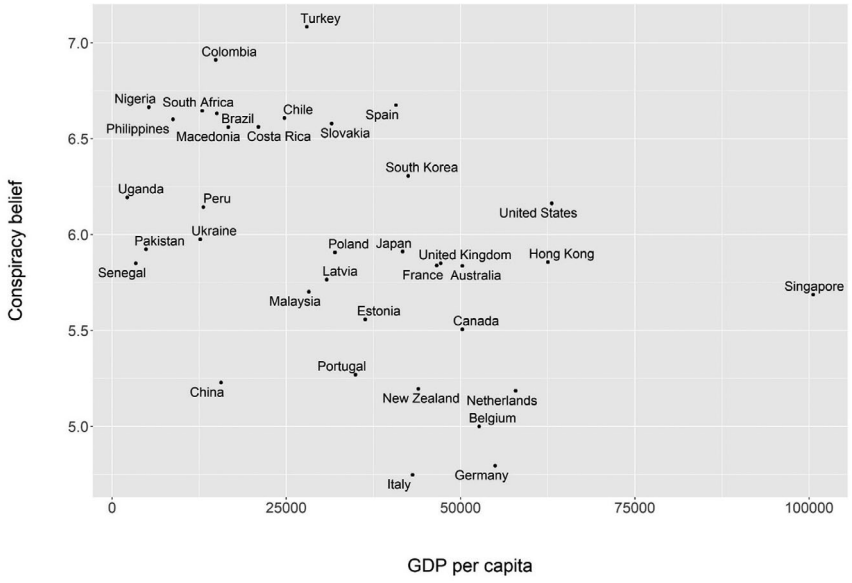


FIGURE 1 Country-level relationships between conspiracy belief and GDP per capita

TABLE 1 Means, standard deviations and correlations with confidence intervals of Level 1 predictors

Variable	*M*	*SD*	1	2	3	4	5	6
1. Age	21.83	5.67						
2. Gender	0.31	0.95	−.02					
			[−.04, .01]					
3. SES	5.82	1.59	.03*	.01				
			[.01, .06]	[−.02, .03]				
4. Past economic perceptions	3.91	1.22	−.08**	−.00	.01			
			[−.10, −.05]	[−.02, .02]	[−.02, .03]			
5. Current economic perceptions	3.59	1.48	−.07**	.10**	.08**	−.05**		
			[−.10, −.05]	[.07, .12]	[.06, .11]	[−.07, −.02]		
6. Future economic perceptions	4.01	1.36	−.01	−.01	.07**	−.12**	.38**	
			[−.03, .02]	[−.03, .02]	[.04, .09]	[−.14, −.09]	[.36, .40]	
7. Conspiracy belief	5.97	2.03	.01	.00	−.02	.07**	−.21**	−.13**
			[−.02, .03]	[−.02, .03]	[−.04, .01]	[.05, .09]	[−.23, −.19]	[−.15, −.10]

Note: *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation.
*$p < .05$. **$p < .01$.

It is interesting to note in Table 2 that the GDP effect is considerably smaller in the model featuring current economic perceptions (Model 1) than in the models featuring future and past economic perceptions (Models 2 and 3). This provides suggestive evidence for the conceptual alignment between the Level 1 and Level 2 variables: GDP and perceptions of current economic performance 'steal' variance from each other because they reflect a similar underlying construct measured at different levels of analysis.

As can be seen in Table 2, we included age, gender and SES as control variables. Although these variables were not central to our theorising, we note for the record that women were slightly higher in their levels of conspiracy belief than men. Age and SES, in contrast, were not associated with conspiracy belief.

3.1 | Supplementary analyses

On their own, the conclusions around GDP are less resolved than the individual-level data about economic perceptions, given that the latter were drawn from thousands of observations whereas the former were drawn from 36 observations. To help reinforce the validity of the GDP effect, we ran supplementary analyses on our own data, as well as three pre-existing datasets that collected conspiracy measures cross-nationally. These analyses were designed to test whether indices of economic inequality (GINI) and/or the human development index (HDI) have greater predictive value than GDP per capita. GINI is scored on a 0 to 1 score with higher scores representing greater income inequality within a nation. HDI is a composite score (also from

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TABLE 2 Three multi-level models predicting conspiracy belief

	Model 1			Model 2			Model 3		
	β	SE	*t*	*β*	SE	*t*	*β*	SE	*t*
Level 1 variables									
Gender (−1 = male, 1 = female)	.05*	.02	2.34	.05*	.02	2.46	.05*	.02	2.37
Age	−.01	.01	−0.93	−.01	.02	−0.63	−.01	.02	−0.42
SES	−.01	.01	−0.89	−.01	.01	−1.10	−.02	.01	−1.95
Current economic perception	−.17***	.03	−6.80	–	–	–	–	–	–
Future economic perception	–	–	–	−.11***	.02	−6.18	–	–	–
Past economic perception	–	–	–	–	–	–	.05***	.01	3.73
Level 2 variable									
GDP per capita (PPP)	−.09*	.04	−2.18	−.12*	.04	−2.73	−.15**	.05	−3.05

Note. $N = 6080$, $k = 36$; Numbers are standardised effect sizes extracted from multi-level modelling, with individual-level variables treated as Level 1 variables and GDP per capita treated as a Level 2 variable.
*$p < .05$, **$p < .01$, ***$p < .001$.

0 to 1) incorporating education, life expectancy and average per capita income.

We re-ran each of Models 1 and 2 twice more: once controlling for GINI and once controlling for HDI as Level 2 fixed effects (we only tested Models 1 and 2 because they reflect the predicted effects: we did not predict past economic performance would influence conspiracy beliefs so did not examine Model 3). Adding in these nation-level covariates did not alter the significance or direction of the relationship between current or future economic perceptions and conspiracy belief. Examining the Level 2 effects was more difficult because GDP is highly correlated with both GINI ($r = -.48$) and with HDI ($r = .82$). Given the very high correlation between GDP and HDI, it is perhaps unsurprising that both relationships were rendered non-significant when the two were entered together (all $ps > .33$). This was also true when GINI and GDP were entered simultaneously for Model 1 (both $ps > .06$). In Model 2, however, the significant association between GDP and conspiracy belief became marginal ($ß = -.11$, $p = .068$), while the effect of GINI survived ($ß = .11$, $p = .041$).

In sum, there was some evidence that GINI might provide a better fit to the data than GDP per capita, but our ability to draw conclusions was limited by high correlations among the group-level predictors. To further examine this question, we ran simple regressions on three pre-existing datasets, focusing on the group-level of analysis (i.e., collapsing scores on conspiracy theories within nation and examining associations between those scores and the scores on GDP, GINI and HDI).[6]

First, we conducted secondary analysis of a 25-country dataset originally reported by Hornsey et al. (2018a, 2018b). In this dataset, participants rated the extent to which they agreed with four conspiracy theories: 'A powerful and secretive group known as the New World Order are planning to eventually rule the world through an autonomous world government which would replace sovereign governments', 'The assassination of John F. Kennedy was not committed by the lone gunman Lee Harvey Oswald, but was rather a detailed, organised conspiracy to kill the President', 'The U.S. government allowed the 9/11 attacks to take place so that it would have an excuse to achieve foreign (e.g., wars in Afghanistan and Iraq) and domestic (e.g., attacks on civil liberties) goals that had been determined prior to the attacks' and 'Princess Diana's death was not an accident but rather an organized assassination by members of the British royal family who disliked her' ($\alpha = .81$). This 25-nation dataset was originally collected (and reported by) Hornsey et al. (2018a, 2018b) but has subsequently been re-analysed and reported by Casara et al. (2022, Study 1) and Adam-Troian et al. (2021, Study 1).

Second, we re-analysed data collected by the PiCOM consortium in 23 countries ($N = 33{,}431$) where the Conspiracy Mentality Questionnaire had been administered. A truncated version of this dataset—focusing only on the 18 countries with cultural values scores—was used for Study 2b in Adam-Troian et al. (2021) and Study 1b in Casara et al. (2022). In the supplementary analyses, we examined all 23 countries.

Third, we re-analysed conspiracy belief scores from the YouGov-Globalism Project 2020, a dataset that includes data from 20 countries. Conspiracy beliefs were measured with five items based on globally recognised conspiracy theories (i.e., a single secret group in charge of the world, global warming, alien contact, origins of the AIDS virus, and the moon landing) rated on 5-point Likert scales with responses ranging from 1 "Definitely false" to 5 "Definitely true". This dataset formed Study 1c of Casara et al. (2022).

The results of these secondary analyses can be found in Table 3. Importantly, GDP per capita was a significant predictor in two of the three datasets: the exception was the PiCOM data in which GDP was marginally significant in the expected direction ($p = .051$). In contrast, although the effect of GINI trended in the expected direction for each of the analyses, in none of the analyses was the effect significant. Furthermore, GDP per capita remained significant in the Hornsey et al. (2018a, 2018b) and YouGov data after controlling for GINI. In sum,

[6] Note that these analyses are qualitatively different from the multi-level models reported in Table 2, because we are no longer modelling *individual* self-reports of scepticism; rather, we are modelling mean levels of scepticism reported at the nation level. Because the group-level effects no longer have to compete with variance explained by individual-level factors, the effect sizes look considerably larger than those reported in Table 2, but so are the standard errors.

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TABLE 3 Summary of results from group-level regressions

	Hornsey 2018 ($k = 25$)		PiCOM data ($k = 23$)		YouGov data ($k = 20$)	
	β	*SE*	*β*	*SE*	*β*	*SE*
Correlations with conspiracy measure (single predictor, group-level analyses)						
GDP per capita	−.67***	.16	−.40†	.19	−.79***	.14
GINI	.15	.23	.41†	.20	.32	.22
HDI	−.61**	.17	−.44*	.19	−.76***	.15
Regressions predicting conspiracy measure (two predictors, group-level analyses)						
GDP (controlling for GINI)	−.84***	.19	−.28	.22	−.76***	.15
GINI (controlling for GDP)	−.25	.19	.31	.21	.10	.15
GDP (controlling for HDI)	−.56	.33	−.10	.39	−.52*	.24
HDI (controlling for GDP)	−.12	.33	−.35	.39	−.34	.24

Note: These are simple regressions focusing on the group-level of analysis; that is, collapsing scores on conspiracy theories within nation and examining associations between those scores and the scores on GDP, GINI and HDI. As such, Betas are not comparable between Tables 2 and 3.
Scores for GDP, GINI and HDI were extracted from 2018 data. Where 2018 data were unavailable, we used scores going back as far as 2014. If there were no scores between 2014 and 2018 the case was treated as missing data.
†$p < .06$, *$p < .05$, **$p < .01$, ***$p < .001$.

across the four datasets (the current 36-nation dataset and the three pre-existing datasets) the results are mixed as to whether GDP or GINI is the more reliable predictor of conspiracy belief, although Table 3 does suggest more evidence for the predictive value of GDP.

As can be seen in Table 3, HDI shared a reliable relationship with conspiracy beliefs in the three pre-existing datasets. Again, HDI and GDP were highly correlated (*r*s range from .81 to .87) so it should not surprise that both predictors rendered each other non-significant when entered simultaneously. The exception was the YouGov data, in which the GDP effect remained significant whereas the HDI effect became non-significant. In sum, there was evidence that HDI shared significant relationships with conspiracy beliefs, which is consistent with the current theorising given that HDI incorporates per capita income as part of the index. However, there was no evidence that HDI was a better predictor than GDP per capita.

4 | DISCUSSION

To date, there is more understanding of the micro-level factors that are associated with willingness to believe conspiracy theories than the 'macro', country-level factors. Responding to this imbalance does not just help furnish new understandings of the phenomenon of conspiracy theorising, but also a more global understanding. In the current study, we measured the extent to which people believed the official version of events could be covertly orchestrated by an alliance of elites across 36 countries. We then examined the possibility that conspiracy beliefs can be shaped by the perception (and reality) of national economic performance.

We tested the hypothesis that across countries, levels of conspiracy belief will be negatively related to GDP, such that the lower the GDP the higher conspiracy belief (H1). We also predicted that people with lower perceptions of their country's economic vitality would be more likely to hold conspiracy beliefs (H2). We found support for both hypotheses. Overall, conspiracy beliefs were greater among countries with lower GDP per capita, and among citizens who perceived their economy to be performing poorly in the present and in the future. These relationships did not seem to be a reflection of a general disagreeable orientation; indeed, the more strongly people self-reported having conspiracy beliefs, the more *positively* they reported the economic performance of the country in the past. As such, those high in conspiracy belief were characterised by a sense of economic deterioration: things were good once, but not so much now and going forward.

Interestingly, there was no relationship between conspiracy beliefs and SES. This null result is consistent with the political science literature, which has typically found that it is perceptions of the *national* economy that are implicated in political trust, not people's individual financial circumstance (Dalton, 2004; Lawrence, 1997; Lipset & Schneider, 1983; McAllister, 1999; Mishler & Rose, 2001). Note that we are not in a position to generalise conclusions about the (lack of) relationship between SES and conspiracy beliefs for several reasons, not least of which is the fact that we have a predominantly middle-class sample drawn from predominantly young university students. What we can say with confidence, however, is that the findings around perceptions of the national economy are not an artefact of people's personal sense of economic privation in this particular sample.

4.1 | Strengths, limitations and future directions

The current data imply that mistrust of a government's competence around the economy operates somewhat like a global heuristic, spilling over from the competence domain into the domain of integrity (government and other elites have bad intentions and covert agendas). One message is that conspiracy beliefs are not just the province of

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irrational people but are also fertilised by difficult socio-economic circumstances for which distrust might have a rational basis. As Barber (1983, p. 166) argues, 'a certain amount of rational distrust is necessary for political accountability'. We emphasise, however, that we do not have clear evidence for this mechanism, and other mechanisms are theoretically plausible. For example, the adaptive conspiracism hypothesis (Van Prooijen & Van Vugt, 2018) argues that socio-ecological factors—including economic crises—can cue our evolved preparedness to blame events on the deliberate actions of enemy groups. Furthermore, it is possible that economic deprivation may trigger the epistemic, existential and/or social needs that have previously been found to motivate conspiracy theories (Douglas et al., 2017). A priority for future research is to disentangle these mechanisms.

The fact that the role of GDP emerges across four different samples, with four different operationalisations of conspiracy beliefs, provides encouraging support for H1. However, readers may reasonably question whether GDP per se is the ingredient that explains conspiracy beliefs, or whether the relationship is an artefact of other factors associated with GDP. Researchers who are familiar with cross-national research will be well aware of this conundrum; that country-level variables are often highly correlated with each other, and it is difficult to disentangle the unique variance associated with one variable over another. Furthermore, the data are cross-sectional, which raises inevitable interpretational challenges around causality. It is possible, for example, that a latent third variable is driving the relationship between GDP and conspiracy beliefs—for example, power distance (Van Prooijen & Song, 2021) or individualism (Adam-Troian et al., 2021; Biddlestone et al., 2020)—or that there is a more proximal mediator of the relationship such as corruption and political violence.

The supplementary analyses reported in Table 3 suggest that GDP is a more reliable predictor than GINI, although re-analysis of Model 2 in the current data offers some evidence that GINI may be a more reliable predictor than GDP. In truth, both effects are likely to be highly interactive with multiple nation-level predictors, mirroring the complexity of other established relationships between GDP, GINI and indicators of societal flourishing. For example, in a longitudinal analysis of the relationship between GDP, GINI and life satisfaction, Mikucka et al. (2017) found no main effect for GDP on life satisfaction. Instead, they found that GINI and social trust moderated the relationship between GDP and life satisfaction. Importantly, cross-sectional relationships (e.g., between levels of subjective well-being and GDP) differed from the relationships that emerged over time. In light of this, we encourage caution in interpreting the GDP effects until robust, multi-year, poly-national, longitudinal samples measuring conspiracy beliefs emerge.

On the upside, the alignment of the individual-level and group-level data provides a sturdier empirical foundation than if we were extrapolating from the group-level data alone (see also Adam-Troian et al., 2021, for a similar approach). One challenge in conducting multi-nation research is the potential to commit ecological fallacies; that is, making false extrapolations from group-level data to make inferences about population-level phenomena. To guard against this problem, it is recommended that researchers seek correspondence between truly group-level and individual-level data (Hornsey & Pearson, 2022; Imhoff, 2022). This is one strength of the current study: the group-level data on objective economic vitality corroborates messages from the individual-level data on *perceptions* of economic vitality. If the pattern had emerged only on the group-level data—or only on the individual-level data—it might have weakened the robustness of the conclusions. The alignment in the patterns displayed at each level of analysis is one of the strongest indications that economic performance may indeed be a significant factor in shaping conspiracy beliefs.

Although the individual-level associations with perceptions of economic performance are modest in size they are certainly robust, having been observed across many thousands of respondents around the world. This pattern is consistent with the notion that poor economic performance leads people to develop conspiracy beliefs around ruling elites in their nation. These are cross-sectional data, however, and so one needs to carefully consider alternative causal arguments. It is possible, for example, that conspiracy beliefs cause people to judge negatively their country's economic performance. We encourage exploration of these nuances in future research.

A strength of the current study is its scope and reach: in a field that has been built largely upon single-nation examinations of individual difference factors, it is illuminating to be able to explore data from >6000 respondents across 36 countries, which to date is the largest sample in the published literature on nation-level predictors of conspiracy beliefs. Samples were drawn from introductory university classes using participant pools accessible by our network of colleagues. One upside to this approach is that it allows for cleaner country-level comparisons than if the samples were more heterogeneous. Another advantage of working with academic colleagues to collect data is the exemplary control that we have over translations (and back-translations), and the fidelity that this implies in terms of the validity of measurement and the quality of the data. An obvious disadvantage, however, is the generalisability challenge associated with drawing primarily on younger, university-educated samples. Truly representative, pan-global samples are ideal but are prohibitively expensive for most academics. Ideally, conspiracy items will eventually be folded into large, heavily funded programmes like the Eurobarometer or the International Social Survey Programme, where there is more diversity in sampling. Until then, however, we must generalise lessons from single samples such as ours cautiously, and wherever possible, seek to replicate findings across other existing datasets, as we have done in our supplementary analyses.

Future research seeking to expand the collective knowledge on nation-level predictors of conspiracy belief may also benefit from recent increases in the accessibility of geocoding Twitter posts. An example is Brooks et al. (2022), who found that involuntary celibate Twitter activity was higher in American commuter zones with high levels of income inequality. Applied to a global scale, this methodology would provide a well-powered comparison of different nation-level predictors of conspiracy activity.

Readers will note a familiar trade-off between the scope of the survey and the psychometric sophistication of the scales. In multi-nation studies, where survey 'real estate' is tight, it is rare to have the luxury to include large, multi-item scales. On the upside, however, we chose

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single items that were face valid and robust in translation, including well-validated measures of conspiracy beliefs and SES. We also reassure ourselves that psychometric imperfection is typically associated with *obscuring* relationships, so the significant patterns that were found were detected despite the measurement issues, not because of them.

5 | CONCLUSION

A signal emerging from our data is that conspiracy beliefs are associated with poor economic performance within a country. This signal emerges across both individual- and group-level data, capturing both objective reality and subjective perception. Furthermore, the signal emerges across 36 countries within five continents. Together, this contributes to what we hope will be a long process of completing the picture on the factors associated with conspiracy beliefs; one that synthesises the micro with the macro, and blends Western and non-Western voices into a truly global picture. It also contributes to a tonal shift in the literature; away from an individualistic, deficit model of conspiracy beliefs to one that acknowledges the possibility of rational distrust in the face of challenging socio-economic circumstances. In addition to trying to 'fix' the belief systems of individuals, the current study reminds us that leaders also need to do their best to reduce the feelings of mistrust and alienation that provide the fertile ground for conspiracy theories to grow.

AUTHOR CONTRIBUTIONS

Matthew J. Hornsey designed the study. MH wrote the manuscript, and feedback was provided by Brock Bastian, Samuel Pearson, Kai Sassenberg, Jemima Kang and Jolanda Jetten across several drafts. Brock Bastian oversaw the data collection process and data were analysed by Jemima Kang and Samuel Pearson. All other authors collected data and provided feedback on the manuscript.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest

INFORMED CONSENT STATEMENT

All persons gave their informed consent prior to their inclusion in the study.

DATA AVAILABILITY STATEMENT

Data and code for analyses can be found on OSF: https://osf.io/btmnv/

ETHICS STATEMENT

The project received ethical approval from the Psychological Sciences Human Ethics Advisory Group at the last author's university (#1750182.1).

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