Individual, group, and temporal perspectives on the link between wealth and realistic threat

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A B S T R A C T

In this 28-country study (*N* = 6112), we assessed how subjective perceptions and objective indicators of wealth were associated with majority group members' perceptions of realistic threat related to immigration. Subjective wealth was assessed by individuals' perceptions of their personal wealth (current/anticipated) and of their country´s wealth, whereas objective country-level wealth was assessed by GDP and HDI. Multilevel analyses showed that living in a country with a lower objective wealth and perceiving the country's relative wealth as low were associated with higher levels of perceived realistic threat. We also found that an anticipated decrease in personal wealth in the future was associated with higher threat perceptions only in low HDI countries. Our results suggest that perceived realistic threat is fostered by a perceived decline in the current wealth of the country, and country-level wealth may play a role in calibrating threat responses to anticipated personal wealth.

Introduction

More than twenty centuries ago, Plato stated, "Wealth is known to be a great comforter" (ref. Jowett, 1892). In times of societal uncertainty – such as increasing migration and economic crises – wealth may provide a sense of security and stability. Nevertheless, to this day, it is still unclear if and when wealth is associated with more negative (Gorodzeisky and Semyonov, 2015), more positive (Mummendey et al., 1999) or both negative and positive (Mols and Jetten, 2017) reactions to increasing immigration and immigrants. To clarify these mixed predictions and findings, Smith and her colleagues (2018) have argued for the need to better distinguish between objective wealth and subjective perceptions of wealth, as well as individual and group-based experiences of being economically disadvantaged (i.e., relative deprivation). One of the reasons for this is that individual and group-based relative deprivation may more strongly predict individually or collectively oriented outcomes, respectively.

In this study, conducted among national majority group members in 28 countries, we are mindful of the complex way in which wealth may impact various outcomes. We aim to show the link between wealth and perceived intergroup threat, test the possibility of a non-linear relationship between objective and subjective wealth and threat perceptions, and explore the role of anticipated wealth in intergroup outcomes. More specifically, to complement previous research, we examine the relationship between wealth and perceived realistic threats (i.e., threats to the material well-being of national majority group members; Stephan and Stephan, 2000) by taking *objective and subjective* indicators and *individual and country-level* evaluations of wealth into account. Because economic concerns often involve a fear of future decline or recession (Billiet et al., 2014), we also argue that *temporal* evaluations of one's wealth in the future should be considered. Moreover, because perceptions of both improving and declining economic situations may be associated with outgroup negativity, following Jetten et al. (2015), we account for the possibility of a *non-linear relationship* between wealth and intergroup outcomes. Specifically, we test the direct and joint effects of objective country-level wealth (GDP and HDI) and the subjectively perceived wealth both at the personal (current and anticipated personal wealth) and group level on perceived realistic threats associated with immigration.

Untangling different perspectives on economic hardships and deprivation

Personal and group-level deprivation

There are grounds to expect that both personal and the ingroup's economic situation should predict perceived intergroup threats. According to the Relative Deprivation Theory (Runciman, 1966; for a meta-analysis, see Smith et al., 2012), people tend to evaluate their own situation in relation to other people in society. However, such comparisons are not always positive, and an unfavorable comparison may result in feelings of deprivation. Runciman (1966) has argued that unfavorable comparisons both at the personal and at group-level are often associated with various forms of outgroup negativity. Similarly, group conflict theory (Blalock, 1967) argues that individuals' threat perceptions may not only be affected by the economic conditions at the micro (personal)

level but also at the macro (for example, country) level. Even though threat may not affect people personally, membership in and identification with a group – like fellow citizens – serves as a lens to evaluate the intergroup situation and makes one sensitive to perceived threats to ingroup goals (Tajfel and Turner, 1979). In this view, prejudice and anti-immigration attitudes are examples of defensive intergroup reactions to high immigration rates (McLaren, 2003) and economic deprivation (Semyonov and Gorodzeisky, 2006).

In addition, Runciman (1966) has argued that it is crucial to recognize that subjective evaluations of personal and group situations can be independent and lead to distinct consequences. While some studies have found negative attitudes towards immigrants and immigration to be more prevalent among individuals who have lower socioeconomic status (e.g., Lancee and Pardos-Prado, 2013), in other studies, only group-level but not personal deprivation was associated with higher prejudice (see Pettigrew et al., 2008), as feeling of deprivation on behalf of a group is suggested to be the primary cause of intergroup prejudice. Thus, to understand the unique predictive power of each level of comparison, it is crucial to study perceived wealth and economic disadvantage both from personal and group perspectives.

Objective and subjectively perceived deprivation

Two lines of research illustrate the point that when studying the link between wealth and intergroup perceptions, it is also vital to account for the role of objective wealth. First, people's subjectively evaluated wealth largely reflects their country's objective economic situation (Erikson and Wlezien, 2012) and is associated with more positive attitudes towards immigrants (Paas and Halapuu, 2012). Second, although it is argued that subjective perceptions may sometimes matter more than objective economic circumstances in predicting attitudes towards minorities (Kuntz et al., 2017), there is also evidence that subjective and objective perceptions of the economic situation may jointly predict such attitudes whereby country's wealth may moderate the relationship between personal wealth and attitudes. Indeed, Blalock (1967) suggested that although subjective perceptions of competition were associated with higher perceived threat levels, actual competition indirectly impacted individuals threat perceptions. Empirically, Billiet, Meuleman, and De Witte (2014) found that especially in countries experiencing a decline in economic growth, individuals who were more economically disadvantaged reported higher levels of economic threat perceptions. The researchers suggested that economic downturns can have a more crucial impact on the relative position of the disadvantaged, making them more prone to threat perceptions. However, as we will discuss in greater detail below, research also shows that the link between xenophobic attitudes and individual wealth can sometimes be stronger in wealthier countries. In light of previous research on perceived personal versus group-level assessments of the economic situation as well as objective versus subjective wealth, it seems that ingroup's actual economic situation is a particularly important predictor of outgroup negativity and may calibrate threat reactions to personal economic situation.

Temporal deprivation

Finally, people tend to compare the present economic situation not only between individuals and groups but also between time points

(Stephan and Stephan, 2000). In these temporal comparisons, negative expectations are crucial for intergroup outcomes. Thus, time should also be regarded as a critical component of wealth and threat perceptions (Smith and Pettigrew, 2015). Although the importance of (unfavorable) temporal comparisons has been noted in previous research, research has typically been limited to the study of comparisons between the present versus the past (Jin and Tam, 2015). Extending on this, in this study, we argue that anticipated change in personal wealth in the future should also be considered as a predictor of perceived realistic threat from immigration.

Temporal comparisons seem to be especially relevant in times of economic instability, when there is a fear of an economic decline, and immigrants can be accused of having caused the economic downturn through unfair competition (e.g., Billiet et al., 2014; Jetten et al., 2015; Semyonov et al., 2008). When predicting perceptions of realistic threat, subjective perceptions of negative economic changes may be more relevant than objective indicators of economic success or failure (Meuleman, Davidov, and Billiet, 2009). Thus, we predict that anticipated decline in personal wealth may be a mechanism explaining elevated levels of perceived realistic threat evoked by immigrant outgroups in times of economic instability.

The other side of the coin – Perceived gratification

While most previous research examining the link between wealth and intergroup outcomes has focused on the adverse effects of economic disadvantage and relative deprivation, there is a growing body of work showing that higher wealth and relative gratification (i.e., the perception of being better off than others) can also negatively affect intergroup relations (Jetten, 2019). Specifically, accumulating evidence shows an association between higher objective wealth at the group or country level and negative attitudes towards immigrants (Jetten et al., 2015), as well as feelings of insecurity and outgroup threat (Mols and Jetten, 2017). Jetten (2019) has argued that the reasons for the relatively gratified to experience negative attitudes towards the outgroup include status anxiety and fear of falling. Research has shown that wealthier individuals are more concerned about skilled migrants and this heightens threat perceptions (Gorodzeisky and Semyonov, 2015). Acknowledging these studies and following Dambrun et al. (2006) who have suggested a curvilinear relationship between wealth and negative outgroup attitudes, in this study, we acknowledge that both perceived economic disadvantage *and* economic advantage may be associated with negative attitudes towards immigrants (i.e., the V-curve hypothesis, see Jetten et al., 2015).

Research aims and hypotheses

To date, the existing research on the direct and interactive effects of objective and subjectively perceived wealth on intergroup relations has produced mixed results (e.g., Kuntz et al., 2017; Paas and Halapuu, 2012). Therefore, to expand our understanding, this study focuses on the direct and interactive associations between objective and subjective personal and country-level wealth and perceived realistic threat evoked by immigration. We explore how subjective wealth (individual-level) and objective wealth (country-level) are linked to majority group members' perceptions of realistic threat in 28 countries. Objective (country-level) variables included in our study are GDP and HDI, and subjective (individual-level) variables are perceived country wealth, perceived personal relative wealth, and anticipated personal relative wealth. Our theoretical model is presented in Fig. 1, in which the dashed line separates objective (country-level) variables from the subjective (individual-level) variables.

In line with research showing the adverse effects of economic hardships and deprivation on outgroup attitudes and threat perceptions (e.g. Billiet et al., 2014; Smith et al., 2012), we hypothesize that a perceived decrease in wealth will be associated with heightened realistic threat perceptions related to immigration. Additionally, in line with previous

researchers who argued for distinguishing personal from group wealth perceptions examine the independent and interactive effects of individual and ingroup wealth on threat perceptions. Furthermore, we also explore how perceptions of future wealth affect intergroup relations expanding on previous research (e.g., Meuleman et al., 2009) by assessing whether perceptions of a future change rather than the actual economic situation are a better proxy of perceived realistic threats. Thus, we propose that:

(H1a) A perceived/anticipated decrease in *personal* wealth will be associated with heightened realistic threat perceptions related to immigration.

(H1b) A perceived decrease in one's home *country's* wealth will be associated with heightened realistic threat perceptions related to immigration.

(H1c) The association between perceived/anticipated decrease in *personal* wealth and heightened realistic threat perceptions related to immigration will be stronger for those who also perceive a decrease in their *country's* wealth.

On the other hand, based on recent theorization and research on relative gratification and the V-curve hypothesis (Jetten et al., 2015), we explore whether there is evidence of a curvilinear relationship between perceived/anticipated *personal* and country's wealth and realistic threat perceptions.

Second, we also test whether objective country wealth is associated with perceived realistic threat to provide a more stringent test of our hypothesis regarding the role of objective country-level wealth in the formation of realistic threat perceptions. In this study, we focus on two well-known indexes of objective wealth that are frequently used in research: Gross Domestic Product (GDP) and Human Development Index (HDI). GDP per capita refers to the value of services and goods that a country produces each year, divided by the population of that year. HDI, in turn, is an inclusive composite of life expectancy, level of education, and income within a country frequently used in research on relative deprivation (e.g., Wilkinson and Pickett, 2007) and anti-immigrant sentiment (Ramos et al., 2016). In line with Billiet and colleagues' (2014) findings, we predict that objective country wealth might moderate the relationship between subjectively perceived personal wealth and perceived realistic threat (H2). Specifically, we propose that:

(H2a) Individuals living in less wealthy countries (i.e., low HDI or GDP) will perceive higher realistic threats related to immigration compared to those living in wealthier countries.

(H2b) The association between perceived/anticipated decrease in personal wealth and higher realistic threat perceptions related to immigration will be stronger among individuals living in less wealthy countries, as compared to individuals living in relatively wealthier countries.

Method

Data

This study is part of an international research project led by Prof. Jolanda Jetten. The overall sample consisted of 6112 undergraduate students representing the national majority group members. The data was collected between January 2014 and February 2015 from 28 countries in North America (Canada and the US [from Tennessee and North California]), South America (Chile and Brazil), Europe (Netherlands, UK, Spain, Italy, Germany [from former East Germany and former West Germany], France, Denmark, Finland, Switzerland, Belgium, Portugal, Poland, Hungary, and Latvia), Asia (China, Japan, Malaysia, Singapore, Indonesia, India, and Pakistan), the Middle East (Iran), Africa (South Africa), and Australia. The data that was gathered from two different universities in the same country (the US and Germany) were combined
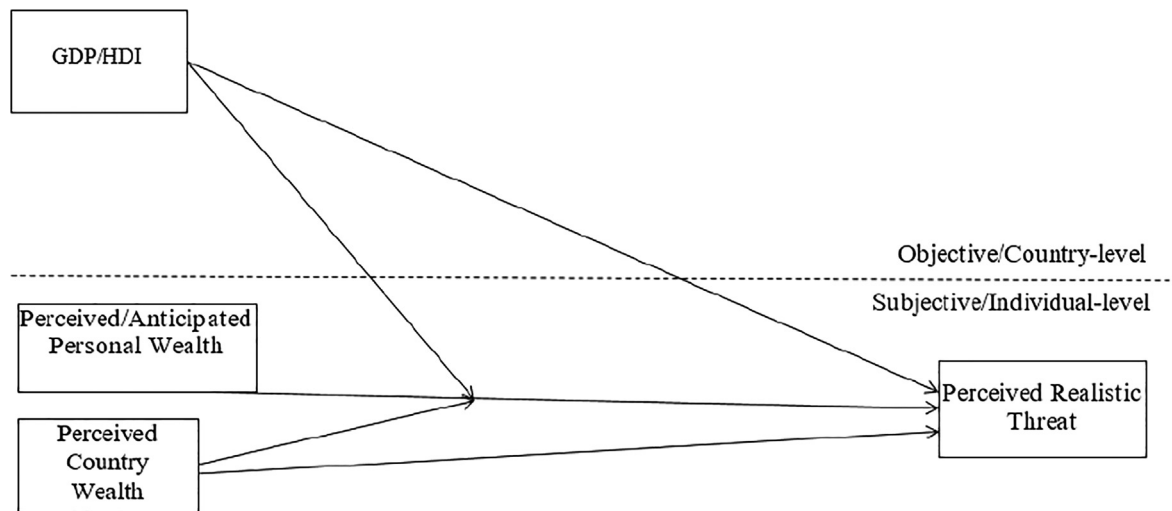
Fig. 1. Theoretical model of the direct and interactive relationships between objective (country-level) and subjective (individual-level) evaluations of wealth and perceived realistic threat.

to make an overall country variable. Participants either completed the online version of the survey or the printed version. The original questionnaire was translated from English into the respective languages of the countries. The sample was 64.2% female, and the participants' mean age was 22.53 (SD = 6.35). Country-level descriptive statistics, alongside the mean scores of the measures, can be found in Table 1.

Measures[2]

As individual-level variables, perceived realistic threat was measured with three items based on Stephan and Stephan's (2000) conceptualization and adapted from a previous study by Jetten and Wohl (2012). The items were: *'Immigrants take resources and employment opportunities away from [national majority group members]'; 'In schools where there are too many children of immigrants, the quality of education will suffer'; and 'Immigrants abuse the system of social benefits'* (1 = strongly disagree to 7 = strongly agree). Summed scores were formed as indicators of perceived realistic threat ($\alpha = 0.80$), with higher scores denoting higher threat perceptions.

The country's perceived wealth was measured with a single item adapted from the Pew Research Global Attitudes Project (see also Smith et al., 2018). Participants were asked to *'think about the economic situation in your country at the moment. How would you describe the current economic situation in your country?'* (1 = very bad to 7 = very good).

Perceived personal wealth was also assessed with a single item adapted from the Pew Research Global Attitudes Project (see Smith et al., 2018). Participants were asked to *'think about your personal economic situation*

at the moment. How would you describe your current personal economic situation?'* (1 = very bad to 7 = very good).

Anticipated personal wealth in the future was measured by asking participants to 'think about your personal economic situation in the next three years: To what extent do you expect your personal economic situation to worsen, remain the same, or improve in the next 3 years?' (1 = a lot worse to 7 = a lot better).

Control variables were age and gender.

Objective country-level wealth GDP per capita and The Human Development Index (HDI) were used as objective indicators of a country's wealth. GDP is a measure which solely captures the country's economic situation, HDI, in turn, is a composite of life expectancy, level of education, and income within a country, thus it reflects the overall functioning of the society for the majority of its citizens. Scores of all 28 countries were derived from the Human Development Report (United Nations Development Programme, 2015) and OECD National Accounts data (OECD, 2015) were included in the multilevel analysis as the country-level variables. The GDP per capita of the countries studied ranged from 5 to 85,4 international dollars. The HDI rankings vary between 0 and 1, thus a high score indicates high human development. The rankings of the countries in the study ranged from 0.55 to 0.94.

The data also included other measures outside the scope of this study, such as satisfaction with life, symbolic threat, and political trust.

Data analysis

First, we tested for measurement invariance to examine our dependent variable's cross-cultural equivalence – perceived realistic threat – across 28 countries by using multi-group confirmatory factor analyses (MGCFA) with Mplus software (Muthén & Muthén, 2004). The full information maximum likelihood (FIML) approach was used to handle missing data. We started by examining the configural model to test whether the factor structure was similar across countries and obtained a perfect fit (saturated model). Then, we examined the metric model fit of the three-item scale (with all factor loadings constrained to be equal across countries and intercepts released) to explore whether the factor loadings were equivalent across the countries. The model had adequate fit (CFI = 0.97, TLI = 0.96, and RMSEA = 0.09), confirming metric invariance across countries. This level of invariance allowed us to continue examining correlations and regressions between countries.

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[2] In this study, we utilize partly similar measures to those reported in Smith and colleagues' (2018) study on relative deprivation and cultural values, based on the same data. More specifically, our measures of perceived personal and country's wealth in the present, anticipated personal wealth in the future, and perceived realistic threat were previously used as parts of more general proxies of personal/group deprivation and outgroup attitudes, respectively. Smith and colleagues (2018) found that present and future-related personal and group deprivation predicted negative attitudes towards immigrants. However, they did not distinguish between temporal aspects of personal deprivation, or between the different types of perceived threats (namely, symbolic and realistic) and general outgroup negativity. With a more specific operationalization of personal wealth and perceived realistic threat, we are able to answer more specific research questions.

Table 1
Descriptive statistics per country, ordered by HDI.

Country	HDI	GDP per capita	N	% female	Age	Perceived personal wealth	Anticipated personal wealth	Perceived country's wealth	Realistic threat
Switzerland	.94	62,60	488	64	24.13	4.71	4.67	5.82	2.78
Australia	.94	46,30	149	73	22.14	4.32	5.09	4.28	2.67
Germany	.93	48	322	70	22.05	4.65	4.41	5.28	2.66
Denmark	.93	49	164	71	22.68	4.24	4.85	4.29	3.85
Singapore	.93	85,40	193	66	19.5	4.67	5.19	5.30	4.47
Netherlands	.92	49,60	208	79	19.35	4.75	4.16	4.10	3.66
US	.92	56,10	319	59	21.06	4.52	4.70	2.92	3.64
Canada	.92	44,30	233	77	21.66	4.67	4.46	4.29	2.77
UK	.91	41,80	74	76	21.97	4.48	3.77	3.89	3.27
France	.90	41	150	83	19.53	3.58	4.36	2.74	2.96
Finland	.90	42,30	113	77	25.58	4.28	5.06	3.60	2.66
Belgium	.90	45,80	242	22	23.20	4.43	4.35	3.61	3.84
Japan	.90	40,80	382	57	20.64	3.42	4.10	2.94	3.54
Italy	.89	37,20	156	62	25.87	3.88	4.15	2.08	3.07
Spain	.88	34,70	277	73	35.66	3.69	4.64	1.86	3.06
Poland	.86	26,90	180	72	27.72	4.32	4.80	3.19	2.90
Chile	.85	23,40	151	33	20.47	5.20	4.81	4.73	2.20
Portugal	.84	29,70	160	71	23.44	3.66	4.45	2.25	3.19
Hungary	.84	26,50	160	18	24.75	4.27	4.67	2.76	3.38
Latvia	.83	24,90	149	53	23.44	3.66	5.00	3.30	3.49
Malaysia	.79	27	112	85	21.42	4.26	4.72	3.68	4.80
Iran	.77	17,20	170	54	22.49	2.99	4.15	2.16	3.94
Brazil	.75	15,50	146	62	25.99	4.10	4.90	3.51	2.80
China	.74	14,50	151	79	19.41	3.83	4.69	4.59	4.06
Indonesia	.69	11,10	557	77	23.12	4.17	5.25	3.08	4.04
South Africa	.67	13,20	451	81	21.04	3.94	4.80	2.92	3.42
India	.62	6,10	145	66	22.24	3.54	4.72	2.88	4.45
Pakistan	.55	5	150	N/A	18.92	4.28	4.77	2.37	3.95

Next, because participants were nested within countries, we used the Statistical Package for the Social Sciences (SPSS 25) mixed model procedure for multilevel modeling. Individual-level (level 1) predictors were perceived country's wealth and perceived and anticipated personal wealth. The country-level (level 2) predictor was either GDP, or HDI. Perceived realistic threat and personal wealth in the present and future were measured at level 1 and were group-centered based on the mean of each country. The level 2 moderators (GDP and HDI) were grand-centered to test the cross-level interactions. In the multilevel analysis, we used the restricted maximum likelihood approach (REML).

As we were interested in testing whether the associations between personal wealth in the present and future with perceived realistic threat vary as a function of GDP and HDI, we included random effects for the slopes of our main predictor variables (perceived/anticipated personal wealth). A random intercept was modeled to account for the interdependence of respondents in each country. Since our interest was in the independent and direct relationship between current/anticipated personal wealth and realistic threat perceptions, we estimated four separate models (keeping all other variables constant); one included perceived current personal wealth, and the second included anticipated future personal wealth, and we ran each model twice by using GDP and HDI as the country-level predictor. In all models, the squared value of the level-1 predictors was included to account for possible quadratic relations between the predictors and the outcome variable. The analyses were conducted with and without controlling for age and gender to determine the robustness of the results.

Results

Descriptive results

The descriptive statistics and the mean scores of all variables by country can be found in Table 1. As the first step in our multilevel model, we examined the intra-class correlation of our outcome variable. Eigh-teen percent of the variance in perceived realistic threat was explained by our grouping variable country (model with no predictors).

Subjective and objective wealth – Direct associations

The results of the multilevel modeling analysis showed that perceived or anticipated personal wealth did not predict perceived realistic threat, even though there was a significant yet weak correlation between perceived personal wealth and realistic threat (Table 2), thus H1a was not supported. Yet, in line with hypotheses H1b and H2a, the country´s objective wealth (both GDP and HDI) and subjectively perceived country's wealth were negatively and significantly related to realistic threat perceptions. Additionally, as presented in Table 2, countries' lower GDP or HDI and perceiving the country's economic situation to be worse were associated with higher levels of perceived realistic threat.

Moderating roles of objective and subjectively perceived country's wealth

Next, following hypothesis H1c, we first examined whether perceived country's wealth moderated the individual-level associations between subjective perceived personal wealth for Models 1 and 3, and anticipated personal wealth for Models 2 and 4, with the perceived realistic threat (Table 3). However, this interaction was not statistically significant in any of the models.

Then we proceeded to examine whether objective country-level wealth moderated the individual-level associations between subjectively perceived/anticipated personal wealth and perceived realistic threat (hypothesis H2b). As shown in Table 3, the interaction between perceived personal wealth and HDI was not significant (see Model 1). However, we found a significant interaction between HDI and anticipated personal wealth predicting realistic threat (see Model 2 in Table 3). We obtained the simple slopes for the cross-level interaction using Preacher et al. (2006) online tool. The results showed that the relation between anticipated personal wealth and perceived realistic threat was significant and negative only for low HDI countries (1 SD below the mean), $y = -0.084$, $p = .03$. In other words, if one lived in a poorer

Table 2

Bivariate correlations between the variables studied for the overall sample.

Variable	M	SD	1	2	3	4	5	6
1. Perceived personal wealth	4.17	1.44	–					
2. Anticipated personal wealth	4.66	1.26	.19**	–				
3. Perceived country's wealth	3.56	1.56	.30**	.10**	–			
4. HDI	.84	.11	.12**	−0.11**	.32**	–		
5. GDP			.16**	−0.06**	.41**	.88**	–	
6. Realistic threat	3.41	1.46	−0.07**	.01	−0.11**	−0.18**	−0.09**	–

Note: ** $p < .001$, * $p < .05$.

Table 3

Multi-level models predicting perceived realistic threat (with GDP).

Model 3 Perceived personal wealth	Fixed effects	Perceived Realistic Threat	
		Est.	SE
	Intercept	3.49**	.16
	Age	.00	.00
	Sex	−0.10*	.04
	Level 1		
	Perceived personal wealth	−0.03	.02
	Perceived country's wealth	−0.04*	.02
	Perceived personal wealth ^{2}	.00	.01
	Level 2		
	GDP	−0.00	.01
	Within-level interaction		
	Perceived personal wealth x Perceived country's wealth	−0.00	.01
	Cross-level interaction		
	Perceived personal wealth x GDP	.00	.00
	Variance components		
	Intercept	.42*	.12
	Random slope	−0.01	.01
	Residual variance	1.81**	.03
Model 4 Anticipated personal wealth	Fixed effects		
	Intercept	3.49**	.16
	Age	.00	.00
	Sex	−0.10*	.04
	Level 1		
	Anticipated personal wealth	−0.01	.02
	Perceived country's wealth	−0.05*	.02
	Anticipated personal wealth ^{2}	−0.00	.01
	Level 2		
	GDP	−0.00	.01
	Within-level interaction		
	Anticipated personal wealth x Perceived country's wealth	−0.01	.01
	Cross-level interaction		
	Anticipated personal wealth x GDP	.00	.00
	Variance components		
	Intercept	.42*	.12
	Random slope	−0.02	.02
	Residual variance	1.80**	.03

Note: * $p < .05$, ** $p < .001$.

country, anticipated personal economic decline evoked realistic threat. In contrast, anticipated changes in personal wealth were not related to threat for people living in moderate, $y = −0.014$, $p = .49$, or high HDI countries (1 SD above the mean), $y = 0.056$, $p = .13$. In turn, the interactions between GDP and perceived personal wealth (Model 3) and anticipated personal wealth (Model 4) were not significant. Thus hypothesis H2b was supported only for individuals who anticipate a decrease in their personal wealth in the future, and living in a low HDI country.

V-curve hypothesis – Deprivation and gratification

Next, we were interested in exploring whether personally perceived current (Model 1 and 3) and anticipated (Model 2 and 4) wealth were related to realistic threat perceptions non-linearly (see Tables 3 and 4). In Models 1 and 2, country-level wealth was assessed with HDI, and in Models 3 and 4, it was assessed with GDP. We were interested to test the V-curve hypothesis and examine whether only those experiencing economic insecurities or also those who were relatively gratified reported elevated levels of perceived realistic threat. The quadratic terms in all models were not significant–Hence, we did not obtain evidence for a curvilinear relationship between perceived and anticipated personal wealth and perceived realistic threat.

Discussion

In this study, we focused on the roles of objective and subjective wealth and the role of time perspective as predictors of realistic threat perceptions evoked by immigration. Results in 28 countries showed that both objective country's wealth (GDP and HDI) and subjectively perceived country wealth predicted realistic threat perceptions. More specifically, those who lived in less wealthy countries (low GDP or HDI) perceived higher levels of realistic threat than those living in wealthier

Table 4
Multi-level models predicting perceived realistic threat (with HDI).

Model 1 Perceived personal wealth	Fixed effects	Perceived Realistic Threat	
		Est.	SE
	Intercept	3.53**	.16
	Age	.00	.01
	Sex	−0.10*	.04
	Level 1		
	Perceived personal wealth	−0.03	.02
	Perceived country's wealth	−0.04*	.02
	Perceived personal wealth ^{2}	.00	.01
	Level 2		
	HDI	−2.99*	1.31
	Within-level interaction		
	Perceived personal wealth x Perceived country's wealth	−0.00	.01
	Cross-level interaction		
	Perceived personal wealth x HDI	.20	.16
	Variance components		
	Intercept	.35*	.10
	Random slope	.00	.00
	Residual variance	1.81**	.03
Model 2 Anticipated personal wealth	Fixed effects		
	Intercept	3.53**	.16
	Age	.00	.00
	Sex	−0.10*	.04
	Level 1		
	Anticipated personal wealth	−0.01	.02
	Perceived country's wealth	−0.05*	.02
	Anticipated personal wealth ^{2}	−0.00	.01
	Level 2		
	HDI	−2.99*	1.31
	Within-level interaction		
	Anticipated personal wealth x Perceived country's wealth	−0.01	.01
	Cross-level interaction		
	Anticipated personal wealth x HDI	.46*	.21
	Variance components		
	Intercept	.35*	.10
	Random slope	.01	.00
	Residual variance	1.80**	.03

Note: *$p < .05$, **$p < .001$.

countries. Furthermore, those who perceived their country's economic situation to be worse reported higher levels of realistic threat as compared to those who experienced their country to be doing well economically.

The results of the current research are in line with the theories and research that demonstrate the importance of the actual economic conditions on intergroup relations and perceived threat from immigrants. Billiet and colleagues (2014) also found that lower GDP predicted higher perceived realistic threat. Contrary to Kuntz and colleagues (2017), who concluded that subjective perceptions are better indicators of threat than objective indicators, the relatively strong effect sizes of GDP and HDI obtained in this study suggest that the objective country-level economic situation is a key predictor of realistic threat perceptions. Still, subjective perceptions of one's home country's wealth also significantly predicted perceived realistic threat.

In contrast to the findings of Jetten, Mols, and Postmes (2015), we did not observe subjectively perceived or anticipated personal wealth to be linearly or curvilinearly associated with realistic threat perceptions. The interaction between perceived country's wealth and personal (perceived and anticipated) wealth did not significantly predict realistic threat. Yet, partly confirming our expectations, the association of *anticipated* personal wealth and threat was moderated by HDI, an objective indicator of country's wealth. The results showed that in low HDI countries, participants who expected a decline in their personal economic situation were the ones who perceived higher levels of realistic threat. In contrast, anticipated personal decline did not predict heightened threat perceptions for those who lived in moderate and high HDI countries.

It seems that country's wealth possibly creates a buffer, which dissociates the perceived economic consequences of immigration from personal economic (dis)advantage. This finding is in line with research that recognizes the intergroup ramifications of anticipated negative changes in economic status in the future (Meuleman et al., 2009), especially for those that are facing an economic decline (Semyonov et al., 2008). However, it should be noted that the interaction between *currently* perceived personal wealth and HDI did not significantly predict realistic threat perceptions.

Regarding the cross-level moderation results, it should also be noted that we found only one significant interaction showing a small negative association between anticipated personal wealth and perceived realistic threat in low HDI countries. Additionally, the link between anticipated personal economic situation and threat perceptions was only moderated by HDI but not GDP. This discrepancy in results could be explained by the differences between these measures of country-level wealth. While GDP is purely a monetary measure of wealth, HDI is a composite index which includes multiple dimensions of human well-being and development. Thus, in addition to the economic wealth of the country, the HDI ranks countries according to their performance against a set of criteria that align with health, education, and income. Considering these differences, it is possible that living in countries characterized not only by economic success but also by a high degree of health, education, societal stability, and equality provides individuals with a stronger sense of security when their own wealth prospects are challenged. To better understand the complex relationship between wealth and threat perceptions, we encourage future studies to include different measures of country's

wealth along with different types of perceived threats (see, e.g., Riek et al., 2006) by utilizing different indices of country-level wealth which reflect somewhat different aspects of well-being, security, and development. That way we could gradually get a sharper picture of the relationships between country-level wealth and outgroup sentiment.

It has been argued that while forming their attitudes towards outgroups, people do not only take account of the present circumstances but also consider future prospects, such as anticipated and expected economic uncertainties (e.g., Jetten et al., 2015; Semyonov et al., 2008). With this study, we do not only contribute to the existing research on the ramifications of economic hardships, but we also provide new evidence on the role of anticipations of future personal wealth in predicting threat perceptions at the moment. In this study, we included both objective information and subjective perceptions of the present country-level economic situation. Along similar lines, future research should include official predictions of countries' long-term economic growth projections, as well as subjective anticipations regarding the country's economic development, and study their associations with outcomes alongside anticipated future personal wealth.

Additionally, it should be noted that the sample consisted of undergraduate university students. University students often are in a precarious labor market position and/or economically reliant on their parents. Furthermore, while in some countries, obtaining a university degree is a ticket to a secure and well-paid position in the labor market, in some others, it is not. Thus, university students might have different uncertainties regarding their future economic situation in different contexts. Thus, we would also urge future studies to use representative samples to get a fuller picture of the associations between perceived/anticipated economic situations and perceived realistic threats posed by immigration.

One reason for the small effect sizes might be that the societal and economic contexts differed substantially in the 28 countries. In the present study, unfortunately, we did not have specific data on participants' socioeconomic situation. Furthermore, even in contexts that appear to be similar in some ways (e.g., characterized by lower/higher HDI), the specific mechanisms that underlie individuals' threat perceptions may vary due to different historical, political, and social roots of intergroup relations in general and the nature of the immigrant groups. Thus, even though the goal of social psychological studies often is to find general, replicable patterns of associations, it is not realistic to expect entirely similar associations in different contexts (e.g., Jetten, 2019, p. 1110).

Another limitation of this study relates to the fact that although the models tested were based on well-supported theories, the cross-sectional design does not allow us to make causal inferences. Having a longitudinal research design would be preferable in this respect because it would enable us to assess the roles of anticipated vs. later realized economic situations. One of the rare examples of longitudinal studies on the impact of the economic situation on anti-immigrant sentiments is the study by Kuntz and colleagues (2017). However, their study was limited only to the European context, while one of the merits of our study is to have data from all inhabited continents. The heterogeneity of the countries sampled helps us better account for the differences between higher vs. lower GDP and HDI countries.

Furthermore, we used single items to measure perceived/anticipated economic situations, and consequently, the psychometric properties of our variables could not be assessed. Yet, single items measures are often used to measure more straightforward evaluations of the economic situation (e.g., subjectively evaluated SES). Relatedly, to better assess the objective vs. subjective economic situation, it would have been more optimal to include an objective indicator of the personal economic situation (e.g., the income per year) in the model. However, this was not asked in the survey. Finally, it was not possible to account for the size of the immigrant population in each country, as in many countries, available immigration rates mix emigration and immigration.

With these limitations in mind, we nevertheless conclude that this study on the link between economic situation and perceived realistic threat was able to cover many important perspectives that have been mainly overlooked or mixed in previous research. In the light of the present findings, mainly objective, but also subjective perceptions of poorer country-level economic situation were found to lay the groundwork for heightened economic threat perceptions. To date, the research investigating the linear and curvilinear relationship between economic situation and threats has been scattered, with some studies focusing on individual versus group-level perspectives and some studies focusing on subjective vs. objective indicators. As regards practical implications, our results highlight the responsibilities of media and authorities when communicating about country's economic situation and the role of immigration in it. In our data, objective and subjectively perceived country's wealth correlated only moderately, suggesting that a substantial part of people's perceptions is based on something else than indicators encompassed by GDP or HDI. Thus, given that people are susceptible to media portrayals and political discourses of immigration (see, e.g., Eberl et al., 2018), it is important that intergroup threats are not exacerbated especially in contexts characterized by limited economic and social resources. With a more detailed approach that also acknowledges the importance of future expectations for the formation of threat perceptions among people living in wealthier and poorer countries, it becomes possible to see the forest for the trees.

Compliance with ethical standards

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Academy of Finland, and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Data availability statement

Data are available on OSF–Https://osf.io/v839a/?view_only=5cd1dd2014604f3aa05d337343316e2d

Declaration of Competing Interest

Given their role as Editorial Board members, Jetten J. had no involvement in the peer-review of this article and had no access to information regarding its peer-review. All other authors have declared no conflicts of interest.

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