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Income inequality, perceived competitiveness, and approach-avoidance motivation

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Abstract

Objective: Scholars disagree on whether income inequality has incentive or disincentive effects. In the present research, we move beyond such debate and focus on the motivational processes that income inequality predicts. First, income inequality makes economic stratification salient; therefore, it should promote perceived competitiveness. Second, competitiveness can be appraised as both a challenge and a threat; therefore, it should promote both approach and avoidance motivation.

Method: In three studies ($N = 2{,}543$), U.S. residents from various ZIP codes reported the extent to which they perceived competitiveness in their town/city (Studies 1–3), as well as their economic achievement goals, achievement motives, and self-regulatory foci (Studies 2–3).

Results: Level of local income inequality was found to be a positive predictor—via increased perceived competitiveness—of other-approach economic goals, need for achievement, and promotion focus, *as well as* other-avoidance economic goals, fear of failure (specifically, the shame/embarrassment component), and prevention focus. Furthermore, actual and perceived income inequality were positively correlated.

Conclusions: The conceptual and empirical work herein is the first to show how the economic environment predicts individuals' perceptions of competitiveness, influencing personal goals, motives, and orientations. It provides a more nuanced perspective on the implications of income inequality than perspectives currently available.

KEYWORDS

achievement motives, economic achievement goals, income inequality, perceived competitiveness, self-regulatory focus

1 | INTRODUCTION

> And let us remark, first of all, that Competition acts forcibly, called forth as it is by these very inequalities. (Frédéric Bastiat, 1850/1860, p. 270)

Gross domestic product (GDP) per capita in Western countries grew exponentially during the last century (McNeill, 2001). However, income expansion did not occur at the same rate for all people. For example, in the United States, while the inflation-adjusted income of the top 10% of earners increased by 65% from 1980 to 2012, that of the bottom 90% only increased by 17% (Piketty, Saez, & Zucman, 2015). Moreover, income inequality is not static across locations, even within the same country: For instance, in the most equal ZIP codes of the United States, households in the highest income quintile earn six times more than those in the lowest income quintile; in the

most unequal ZIP codes, households in the highest quintile earn 40 times more than those in the lowest.[1]

Scholars have long debated whether the level of income inequality erodes social capital and functions as a *demotivating* incentive (Knack & Keefer, 1997) or implies a higher return on labor and functions as a *motivating* incentive (Bell & Freeman, 2001). In the present research, we build upon the opposing processes model of competition (Murayama & Elliot, 2012) to reconcile these conflicting views: First, we seek to provide the first empirical evidence that income inequality promotes perceived competitiveness; second, we seek to demonstrate how, through this mechanism, income inequality prompts opposing motivational processes: approach and avoidance.

1.1 | Income inequality and perceived competitiveness

Wilkinson and Pickett (2010) argued that income inequality exacerbates social status divisions, with people being more aware of their and others' position on the social ladder. Income inequality is then presumed to increase attention to markers of social success, to encourage hierarchical ideology, and to prompt status competition, which may lead individuals to develop pervasive concerns regarding their relative social position. Similarly, income inequality is purported by others to increase the salience of status differences, reinforce social norms of consumption, discourage values of reciprocity, and breed a culture of positional competition (Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997; Kawachi & Subramanian, 2014; for a review on inequality and competition, see Buttrick & Oishi, 2017).

More recently, Cheung and Lucas (2016) reported that the negative effect of neighbors' (i.e., people within the same county's) income on life satisfaction was stronger in more economically unequal U.S. counties. This finding was also interpreted as indicating that income comparison groups are more polarized in more unequal places (e.g., the 99% vs. the 1% of the "Occupy Wall Street" slogan), making normative standards of income comparison more salient. This converges with the idea that inequality may increase one's sense of *relative* deprivation (Kondo, Kawachi, Subramanian, Takeda, & Yamagata, 2008), thereby conveying the feeling of status struggles through local social comparisons (Frank, 2013).

Although they differ in emphasis, the aforementioned accounts share the view that income inequality creates a social environment in which economic stratification is salient and people are concerned about their position within the hierarchy. A fundamental assumption underlying this perspective—albeit one neither directly stated nor empirically tested—is that income inequality is associated with the perception of competition for resources. Given the lay theory that economics is a zero-sum game (in which one's higher income automatically implies others' lower income; Friedman & Friedman, 1990), we posit that income inequality can lead individuals to perceive that people are competing against one another (a negative social interdependence in which one's success comes at the expense of others), rather than cooperating (a positive social interdependence in which one's success benefits others; Johnson & Johnson, 1974). That is, inequality in the economic environment may be associated with the perception that others are competitive. This is consistent with Schneider's (2012) idea that income inequality sculpts social perceptual processing by strengthening or lessening cognitive schemata associated with social groups (e.g., "the rich," "the poor," and how they typically interact).

1.2 | Perceived competitiveness and approach-avoidance motivation

Competitiveness—including perceived competitiveness—is linked to both approach *and* avoidance motivational processes (Hangen, Elliot, & Jamieson, 2016; Murayama & Elliot, 2012). Approach motivation entails the energization or direction of behavior toward a desirable object or situation, whereas avoidance energizes or directs behavior away from an undesirable object or situation (Elliot, 2006). The approach-avoidance distinction is a core feature of contemporary approaches to motivation, including achievement goals (Dweck, 1986), achievement motives (McClelland, 1985), and regulatory foci (Higgins, 1997).

Achievement goals are concrete standards of competence that one approaches or avoids (Elliot, Murayama, & Pekrun, 2011). The two most studied achievement goals are other- and self-based goals. Other-approach goals focus on attaining normative competence (e.g., earning more than others), whereas other-avoidance goals focus on avoiding normative incompetence (e.g., not earning less than others). Self-approach goals focus on attaining self-referential competence (e.g., earning more over time), whereas self-avoidance goals focus on avoiding self-referential incompetence (e.g., not earning less over time). *Achievement motives* are broad orientations toward approaching competence and avoiding incompetence (McClelland, 1985). The two most studied achievement motives are the need for achievement and fear of failure. Need for achievement represents a desire to approach the pride of success, whereas fear of failure represents a desire to avoid the shame of failure. Both of these achievement motives have a strong grounding in social comparison (Atkinson, 1964; Birney, Burdick, & Teevan, 1969). *Self-regulatory foci* are domain-general orientations regarding valued end states (Higgins, 1997). There are two regulatory foci: a promotion focus oriented toward attaining ideals and acquiring gains, and a prevention focus oriented toward maintaining obligations and avoiding losses.

We posit that the way people view the motivations of others in their economic environment influences their own motivation. Perceiving others as competitive is thought to shift attention toward social comparisons and to evoke general concerns about relative social position that energize behavior (Elliot, 2006). In the context of challenge and threat theory, perceiving others as competitive can be appraised as both challenging (resources to cope with competitive others exceed the perceived demands of competition) *and* threatening (demands exceed resources). Accordingly, perceiving others as competitive may promote both approach *and* avoidance responses (see Urdan & Schoenfelder, 2006). A key way for individuals to regulate concerns about normative standing is to strive to outperform others and not be outperformed by others (Murayama & Elliot, 2012). Thus, we anticipated that perceived competitiveness would positively predict both types of other-based economic goals: other-approach and other-avoidance. As perceived cooperation rather than competitiveness is more compatible with self-based goals (Wolters, 2004), we did not formulate predictions regarding self-based goals. Given that perceived competitiveness reflects experiences with stratification in specific economic environments over time, it likely influences broader motivational orientations, not only concrete economic goals. Accordingly, we anticipated that perceived competitiveness would positively predict approach and avoidance achievement motives, namely, the need for achievement and fear of failure (see Johnson & Johnson, 1974; McClelland, 1985), and domain-general approach and avoidance motivational orientations, namely, promotion focus and prevention focus (see Ten Velden, Beersma, & De Dreu, 2009).

1.3 | Income inequality to approach-avoidance motivation through perceived competitiveness

Income inequality has been linked to both appetitive (e.g., feelings of superiority; Loughnan et al., 2011) *and* aversive (e.g., feelings of inferiority; Layte, 2011) processes. Interestingly, appetitive processes are often interpreted as compensation strategies in response to the social anxiety elicited by income inequality, and aversive processes are seen as genuine cues of anxiety (for a review, see Paskov, Gërxhani, & Van de Werfhorst, 2013). In our view, such interpretations are limited due to a lack of refutability (i.e., an observation and its opposite both tend to be interpreted as evidence of anxiety). In the following, we review the seemingly inconsistent findings in this literature and propose an integrative model to account for the observed diversity of results.

First, income inequality relates to both self-enhancement and self-diminishment. On one hand, income inequality is associated with overestimating one's positive traits relative to others (Loughnan et al., 2011) and optimistic evaluations of one's self-perceived social status (Zhao, 2012). On the other hand, income inequality is associated with the impression of earning less than others (Osborne, Sibley, & Sengupta, 2015) and feelings of being negatively evaluated because of one's job/income (Layte & Whelan, 2014). Moreover, income inequality evokes both approach and avoidance social emotions. Whereas some research shows income inequality is associated with hope (Cheung, 2016) and anger toward top earners (Dawes, Fowler, Johnson, McElreath, & Smirnov, 2007), other research indicates income inequality is associated with social anxiety (Delhey & Dragolov, 2014) and fear (Godoy et al., 2006).

At a more general level, income inequality is associated with the desire to be perceived as high status and the fear of being perceived as low status. That is, individuals from unequal places tend to strive for markers of high status (an appetitive motivation), which results in an increase of average annual work hours (the so-called "Veblen effect"; Bowles & Park, 2005), more economic risk taking (Payne, Brown-Iannuzzi, & Hannay, 2017), and more conspicuous consumption (Walasek & Brown, 2015). However, individuals from unequal places also tend to strive to avoid markers of low status (an aversive motivation), that is, "to avoid appearing incompetent or inadequate in the eyes of others" (Wilkinson & Pickett, 2010, p. 226).

In sum, income inequality seems to be linked with self-enhancement orientations, social approach emotions, and desires to signal superior status, *as well as* with self-diminishing orientations, social avoidance emotions, and fears of signaling inferior status. The research presented here seeks to help resolve these seemingly incompatible patterns by providing evidence for an integrative model. More specifically, we hypothesize that perceptions of competitiveness stemming from income inequality elicit approach *and* avoidance motivations across people.

1.4 | Overview of studies

Hypotheses were tested across a series of three studies. Study 1 tested the hypothesis that income inequality is a positive predictor of perceived competitiveness (Hypothesis 1). Building on this foundation, Studies 2 and 3 sought to replicate and extend Study 1 by testing the hypotheses that perceived competitiveness is a positive predictor of approach motivation (i.e., other-approach goals, need for achievement, and promotion focus; Hypothesis 2a), as well as avoidance motivation (i.e., other-avoidance goals, fear of failure, and prevention focus; Hypothesis 2b), and that income inequality positively relates—via competitiveness—to approach *and* avoidance motivation (Hypotheses 3a and 3b, respectively).

Note that the level of income inequality is more noticeable at more local geographic scales (for a review, see Johnston &

Newman, 2016, pp. 175–177). Thus, hypotheses were tested using U.S. ZIP code–based indicators of income inequality (i.e., the lowest level of geographic aggregation available for American macroeconomic statistics). In each study, we first ensured that such an economic indicator was positively correlated with perceived inequality. All sample sizes were determined a priori using power analyses. Analyses were planned a priori, and all data exclusions and variables analyzed are reported. All data were analyzed using Stata SE (version 15.1). Questionnaires, raw data, and syntax files for the three studies are available through FigShare (https://figshare.com/s/a74fe100f068d9327d0f).

2 | STUDY 1: INCOME INEQUALITY AND PERCEIVED COMPETITIVENESS

Study 1 was designed to test the relation between income inequality and perceived competitiveness. U.S. residents provided their ZIP code and city name before reporting the extent to which they perceived competitiveness in their town/city.

2.1 | Method

2.1.1 | Sample and procedure

A power analysis revealed that 787 participants were needed to detect a small-sized effect ($f^2 = 0.01$) with a power of 0.80 for a one-level linear multiple regression with 10 covariates. Invitations to complete an online survey on "people's perceptions of their economic environment" were emailed using ResearchMatch, a national volunteer research registry. In this and the subsequent studies, we oversampled to ensure a sufficient number of respondents after excluding participants with missing data.

Participants

Eight hundred eighty-five participants completed the study. Fifteen were excluded a priori due to missing data. The final sample included 870 U.S. residents (195 men, 669 women, and six unspecified; $M_{age} = 47.17$, $SD = 15.31$; 754 White/Caucasian, 44 Black/African American, 26 Latino/a, 16 Asian, 24 other, and six unspecified; 62.51% working/employed, 15.07% unemployed/not working, 16.37% retired, and 6.05% students). Average annual income was $52,606 ($SD = 29,316$), and 71.26% of participants had a 4-year college degree or higher. Average political self-rating (1 = *Very liberal* to 7 = *Very conservative*) was $M = 3.21$ ($SD = 1.69$). The vast majority of participants had been living in their town/city for more than 1 year (93.56%).

Clusters

Participants were nested in 710 ZIP code tabulation areas (known as ZCTAs, henceforth referred to as *ZIP codes*). The average number of inhabitants per ZIP code was 30,756 ($SD = 18,033$),[2] the employment rate was 61.19% ($SD = 7.72$), the percentage of the population living below the poverty line (<$12,000/year for a single person) was 14.69% ($SD = 9.64$), and the percentage of those without a high school diploma was 13.61% ($SD = 8.24$). Economic indicators were collected using the U.S. Census Bureau, 2010–2014 American Community Survey (ACS) estimates (see https://factfinder.census.gov/).

Variables

Table 1 presents descriptive statistics, reliability estimates, and correlations for the inequality measures and perceived competitiveness. All self-report measures used a 7-point scale (1 = *Not at all*, 4 = *Somewhat*, 7 = *Completely*). In this and the subsequent studies, responses to items were averaged to obtain a score for each variable.

Income inequality The 2010–2014 ACS ZIP code–based Gini coefficients were used. The Gini coefficient describes the dispersion of household income distribution in a given area and ranges from 0 (perfect equality: all households have an equal share of income) to 1 (perfect inequality: one household has *all* of the income).

We additionally collected urban area–based Gini coefficients and tested their predictive utility. The urban area–based Gini coefficient was *not* found to be a reliable predictor of perceived inequality or competitiveness, whereas the ZIP code–based Gini coefficient was generally found to have a greater predictive utility. This suggests that income inequality is more noticeable at the lower level of aggregation (results are presented in the Supplementary Materials).

Perceived income inequality A three-item scale was created: "In my town/city, there is a huge gap between rich and poor," "...there is a big difference between those in the top 1% of income earners and the others," and "...the wealth disparity between upper and lower wage earners is large."

Perceived competitiveness Murayama and Elliot's (2012) five-item perceived competitiveness scale was adapted: "In my town/city, it seems that people are competing with each other," "...it seems that I am competing with others," "...people seem to share the feeling that competing with each other is important," "...I feel that I am being compared with others," and "...people seem to value competition."

Control variables and multiple imputation with chained equation (MICE) Ten covariates were controlled for. First, we decided a priori to control for six common participant-based sociodemographic variables: sex, age, ethnicity, employment status, income, and education. MICE with 20 imputed data sets was used to account for missing values on these variables. Perceived

TABLE 1 Studies 1–3: Descriptive statistics, reliability estimates, and correlations for Gini coefficient, perceived inequality, and perceived competitiveness

	Study 1						Study 2						Study 3					
	Descriptive statistics			Pairwise intercorrelations			Descriptive statistics			Pairwise intercorrelations			Descriptive statistics			Pairwise intercorrelations		
	α	*M*	*SD*	(1)	(2)	(3)	α	*M*	*SD*	(1)	(2)	(3)	α	*M*	*SD*	(1)	(2)	(3)
Gini coefficient (1)	n/a	0.44	0.06				n/a	0.44	0.06				n/a	0.44	0.06			
Perceived inequality (2)	0.92	5.16	1.52	0.19***			0.92	5.23	1.46	0.28***			0.93	4.54	1.54	0.29***		
Perceived competitiveness (3)	0.92	3.75	0.55	0.19***	0.32***		0.90	4.13	1.42	0.14***	0.36***		0.93	3.78	1.53	0.20***	0.42***	

***$p < 0.001$.

income inequality and perceived competitiveness items were used to impute the missing data (0.7% to 2.5% of observations). Second, because effects of income inequality might correspond to *compositional* effects, we decided (also a priori) to control for four important area-based composition variables identified by Wilkinson and Pickett (2006): ZIP code's size (population), employment rate, absolute level of poverty, and percent without a high school education. In Studies 1–3, conclusions were identical with or without covariates (Table S3 presents the results for Hypothesis 1 and Figure S1 for Hypotheses 2–3).

2.2 | Results

2.2.1 | Preliminary analysis: Actual and perceived inequality

The Gini coefficient was positively correlated with perceived inequality ($r = 0.19$, $p < 0.001$).

2.2.2 | Main analysis: Income inequality and perceived competitiveness

We used multiple imputation–based regression analysis.[3] Perceived competitiveness was regressed on the Gini coefficient and covariates. Table 2 presents the full results (first column from the left). Supporting Hypothesis 1, the Gini coefficient was a positive predictor of perceived competitiveness, $\beta = 0.21$, 95% CI [0.13, 0.29], $p < 0.001$, $f^2 = 0.03$.

2.3 | Discussion

Supporting Hypothesis 1, income inequality positively predicted perceived competitiveness. This is consistent with the idea that income inequality increases the salience of economic stratification, establishing a cognitive picture of one's social environment as being competitive. Study 2 sought to replicate the link between income inequality and perceived competitiveness and extend this association to approach and avoidance motivation.

3 | STUDY 2: INCOME INEQUALITY, PERCEIVED COMPETITIVENESS, AND APPROACH-AVOIDANCE MOTIVATION

3.1 | Method

3.1.1 | Sample and procedure

The same target sample size and recruitment process (via ResearchMatch) described in Study 1 were used. There was no overlap in participants.

TABLE 2 Studies 1–3: Coefficient estimates and effect sizes of the models testing the effects of income inequality (ZIP code–based Gini coefficient) on perceived competitiveness

		Study 1		Study 2		Study 3	
		β	f^2	β	f^2	β	f^2
	Gini coefficient	0.21***	0.03	0.21***	0.03	0.20***	0.03
Participant-based covariates	Sex (men vs. women)	–0.02		0.07*	0.01	0.02	
	Age	–0.11**	0.01	–0.10**	0.01	–0.06	
	Ethnicity (Whites vs. others)	0.08*	0.01	0.04		–0.03	
	Status (workers vs. others)	–0.05		0.01		–0.08*	0.01
	Income	–0.08*	0.01	–0.09*	0.01	–0.08*	0.01
	Education (grad. vs. others)	0.02		–0.06		0.04	
ZIP-based covariates	Population	0.05		0.09**	0.01	0.10**	0.01
	Employment percentage	0.10*	0.01	0.12**	0.01	0.13**	0.01
	Poverty rate	0.00		–0.11*	0.01	0.01	
	Education level	0.05		0.03		–0.01	

Note. Men versus women = men coded +0.5, women coded –0.5 (the same goes for White vs. others, etc.); grad. = graduated from college.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

Participants

Eight hundred forty-one participants completed the study. Eighteen were excluded a priori due to missing data. The final sample consisted of 823 U.S. residents (170 men, 648 women, and five unspecified; $M_{age} = 46.67$, $SD = 15.18$; 707 White/Caucasian, 48 Black/African American, 23 Latino/a, 13 Asian, 23 other, and nine unspecified; 65.31% working/employed, 14.87% unemployed/not working, 13.21% retired, and 6.61% students). Average annual income was $53,764 ($SD$ = 27,402), and 74.66% of participants had a 4-year college degree or higher. Political self-rating (same scale as in Study 1) was $M = 3.08$ (SD = 1.68). Again, most participants had been living in their town/city for more than 1 year (93.07%).

Clusters

Participants were nested in 678 ZIP codes. The average number of inhabitants per ZIP code was 30,455 (SD = 16,598), the employment rate was 60.88% (SD = 8.00), the absolute level of poverty was 14.63% (SD = 9.35), and the percent without a high school diploma was 13.26% (SD = 7.77).

Variables

Table 1 presents descriptive statistics, reliability estimates, and correlations for the inequality measures and perceived competitiveness. Table 3 presents the same information for the motivation variables, all of which used a 7-point scale (1 = *Not true of me*, 4 = *Moderately true of me*, and 7 = *Extremely true of me*).

Income inequality, perceived income inequality, and perceived competitiveness Variables were assessed using the same measures as in Study 1.

Approach and avoidance economic achievement goals Elliot and colleagues' (2011) 3 × 2 Achievement Goal Questionnaire was adapted. Three items assessed each of the following economic achievement goals: other-approach (e.g., "To be more economically successful than others in life"), other-avoidance (e.g., "To *avoid* being worse off economically than others in life"), self-approach (e.g., "To improve my financial situation over time"), and self-avoidance (e.g.,:To *avoid* the worsening of my financial situation over time:). The full set of economic achievement goal items is presented in the Supplementary Materials, Appendix S1.

Need for achievement and fear of failure Jackson's (1974) Need for Achievement scale assessed need for achievement (16 items; e.g., "I will not be satisfied until I am the best in my field of work"), and Thrash and Elliot's (2003) Fear of Failure Scale assessed fear of failure (nine items; e.g., "I often avoid a task because I am afraid that I will make mistakes").

TABLE 3 Studies 2–3: Descriptive statistics, reliability estimates, and correlations for the dependent variables

	Descriptive statistics						Intercorrelations							
	Study 2			Study 3			Study 2 and Study 3							
	α	*M*	*SD*	α	*M*	*SD*	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Other-approach goals (1)	0.92	3.43	1.70	0.88	4.03	1.68		0.53^{***}	0.36^{***}	0.09^{**}	0.29^{***}	0.22^{***}	0.39^{***}	0.11^{**}
Other-avoidance goals (2)	0.95	3.82	1.83	0.93	4.15	1.77	0.59^{***}		0.22^{***}	0.54^{***}	0.17^{***}	0.31^{***}	0.14^{***}	0.42^{***}
Self-approach goals (3)	0.87	5.41	1.36	0.93	5.75	1.16	0.44^{***}	0.28^{***}		0.33^{***}	0.05	0.24^{***}	0.48^{***}	0.10^{***}
Self-avoidance goals (4)	0.87	5.18	1.59	0.95	5.13	1.65	0.16^{***}	0.44^{***}	0.38^{***}		0.06	0.31^{***}	–0.04	0.50^{***}
Need for achievement (5)	0.78	3.69	0.48	0.85	3.86	0.59	0.23^{***}	0.16^{***}	0.18^{***}	0.07^{*}		0.23^{***}	0.19^{***}	0.24^{***}
Fear of failure (6)	0.88	2.45	1.02	0.93	4.17	1.54	0.01	0.09^{*}	-0.10^{**}	0.10^{**}	0.11^{**}		0.10^{**}	0.59^{***}
Promotion focus (7)	0.88	5.06	1.10	0.93	5.09	1.24	0.31^{***}	0.12^{***}	0.46^{***}	0.10^{**}	0.23^{***}	-0.31^{***}		-0.10^{**}
Prevention focus (8)	0.83	3.58	1.15	0.92	3.87	1.37	0.23^{***}	0.32^{***}	0.25^{***}	0.33^{***}	0.23^{***}	0.52^{***}	0.08^{*}	

Note. Study 2 intercorrelations are shown below the diagonal; Study 3 intercorrelations are above the diagonal.
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$.

Promotion and prevention foci Lockwood, Jordan, and Kunda's (2002) General Regulatory Focus measure assessed promotion focus (nine items; e.g., "In general, I am focused on achieving positive outcomes in my life") and prevention focus (nine items; e.g., "I frequently think about how I can prevent failures in my life").

Control variables and MICE The same 10 covariates used in Study 1 were controlled for, and MICE was performed to account for missing values on the participant-based covariates. Perceived income inequality, perceived competitiveness, motivation, and moderator (see note 4) items were used to impute the missing data (<0.1% to 0.3%).

3.2 | Results

3.2.1 | Preliminary analysis: Actual and perceived inequality

Again, the Gini coefficient was positively correlated with perceived inequality ($r = 0.28$, $p < 0.001$).

3.2.2 | Replication of Study 1: Income inequality and perceived competitiveness

As in Study 1, we used multiple imputation–based regression analysis. Perceived competitiveness was regressed on the Gini coefficient and covariates. Table 2 presents the full results (second column from the left). Replicating Study 1 and further supporting Hypothesis 1, the Gini coefficient was a positive predictor of perceived competitiveness, $\beta = 0.21$ [0.13, 0.30], $p < 0.001$, $f^2 = 0.03$ (From now on, brackets indicate 95% CI).

3.2.3 | Extension of Study 1: Income inequality, perceived competitiveness, and approach-avoidance motivation

In a second phase, we built three multiple imputation–based structural equation models (SEMs) testing the influence of income inequality (predictor variable) via perceived competitiveness (intervening variable) on economic achievement goals (Model 1), achievement motives (Model 2), and self-regulatory foci (Model 3). We continued to control for the effects of the 10 covariates on the intervening and outcomes variables.[4]

Income inequality → motivation

Table S4 presents the full results. The (nonhypothesized) total effects of the Gini coefficient on the motivational variables did not significantly differ from zero ($ps \geq 0.270$), except for a small positive effect on fear of failure, $\beta = 0.10$ [0.01, 0.18], $p = 0.022$, $f^2 = 0.01$. Note that when there are theoretical reasons to do so, statisticians recommend ignoring the significance level of the total effects and focusing on indirect effects (for a review, see Rucker, Preacher, Tormala, & Petty, 2011).

Perceived competitiveness → motivation

Table 4 presents the full results. Consistent with Hypothesis 2a, perceived competitiveness was a positive predictor of other-approach goals, $\beta = 0.10$ [0.03, 0.17], $p = 0.004$, $f^2 = 0.01$, need for achievement, $\beta = 0.11$ [0.04, 0.18], $p = 0.001$, $f^2 = 0.01$, and promotion focus, $\beta = 0.15$ [0.09, 0.22], $p < 0.001$, $f^2 = 0.02$. Consistent with Hypothesis 2b, perceived competitiveness was a positive predictor of other-avoidance goals, $\beta = 0.15$ [0.08, 0.22], $p < 0.001$, $f^2 = 0.02$, and prevention focus, $\beta = 0.15$ [0.09, 0.22], $p < 0.001$, $f^2 = 0.02$, but *not* fear of failure, $\beta = 0.01$ [–0.08, 0.06], $p < 0.844$. Perceived competitiveness also was a positive predictor of self-approach goals, $\beta = 0.13$ [0.06, 0.19], $p < 0.001$, $f^2 = 0.02$, but *not* self-avoidance goals, $\beta = 0.05$ [–0.02, 0.12], $p = 0.134$.

Income inequality → perceived competitiveness → motivation (indirect effects)

Figure 1 presents the path models of interest. Consistent with Hypothesis 3a, the indirect effects of the Gini coefficient through perceived competitiveness were positive for other-approach goals, $\beta = 0.02$]0, 0.04], $p = 0.012$ (left reverse bracket indicates zero is excluded), need for achievement, $\beta = 0.02$ [0.01, 0.04], $p = 0.007$, and promotion focus, $\beta = 0.03$ [0.01, 0.05], $p = 0.001$.[5] Consistent with Hypothesis 3b, the indirect effects were also positive for other-avoidance goals, $\beta = 0.03$ [0.01, 0.05], $p = 0.001$, and prevention focus, $\beta = 0.03$ [0.01, 0.05], $p = 0.001$. Given that the influence of perceived competitiveness on fear of failure did not differ from zero, the indirect effect was not tested. Moreover, the indirect effect was positive for self-approach goals, $\beta = 0.03$ [0.01, 0.05], $p = 0.002$.

3.3 | Discussion

Replicating Study 1, income inequality positively predicted perceived competitiveness (supporting Hypothesis 1). Extending Study 1, perceived competitiveness positively predicted other-approach goals, need for achievement, and promotion focus (supporting Hypothesis 2a), as well as other-avoidance goals and prevention focus (but *not* fear of failure, thus partially supporting Hypothesis 2b). Moreover, the effects of income inequality were transmitted, via perceived competitiveness, to both approach (supporting Hypothesis 3a) and avoidance (partially supporting Hypothesis 3b) motivational constructs.

Two limitations of Study 2 should be noted. First, ResearchMatch does not use representative sampling

TABLE 4 Study 2: Coefficient estimates and effect sizes of the multiple imputation–based SEMs testing the effects of perceived competitiveness on economic achievement goals (Model 1), achievement motives (Model 2), and self-regulatory foci (Model 3)

		Model 1: Economic achievement goals								Model 2: Achievement. motives				Model 3: Regulatory foci			
		Other-approach goals		Other-avoidance goals		Self-approach goals		Self-avoidance goals		Need for achievement		Fear of failure		Promotion focus		Prevention focus	
		β	f^2	β	f^2	β	f^2	β	f^2	β	f^2	β	f^2	β	f^2	β	f^2
	Perceived competitiveness	0.10**	0.01	0.15***	0.02	0.13***	0.02	0.05		0.11**	0.01	–0.01		0.15***	0.02	0.15***	0.02
	Gini coefficient	–0.04		–0.08		–0.02		–0.01		0.01		0.10*	0.01	–0.02		–0.03	
Participant-based covariates	Sex (men vs. women)	0.03		0.00	–	0.01		–0.05		0.19***	0.04	–0.04		0.02		0.01	
	Age	–0.20***	0.03	–0.10*	01	–0.29***	0.07	–0.04		–0.16***	0.02	–0.18***	0.03	–0.22***	0.04	–0.25***	0.05
	Ethnicity (Whites vs. others)	0.10**	0.01	0.06		0.09**	0.01	0.01		0.08*	0.01	–0.02		0.12**	0.01	0.06	
	Status (workers vs. others)	0.05		0.04		–0.17***	0.03	–0.07		0.12**	0.01	0.13***	0.01	–0.01		0.02	
	Income	0.08		0.08*	0.00	0.03		–0.01		–0.01		–0.08*	0.01	0.03		–0.02	
	Education (grad. vs. others)	0.04		0.12**	0.01	0.04		0.14***	0.02	0.05		0.04		–0.06		0.14***	0.02
ZIP code-based covariates	Population	–0.01		–0.03		0.05		–0.01		–0.01		–0.05		0.00		–0.07*	<0.01
	Employment percentage	–0.01		–0.05		–0.06		–0.06		0.02		0.10*	0.01	–0.08*	0.01	0.02	
	Poverty rate	–0.03		0.00		–0.01		–0.04		–0.06		–0.05		–0.02		0.01	
	Education level	–0.03		–0.01		0.02		0.05		0.05		0.00		–0.05		–0.03	
	Covariance	Between goals: *cov*s ∈ (0.15, 0.54), *p*s < 0.001								Between motives: 0.07*				Between foci: –0.01			

Note. SEMs = structural equation models; Men versus women = men coded +0.5, women coded –0.5 (the same goes for White vs. others, etc.).
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

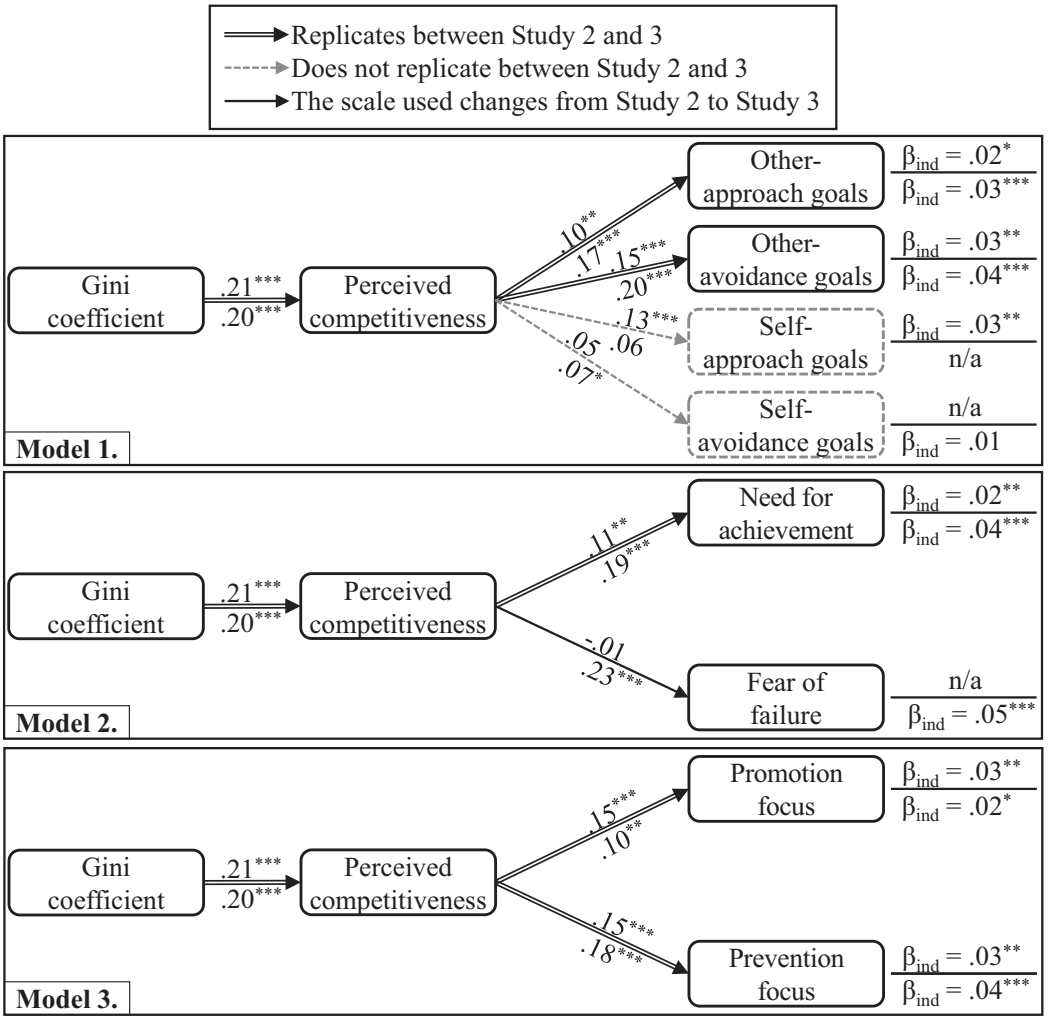

FIGURE 1 Studies 2–3: Multiple imputation–based structural equation models testing the effects of income inequality (ZIP code–based Gini coefficient) via perceived competitiveness on economic achievement goals (Model 1), achievement motives (Model 2), and self-regulatory foci (Model 3). Standardized coefficients are given above the arrows/lines for Study 2 and below the arrows/lines for Study 3. Total effects, control variables, and covariance parameters are not represented; β_{ind} = estimate of the indirect effect; n/a = indirect effect not calculated because the competitiveness-to-motivation path is nonsignificant. $^{***}p < 0.001$. $^{**}p < 0.01$. $^{*}p < 0.05$

methods, and both Studies 1 and 2 lacked demographic heterogeneity: Most participants were women, and low socioeconomic status individuals were underrepresented. Moreover, the null results on fear of failure were not expected; one possibility is that the scale used to assess fear of failure was too broad, failing to capture the specific essence of one's emotional exposure to potential losses in competitive contexts. To address these limitations, Study 3 tested the full set of hypotheses with Amazon's Mechanical Turk (MTurk) workers, a more demographically diverse sample than other online samples (Buhrmester, Kwang, & Gosling, 2011), and used a more specific fear of failure measure grounded in fear of shame and embarrassment (Conroy, Willow, & Metzler, 2002).

4 | STUDY 3: INCOME INEQUALITY, PERCEIVED COMPETITIVENESS, AND APPROACH-AVOIDANCE MOTIVATION: REPLICATION WITH A MORE DIVERSE SAMPLE

4.1 | Method

4.1.1 | Sample and procedure

The same target sample size described in Study 1 was used for this study. However, MTurk with the TurkPrime's microbatch feature was used for recruitment. This enabled us to open the study to nine new participants every 30 min,

facilitating the recruitment of individuals across U.S. time zones over the course of several days. Individuals received $0.40 for their participation.

Participants

Eight hundred sixty-four participants completed the study. Fourteen were excluded a priori due to missing data. The final sample was more gender balanced and diverse (in terms of socioeconomic status) than Studies 1–2. It comprised 850 U.S. residents (400 men, 445 women, and five unspecified; M_{age} = 36.30, SD = 12.31; 685 White/Caucasian, 43 Black/African American, 39 Latino/a, 58 Asian, 20 other, and five unspecified; 72.65% working/employed, 18.55% unemployed/not working, 2.89% retired, and 5.90% students). Average annual income was $37,734 ($SD$ = 26,588), and 54.79% of participants had a 4-year degree or higher. Political self-rating (same scale as in Study 1) was M = 3.52 (SD = 1.76). Again, the vast majority of participants had been living in their town/city for more than 1 year (91.40%).

Clusters

Participants were nested in 788 ZIP codes. The average number of inhabitants per ZIP code was 30,168 (SD = 17,987), the employment rate was 58.76% (SD = 8.73), the absolute level of poverty was 15.88% (SD = 9.98), and the percent without a high school diploma was 14.81% (SD = 9.32).

Variables

Table 1 presents descriptive statistics, reliability estimates, and correlations for the inequality measures and perceived competitiveness. Table 3 presents the same information for the motivation variables. All measures were the same as in Studies 1 and 2, with the exception that Conroy and colleagues' (2002) Fear of Experiencing Shame and Embarrassment subscale assessed fear of failure (seven items; e.g., "When I am failing, I worry about what others think about me"). The same 10 covariates used in Studies 1–2 were controlled for, and MICE was performed to account for missing values on participant-based covariates. Specifically, perceived income inequality, perceived competitiveness, and motivation items were used to impute the missing data (<0.1%).

4.2 | Results

4.2.1 | Preliminary analysis: Actual and perceived inequality

The Gini coefficient was again positively correlated with perceived inequality (r = 0.29, $p < 0.001$).

4.2.2 | Replication of Studies 1 and 2: Income inequality and perceived competitiveness

As in Studies 1–2, we used multiple imputation–based regression analysis. Perceived competitiveness was regressed on the Gini coefficient and covariates. Table 2 presents the full results (third column from the left). Replicating Studies 1–2 and further supporting Hypothesis 1, the Gini coefficient predicted perceived competitiveness, β = 0.20 [0.12, 0.28], $p < 0.001$, f^2 = 0.03. Figure 2 depicts data concerning the Gini coefficient and perceived competitiveness across Studies 1–3.

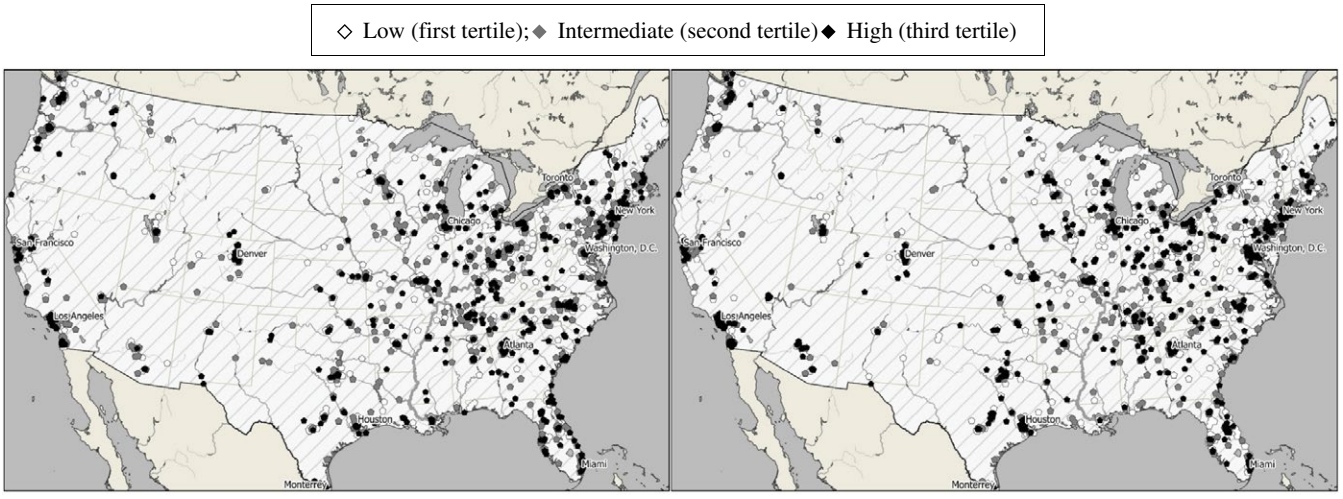

FIGURE 2 Latitudinal and longitudinal positions of the N = 2,543 U.S. residents (inferred from K = 1,904 ZIP codes). Income inequality is presented in the left panel (darker dots mean higher ZIP code–based Gini coefficients), and perceived competitiveness is presented in the right panel (darker dots mean higher self-reported perceptions). Darker dots tend to be located in the Southwestern and Midwestern United States, and around major urban centers. Data nested in the same geographic coordinates were averaged. Quantile classification method was used: We classified data into three categories (i.e., low, intermediate, and high), each containing an equal number of ZIP codes; the maps were built using QGIS (version 2.14; see https://www.qgis.org), and the same settings were used for both maps

4.2.3 | Replication of Study 2: Income inequality, perceived competitiveness, and approach-avoidance motivation

In a second phase, we built the same three multiple imputation–based SEMs used in Study 2 to replicate the effects of income inequality via perceived competitiveness on economic achievement goals (Model 1), achievement motives (Model 2), and self-regulatory foci (Model 3).

Income Inequality → Motivation

Table S5 presents the full results. The (nonhypothesized) total effects of the Gini coefficient on the motivational variables did not significantly differ from zero (ps ≥ 0.236), except for a small negative effect on need for achievement, β = –0.09 [–0.16, –0.01], $p = 0.032$, $f^2 = 0.01$.

Perceived Competitiveness → Motivation

Table 5 presents the full results. Consistent with Hypothesis 2a, perceived competitiveness was a positive predictor of other-approach goals, β = 0.17 [0.11, 0.24], $p < 0.001$, $f^2 = 0.03$, need for achievement, β = 0.19 [0.13, 0.26], $p < 0.001$, $f^2 = 0.03$, and promotion focus, β = 0.10 [0.04, 0.17], $p = 0.003$, $f^2 = 0.01$. Consistent with Hypothesis 2b, perceived competitiveness was also a positive predictor of other-avoidance goals, β = 0.20 [0.13, 0.26], $p < 0.001$, $f^2 = 0.04$, fear of failure (shame and embarrassment), β = 0.23 [0.16, 0.29], $p < 0.001$, $f^2 = 0.05$, and prevention focus, β = 0.18 [0.12, 0.25], $p < 0.001$, $f^2 = 0.03$. Perceived competitiveness also was a significant predictor of self-avoidance goals, β = 0.07]0, 0.14], $p = 0.045$, $f^2 = 0.004$, but *not* self-approach goals, β = 0.06 [–0.01, 0.13], $p = 0.093$, $f^2 = 0.02$.

Income Inequality → Perceived Competitiveness → Motivation (Indirect Effects)

Figure 1 presents the path models of interest. Consistent with Hypothesis 3a, the indirect effects of the Gini coefficient through perceived competitiveness were positive for other-approach goals, β = 0.03 [0.02, 0.05], $p < 0.001$, need for achievement, β = 0.04 [0.02, 0.06], $p < 0.001$, and promotion focus, β = 0.02]0, 0.04], $p = 0.011$. Consistent with Hypothesis 3b, the indirect effects were also positive for other-avoidance goals, β = 0.04 [0.02, 0.06], $p < 0.001$, fear of failure, β = 0.05 [0.02, 0.07], $p < 0.001$, and prevention focus, β = 0.04 [0.02, 0.06], $p < 0.001$. The indirect effect was not significant for self-avoidance goals, β = 0.01 [0, 0.03], $p = 0.064$.

4.3 | Discussion

Replicating Study 2, income inequality again positively predicted perceived competitiveness (supporting Hypothesis 1), which itself positively predicted other-approach goals, need for achievement, and promotion focus (supporting Hypothesis 2a), as well as other-avoidance goals and prevention focus (supporting Hypothesis 2b). As in Study 2, the effects of income inequality were transmitted to these motivational constructs through perceived competitiveness (supporting Hypotheses 3a–3b). In addition, contrary to Study 1, the hypothesized indirect effect of income inequality via perceived competitiveness on fear of failure (focused on fear of shame and embarrassment) manifested in Study 2 (fully supporting Hypotheses 2b–3b).

5 | GENERAL DISCUSSION

These studies are the first to document a link between income inequality and perceived competitiveness. By its very definition, income inequality implies a higher social distance between income groups, reinforcing the stratification of the economic system (Kawachi et al., 1997). Thus, we predicted that income inequality should "get in people's heads" in the form of perceived competitiveness. Consistent with Hypothesis 1, Studies 1–3 showed that local income inequality positively predicted self-reported perceptions of competitiveness. In our view, this perception that others are competitive is the reason that income inequality pervasively "gets in our head," fostering social comparison (Cheung & Lucas, 2016), a sense of relative deprivation (Kondo et al., 2008), or even status competition–related anxiety (Delhey & Dragolov, 2014).

Another contribution of our work is that it sheds light on the seemingly incompatible motivating *and* demotivating effects of income inequality observed previously (Paskov et al., 2013). Since perceived competitiveness can promote both the will to win *and* the will not to lose (Wolters, 2004), we predicted that income inequality should be associated, through perceived competitiveness, with approach and avoidance motivation. Consistent with Hypotheses 2–3, in both Studies 2–3 inequality was positively associated—via perceived competitiveness—with other-approach economic goals, need for achievement, and promotion focus, *as well as* with other-avoidance economic goals, (shame/embarrassment-based) fear of failure, and prevention focus. These findings suggest that income inequality fuels positional concerns, which then foster approach and avoidance motivational processes. Perceived competitiveness (and income inequality), however, did not robustly relate to self-based economic goals; as perceived competitiveness activates concerns regarding social comparison (in reference to others) rather than temporal comparison (in reference to the self), its influence might not systematically extend to goal adoption *not* focused on normative competence.

TABLE 5 Study 3: Coefficient estimates and effect sizes of the multiple imputation-based SEMs testing the effects of perceived competitiveness on economic achievement goals (Model 1), achievement motives (Model 2), and self-regulatory foci (Model 3).

		Model 1. Economic ach. goals								**Model 2. Achievement motives**				**Model 3. Regulatory foci**			
		Other-approach goals		**Other- avoidance goals**		**Self-approach goals**		**Self-avoidance goals**		**Need for achievement**		**Fear of failure**		**Promotion focus**		**Prevention focus**	
		β	f^2	β	f^2	β	f^2	β	f^2	β	f^2	β	f^2	β	f^2	β	f^2
	Perceived competitiveness	0.17***	0.03	0.20***	0.04	0.06	–	0.07*	0	0.19***	0.04	0.23***	0.05	0.10**	0.01	0.18***	0.03
	Gini coefficient	–0.04	–	–0.06	–	–0.04	–	–0.06	–	–0.12**	0.01	–0.03	–	–0.05	–	–0.02	–
Participant-based covariates	Sex (men vs. women)	0.07*	0.01	–0.01	–	–0.09**	0.01	–0.11**	0.01	0.13***	0.02	–0.04	–	–0.12**	0.01	–0.01	–
	Age	–0.25***	0.06	–0.14***	0.02	–0.14***	0.02	–0.05	–	–0.28***	0.08	–0.24***	0.06	–0.16***	0.02	–0.15***	0.02
	Ethnicity (Whites vs. others)	0.05	–	0.02	–	0.02	–	–0.03	–	0.06	–	–0.04	–	0.09*	0.01	0.01	–
	Status (workers vs. others)	0.00	–	0.02	–	–0.04	–	0.00	–	0.05	–	0.03	–	–0.07*	0.01	0.06	–
	Income	0.11**	0.01	0.03	–	–0.04	–	–0.06	–	0.03	–	–0.06	–	0.08*	0.01	–0.13***	0.02
	Education (grad. vs. others)	–0.01	–	0.12**	0.01	–0.02	–	0.17***	0.03	0.02	–	–0.01	–	–0.06	–	0.06	–
ZIP code-based covariates	Population	0.02	–	–0.01	–	–0.06	–	–0.02	–	0.07*	0.01	0.04	–	–0.02	–	0.01	–
	Employment percentage	–0.04	–	0.02	–	0.05	–	0.04	–	–0.06	–	–0.03	–	0.00	–	0.01	–
	Poverty rate	–0.03	–	0.01	–	–0.03	–	0.03	–	–0.03	–	–0.01	–	0.02	–	–0.04	–
	Education level	0.02	–	–0.01	–	0.01	–	–0.05	–	–0.01	–	0.00	–	–0.05	–	0.03	–
	Covariance	Between goals: *cov*s ∈ (0.09, 0.50), *p*s ≤ 0.007								Between motives: 0.11***				Between foci: 0.12***			

Note. SEMs = structural equation models; Men vs. women = men coded 0.5, women coded -0.5 (the same goes for White vs. others, etc.); ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

Importantly, whereas most research on income inequality has used *global* economic indicators (e.g., nation or state based), the above findings were obtained using more specific *local* economic indicators (ZIP code based). Using global economic indicators often implies small sample sizes at the highest level (e.g., Wilkinson & Pickett, 2010, often only compare a dozen nations), resulting in low power and increased probability of Type I errors. Moreover, using global economic indicators does not enable one to avoid confounding variables (e.g., different historical legacies between nations; Hiilamo & Kangas, 2014). For our part, we were able to compare a large number of ZIP codes (almost 2,000) within one single country (limiting the risk of confounding cultural variables), which strengthens the reliability of the findings observed here.

6 | LIMITATIONS OF THE PRESENT RESEARCH

Two main limitations should be kept in mind when interpreting this research. First, the present research is correlational. Despite income inequality's being an ecological, exogenous, and objective economic indicator, we cannot formally establish the causal nature of effects (for a discussion of this topic, see Pickett & Wilkinson, 2015). Moreover, the perceived competitiveness and approach-avoidance motivation variables were self-reported. We argued that perceiving others as competitive in one's social environment predicts appetitive and aversive competitive motivation (i.e., the tested model), but others could argue that competitive motivations may predict the perception that others are competitive (i.e., reverse causation; see Elliot, Jury, & Murayama, 2018). However, from a theoretical perspective, perceived competitiveness is presumed to activate general competitive concerns, which are *then* regulated by appetitive and aversive competitive motivation, not vice versa (see Murayama & Elliot, 2012). Moreover, experimental evidence supports a causal link between perceived competitiveness and other-approach and -avoidance goals (e.g., Pekrun, Cusack, Murayama, Elliot, & Thomas, 2014; Shin, Lee, & Seo, 2017). That said, we cannot rule out the possibility of a reciprocal dynamic relation: Perceiving others as competitive may trigger appetitive and aversive competitive motivation, which then increases the likelihood that others are perceived as competitive (and so on). Experimentally manipulating the salience of income inequality (Côté, House, & Willer, 2015) and/or of perceived competitiveness (Jackson & Esses, 2000) could provide additional insight regarding the causal relations between our theoretical constructs.

Second, samples were not representative of all Americans, which may lead to underestimating or overestimating the population effect. However, in the more diverse sample of Study 3, no demographic groups seemed to be disproportionately represented, and the same pattern of findings was observed. Although this demonstrates the robustness of the results, further research using data from nationally representative samples is needed. Relatedly, our studies were conducted on American participants, and thus our findings cannot be generalized across nations (Henrich, Heine, & Norenzayan, 2010). In particular, the influence of perceived competitiveness and approach-avoidance motivation may vary as a function of culture (e.g., see Hulleman, Schrager, Bodmann, & Harackiewicz, 2010), and, more generally, cross-cultural differences may supersede effects of income inequality on perceived competitiveness and motivation (Hiilamo & Kangas, 2014).

7 | FUTURE DIRECTIONS

7.1 | Directional moderators

In the present research, income inequality did not exert a direct effect on approach or avoidance motivation. However, it is possible that income inequality exerts only a direct effect on approach motivation for a subgroup of the population, and on avoidance motivation for another subgroup of the population. According to the biopsychosocial model of challenge and threat, when individuals perceive that available resources exceed the demands of a stressor, they experience challenge and are approach motivated; but when they perceive that demands exceed available resources, they experience threat and are avoidance motivated (for reviews, see Blascovich, 2013; Jamieson, 2017). In our case, it is conceivable that individuals experiencing financial abundance (i.e., having *sufficient* financial resources) tend to be challenged by economically unequal and competitive environments, whereas individuals experiencing financial scarcity (i.e., having *insufficient* financial resources) may be threatened by such environments (see Mullainathan & Shafir, 2014). Thus, for individuals experiencing financial abundance, income inequality could be a direct predictor of approach motivation; conversely, for individuals experiencing financial scarcity, income inequality could be a direct predictor of approach motivation. Other directional moderator candidates, such as the perceived legitimacy/illegitimacy of income inequality (Schneider, 2012), positive/negative attitudes toward competition (Elliot & Hulleman, 2017), or intergenerational income mobility/immobility (Chetty, Hendren, Kline, & Saez, 2014) may also contribute to the challenging/threatening nature of the competitive ethos established by income inequality.

7.2 | Downstream consequences on economic growth

Conflicting views have been espoused regarding the effect of income inequality on economic growth (for a review, see

Cingano, 2014). Some have argued that income inequality negatively impacts sociopolitical stability and reduces incentives to participate in economic activities, thereby hindering growth (Knack & Keefer, 1997). Others have argued that income inequality affects an economy's demand structure and increases the incentive to work, invest, and innovate, thereby stimulating growth (Forbes, 2000). Furthermore, meta-analytic data on the topic are inconclusive (De Dominicis, Florax, & De Groot, 2008).

Given the present results, both positions may be accurate: Income inequality could negatively *and* positively predict economic growth depending on the motivation that emerges from perceived competitiveness. For example, other-avoidance goals are associated with threat-related affective, cognitive, and behavioral processes, and—by extension—with worse performance; whereas other-approach goals are associated with challenge-related affective, cognitive, and behavioral processes, and—by extension—with better performance (for a meta-analysis, see Murayama & Elliot, 2012). Thus, income inequality, via perceived competitiveness, may increase net production and promote economic growth if it evokes other-approach goals, but it may decrease net production and undermine economic growth if it evokes other-avoidance goals.

8 | CONCLUSION

Income inequality is a "hot topic" in the social sciences. Contrasting theoretical positions have been proposed, with some contending that income inequality has incentive effects and others arguing that it has disincentive effects. From our perspective, neither of these positions is accurate or inaccurate in and of itself. Our conceptual and empirical work herein suggests that income inequality—via perceived competitiveness—can evoke approach motivation, an adaptive form of motivation (e.g., predicting persistence; Wu, Matthews, & Dagher, 2007). However, our work also shows that income inequality—via perceived competitiveness—can evoke avoidance motivation that, over time, tends to eventuate in various forms of demotivation (e.g., predicting disengagement; Roskes, Elliot, Nijstad, & De Dreu, 2013). Thus, rather than debating whether a motivating or demotivating position is correct, we advocate for a more nuanced position open to the likelihood that income inequality can have both positive and negative implications for motivation. The present research lays the conceptual foundation for such an integrative position, and we hope that it will inspire further empirical work aimed at documenting the implications of income inequality for individuals and societies.

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CONFLICT OF INTERESTS

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

ENDNOTES

[1]This information is based on the 2010–2014 American Community Survey estimates. The most equal ZIP codes correspond to those below the 5th percentile and the most unequal ZIP codes to those above the 95th percentile.

[2]In Studies 1–3, the average number of inhabitants from the sampled ZIP codes was higher than the average number from the general population. This is simply due to the fact that participants living in more (vs. less) populated clusters were more likely to be sampled.

[3]In Studies 1–3, the number of participants per ZIP code was so small ($n_{S1} = 1.23$, $n_{S2} = 1.21$, $n_{S3} = 1.08$) that the incidence of clustering on estimates was deemed negligible. As a matter of fact, for each study, the design effect (*DEFF*) was well below the threshold of 2, $DEFF_{S1} = 1.04$, 95% CI [1.01, 1.08], $DEFF_{S2} = 1.07$, 95% CI [1.04, 1.11], and $DEFF_{S3} = 1.01$, 95% CI [1.00, 1.04]. This indicates that one- and two-level regressions are not expected to produce different results (Muthén & Satorra,). Indeed, when multilevel analyses were used, the relations between income inequality and perceived competitiveness remained essentially the same, $\beta_{S1} = 0.21$, 95% CI [0.13, 0.29], $\beta_{S2} = 0.22$, 95% CI [0.13, 0.30], and $\beta_{S3} = 0.20$, 95% CI [0.12, 0.28], $ps < 0.001$.

[4]Because low- and high-income earners might differ in terms of resources to cope with competition, we tested whether income moderated associations between perceived competitiveness and approach-avoidance motivation. Other moderator candidates were explored in Study 2. Results were inconclusive and are presented in the Supplementary Materials.

[5]The estimation of Cohen's f^2 is not possible for indirect paths. However, standardized coefficients of the indirect paths can be interpreted as effect sizes (Preacher & Kelley, 2011). For direct paths, $\beta = 0.14$, 0.36, and 0.51 are considered small, medium, and large effect sizes, respectively. Since indirect paths are the product of two coefficients, these values can be squared: $\beta = 0.02$ (i.e., 0.14^2), 0.13 (i.e., 0.36^2), and 0.26 (i.e., 0.51^2) are considered small, medium, and large indirect effect sizes, respectively (for similar reasoning, see Cheung, 2007).

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