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The psychological consequences of income inequality

Abstract

In this paper, we review and integrate the contemporary literature on the societal effects of income inequality, drawing on social, personality, developmental, and organizational psychology, sociology, political science, economics, and public health. Living in highly unequal regimes is associated with both increased mistrust and increased anxiety about social status; these psychological mechanisms help explain some of the negative outcomes associated with income inequality, such as lower happiness, lower social cohesion, weaker morality, higher mortality, worse health, and weaker governance.

1 | INTRODUCTION

Income inequality, the increasing concentration of wealth in fewer hands, has been called the "defining challenge of our time" (Obama, 2013). The share of the total wealth in the US owned by the top 0.1% of the population, about 160,000 households, has grown from 7% in 1978 to 22% in 2012, the highest levels since the Great Depression (Saez & Zucman, 2016). The United States is not unique; income inequality has been rising throughout the industrialized world during the last 40 years (Brandolini & Smeeding, 2011; see Solt, 2016 for worldwide inequality statistics).

Greater income inequality is associated with negative economic consequences. Panel data from the second half of the 20th century shows that countries with higher income inequality grew more slowly (70 countries, Alesina & Rodrik, 1994; 9 countries, Persson & Tabellini, 1994; 118 countries, Easterly, 2007; but see Forbes, 2000; Barro, 2000; Banerjee & Duflo, 2003 for alternate interpretations of the inequality-growth relationship). Further, growth in countries with higher inequality is less likely to be sustained over time (Berg & Ostry, 2011). In countries with higher inequality, increases in GDP tend to be accumulated by a smaller fragment of society (e.g., Piketty & Saez, 2014). Residents of countries with higher income inequality tend to have worse health (reviewed in Wilkinson & Pickett, 2006; Pickett & Wilkinson, 2015; but see Beckfield, 2004). National inequality is not just associated with the health of the poor (Wilkinson, 1992); it is also associated with worse health for the rich (Subramanian & Kawachi, 2006). One review, extrapolating from a meta-analysis of the literature, estimates that if inequality in the 30 OECD countries was reduced to roughly the level of Canada or Australia over 1.5 million deaths could have been prevented (Kondo et al., 2009). Greater income inequality is also associated with lower well-being: more unequal areas have higher levels of mental illness (Burns, Tomita, & Kapadia, 2014); depression (Messias, Eaton, & Grooms, 2011); crime, especially murder and assault (Hsieh & Pugh, 1993); obesity and obesity-related death (Pickett, 2005); as well as drug abuse, teenage birth, racism, incarceration, and a number of other societal problems (reviewed in Wilkinson & Pickett, 2009b).



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Why does income inequality relate to these negative outcomes? One argument, often referred to as the "neo-materialist" hypothesis (Lynch, Smith, Kaplan, & House, 2000; see also Deaton, 2003), is that inequality is a manifestation of a greater system, which is tilted against the disadvantaged. In this view, income inequality itself is not the cause of any societal dysfunction; rather, it is just a product of a deeper problem, and it is aspects of that deeper problem, which co-occur with inequality, such as a politics; which puts less emphasis on health services for the poor or social organizations with more ossified membership, that lead to the seemingly strong relationship between inequality and dysfunction; not the inequality itself. However, a number of scholars have argued income inequality causes changes in individuals and society; which explain the relationship between income inequality and broader outcomes, such as health and economic growth (e.g., Pickett & Wilkinson, 2015; Kondo, et al., 2009; Easterly, 2007, Uslaner & Brown, 2005). The rest of this review discusses two possible psychological mechanisms for these relationships: the decreased levels of interpersonal trust found in more unequal societies, and the increase in competition and status anxiety found in societies with greater inequality.

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PSYCHOLOGICAL MECHANISMS FOR THE EFFECTS OF INEQUALITY

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Income inequality and mistrust 2.1

Surveys show that the more the income inequality in a given area, the less the members of that area trust each other (reviewed in Algan & Cahuc, 2013; Rothstein & Uslaner, 2005; though see Fairbrother & Martin, 2013; and Steijn & Lancee, 2011). Related survey work shows people in communities with higher levels of inequality are more likely to think that their system is unfair and that those who are getting ahead are doing so underhandedly (Grosfeld & Senik, 2010) and that the less privileged are more envious of the more privileged in times of higher inequality (Wilkinson & Pickett, 2009a). Experimental work, which manipulates relative monetary disadvantage in the lab, finds largely the same results (Lembregts & Pandelaere, 2014; Blake et al., 2015).

One study tied together the links between inequality, mistrust, community formation, and economic growth (Nishi, Shirado, Rand, & Christakis, 2015). The researchers set up a modified public goods game: participants could either trust their neighbors, paying in 50 monetary units per neighbor in order to benefit each neighbor by 100 units, or keep their money to themselves, free riding on the benefits paid in by the rest of their neighbors. After all participants' choices were made public, participants were randomly given the option to change their neighbors—breaking links with some or, with a little more effort, forming new links with others. The researchers found that if they started the experiment in a state of inequality, initially endowing some participants with more money than others and letting everyone know how much wealth was held by all participants, those participants who started out rich were less likely to pay to benefit their neighbors and instead held on to their wealth. In these circumstances, participants with smaller initial endowments were in a bind—they could either continue to contribute to their neighborhoods and be exploited by the free-riding wealthy or not contribute anything, get a bad reputation of their own, and become more likely to be cut out of other participants' neighborhoods. Empirically, the self-interested behavior of the rich led to a decrease in overall cooperation, which in turn thinned-out neighborhood ties, limiting the total wealth that could be created. By exploiting their wealth, the rich created a system in which they stayed wealthier than others and captured a greater percentage of the total income created but in which the overall wealth of the simulated society was far lower. Their failure to contribute to the public good increased the levels of mistrust throughout the experiment, generated sparser communities, and ultimately slowed the growth of the experiment's economy.

Inequality may also reduce trust through more structural mechanisms. In more unequal countries, people from different social classes are less likely to interact with each other—they are more likely to live in different neighborhoods, send their children to different schools, read different newspapers; generally, they experience radically different social worlds (Rothstein & Uslaner, 2005). If people do not commingle with individuals from other social classes, they might be more likely to think of other groups as outgroups, leading them to essentialize class differences. Indeed, in more

unequal societies, residents have stronger class identification, with the poor more likely to self-identify as "lower class" (Andersen & Curtis, 2012), or as "have nots" (Newman, Johnston, & Lown, 2015). Among people living in U.S. states with higher income inequality or among people experimentally led to perceive that income inequality in their state was high, the rich were less likely to give to charity (Côté, House, & Willer, 2015), perhaps because they have internalized or even biologized the differences between themselves and the poor (e.g., Kraus & Keltner, 2013). In more equal societies, the increased points of social overlap can lead to a sense of shared social fate, which can lead to higher generalized societal trust, and without the social overlap (as can occur in more unequal societies), societal trust can be harder to form (Rothstein & Uslaner, 2005).

Empirical work demonstrates the link between inequality, trust, and the maintenance of communities. Residents of U.S. states with higher inequality are less likely to participate in social groups, such as book clubs, bowling leagues, and service organizations (Alesina & La Ferrara, 2000), and are less agreeable (de Vries, Gosling, & Potter, 2011). A study using 46 years of American survey data found that inequality, specifically, is a major factor in this decline in nation-level social group membership (Costa & Kahn, 2003). A study using survey data from 24 European countries found that contrary to the neo-materialist interpretation of inequality (which proposes a lack of resources as the main cause of outcomes associated with inequality), the poor in a highly unequal society, even when they have the ability and resources to participate in civic life, choose not to (Lancee & van de Werfhorst, 2011). A study using 30 years of American state-level survey data found that people in more unequal states have lower generalized trust, and this lack of trust is the key variable in explaining the relationship between state-level income inequality and group membership (Uslaner & Brown, 2005). Lower trust in others, not a lack of the resources for participation in civic life, explains the association between inequality and reduced civic ties.

Not trusting others is associated with a number of negative consequences. People who trust others less are more likely to engage in unethical behavior for example, aggregated individual-level trust mediates the relationship between income inequality across US states and state-level frequency of Google searches for cheating aids (Neville, 2012). People with lower trust have worse health: decreased trust in others mediates the country-level associations between increased inequality and increasing mortality rates (controlling for public health expenditures; Elgar, 2010; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997), and increasing homicide rates (Elgar & Aitken, 2011).

The lower interpersonal trust associated with higher income inequality is related to outcomes at the national level (see Bartels, 2008; Gilens, 2005; Hacker & Pierson, 2010 for reviews). Countries with more income inequality have more sociopolitical instability (assassinations, coups, riots, etc.; Alesina & Perotti, 1996), have worse institutions (less efficient governments, higher regulatory burdens, weaker rule of law, etc.; Easterly, 2007), and have more corruption (Jong-sung & Khagram, 2005). These relationships might exist because in more unequal societies, the wealthy might have stronger motivations to keep institutions weak in order to minimize redistribution. Further, in more unequal societies, the wealthy have more power to influence institutions given the relatively higher share of their resources. With greater instability and weaker institutions, more disadvantaged people are less engaged in civic society—among advanced democracies with greater income inequality, the less all but the wealthiest citizens participate in politics (Solt, 2008). Not surprisingly, the Counsel of the American Political Science Association identified growing inequality as one of the major threats confronting contemporary democracy (Task Force on Inequality and American Democracy, 2004).

When thinking about the relationship between inequality and trust, however, there are a few caveats to keep in mind. The evidence for the link comes almost entirely from survey data. Although researchers' use of multilevel analyses help reduce concern about the ecological fallacy (i.e., what holds at the nation level might not hold at the individual level) and although researchers typically control for several additional variables (such as absolute income, as in Lancee & van de Werfhorst, 2011, or health spending in Elgar & Aiken, 2010), alternate causal pathways and Ω 4 confounding by third variables is possible (see Steijn & Lancee, 2011 for suggestions). Although recreating societies with different levels of inequality in the lab might be difficult, manipulating people's beliefs about existing levels of inequality in their locality (as in Côté et al., 2015) provides one possible paradigm for the experimental research to help make causal claims. Thus, the existing survey-based research needs to be complemented with

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experimental, time-series, and longitudinal analyses (e.g., Zheng, 2012, on the long-term effects of income inequality on health) to better determine the causal role of inequality: whether inequality is a product of processes, which also create societal problems, including a lack of trust; or whether inequality itself is responsible for psychological consequences, such as lack of trust, which lead to societal problems.

In addition to closer empirical examination of the research on inequality and trust, research also needs to examine an important theoretical question: What type of trust is income inequality most closely associated with? Trust in whom? The majority of the work in this area has measured generalized trust (e.g., "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?;" e.g. Uslaner & Brown, 2005; Oishi, Kesebir, & Diener, 2011), or "If you are not careful, other people will take advantage of you." (e.g., Elgar, 2010; Elgar & Aitken, 2011). When people are answering these questions, are they thinking about their entire society, their neighbors, their community, or some other groups? Is inequality most strongly associated with country-level social cohesion (as Rothstein & Uslaner, 2005 argue) or with more local level social cohesion (as argued by Elgar, 2010)? Or are the effects of inequality different for those who distrust their neighbors as opposed to those who distrust generalized outgroups or their own government? More nuanced analysis of trust, perhaps using operationalizations gaining prominence in the sociological literature (the "radius of trust," e.g., Delhey, Newton, & Welzel, 2011; see Putnam, 2007 for an example) will help disentangle these possibilities and provide better clarity Q5 about the underlying mechanism.

Income inequality and status competition 2.2

The second pathway through which income inequality might be associated with numerous outcomes involves increased status competition (see Wilkinson & Pickett, 2009b for a review). As inequality grows, people can accrue more material benefit by doing better than their peers. Residents of the more unequal countries, for example, work longer hours than those of more equal ones, as working harder has a bigger monetary payoff when higher performers get more rewards (Bell & Freeman, 2001). In societies with a greater share of wealth flowing to a smaller subset of the population, people's place on the social ladder becomes highly salient (e.g., Kraus, Tan, & Tannenbaum, 2013). Knowledge of these differences might increase stress and anxiety about being left behind, socially and materially (e.g. Marmot, 2004). Hard work in high inequality may also have signaling benefits, in that the additional money earned allows people to project a higher class image through their consumption patterns (Bowles & Park, 2005).

These patterns are evident in a series of studies. Large-scale survey work from 23 European countries shows that citizens of unequal countries are more likely to say that societal status is important to them, affirming the importance of respect, success, and being admired (Paskov, Gërxhani, & van de Werfhorst, 2013). Similarly, comprehensive surveys from 31 European nations shows that the increased weight associated with status can be a double-edged sword: residents of countries with higher levels of income inequality are more likely to feel anxiety over their status in society, fearing that others are looking down on their profession or income. Remarkably, this status anxiety is higher among all members of more unequal societies-even those at the top of the ladder are more nervous about their position (Layte & Whelan, 2014). Perhaps to combat this anxiety, separate work shows that residents of more unequal countries are also more likely to try to self-enhance, viewing themselves as better than the average person on desirable traits (Loughnan et al., 2011).

These psychological effects are associated with different types of behaviors: residents of U.S. states with higher levels of inequality are more likely to search for goods that indicate high-status consumption, such "Ralph Lauren" or "fur vests" (Walasek & Brown, 2015). In experiments, induced income inequality leads those disadvantaged to take riskier gambles in order to catch up to the advantaged (Mishra, Hing, & Lalumière, 2015). The increased importance of social hierarchy is associated with worse health: the stress of status anxiety might underlie the higher rates of obesity, drug abuse, mental illness, crime, and overall mortality rates and worse levels of child well-being, and educational attainment found in higher-inequality areas (even after controlling for access to health resources or other structural factors; Wilkinson & Pickett, 2009b; Kondo et al., 2008; Subramanian & Kawachi, 2004).

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Many of the same caveats when thinking about the relationship between inequality and trust also should also be kept in mind when thinking about the relationship between inequality and status competition. The majority of the evidence similarly comes from survey data, and, though it too is analyzed in multilevel designs strong enough to reduce worries about the ecological fallacy, it; too; is open to questions about alternate causal pathways and confounding third variables.

Unlike with the mistrust pathway, there are few studies; which look specifically at status competition as a mediator (though see Delhey & Dragolov, 2014)-much of the epidemiological work, for example, infers the effects of status anxiety using econometric data, with little work on individual psychology. When thinking about mechanism, it is hard to disentangle the psychological feelings of relative deprivation from the actual real-world distribution of resources in understanding what creates status stress (though see Kraus, Piff, & Keltner, 2011, and a work looking at a mediating effect of perceived unfairness, e.g., Schneider, 2012). Additionally, it is not always clear who people feel that they are competing with, whether with their immediate neighbors (e.g. Cheung & Lucas, 2016) or with other members of their country (e.g. Wilkinson & Pickett, 2009b) and what effects that competition has on both individual and societal well-being. Studies analyzing survey questions which directly ask about the nature of status anxiety (i.e. *who* participants are afraid will be looking down on them) would be helpful in understanding these mechanisms, as well experimental work that sets up conditions of inequality and then measures status competition and related downstream effects (following the example of the experimental economic paradigm of Nishi et al., 2015) or which manipulated the perceived nature of the competition (as in Brown-lannuzzi, Lundberg, Kay, & Payne, 2015) will be extremely useful.

3 | PSYCHOLOGICAL CORRELATES OF INCOME INEQUALITY: LOWER LIFE SATISFACTION

The higher the level of inequality in a society, the more unhappy residents are (see Ferrer-i-Carbonell & Ramos, 2012 for a review). Inequality may be the answer to the famous Easterlin Paradox, which asks why economic growth does not always translate to the increased happiness of residents (Easterlin, 1974). Oishi & Kesebir (2015) show that in lowinequality countries, residents are indeed happier when the economy is growing, as Easterlin had originally predicted. However, in higher inequality countries, growth does not correlate as strongly with happiness, and, in a set of highinequality Central and South American countries, residents become unhappier as their economy grows. When economic growth is relatively evenly shared, the Easterlin Paradox tends to disappear; it is only when the gains go disproportionately to a small fragment of the population that growth does not lead to nation-level increases in happiness.

Three complementary papers show that inequality is associated with lower happiness both because of increased mistrust and increased status competition. Oishi, Kesebir, & Diener (2011) demonstrated the mistrust pathway. Using data from 36 years of the General Social Survey, they found that in years when income inequality was higher in the United States, lower income people (but not those in the top 20%, who presumably were those benefiting from inequality) were less trusting of others and more likely to think that others would be trying to take advantage of them. This mistrust, and not the decrease in their own income, in turn predicted their decrease in life satisfaction in those years.

Cheung and Lucas (2016) demonstrated the status competition pathway. Using a survey of 1.7 million Americans, they found that even controlling for people's own income, having richer neighbors decreased people's life satisfaction. This relationship was magnified by increased county-level inequality, especially for poorer residents. Inequality, in other words, was associated with higher jealousy, especially for those who have less, and this jealousy was associated with lower happiness.

Although both mechanisms may be operating in all societies, there is evidence that the overall level of wealth of a society makes one route more relatively salient. Using a survey instrument covering 30 European nations, Delhey and

Dragolov (2014) found that inequality is linked to unhappiness primarily through mistrust in the more affluent countries, whereas in the less affluent countries, inequality is linked to unhappiness primarily through the stress of increased status competition. They show that inequality is felt differently in different countries, and that the specific socioeconomic situation of a country shapes the ways in which inequality is felt and understood.

To that end, there is even evidence that, in certain situations, inequality can be associated with increased happiness, as long as that inequality signals the possibility of a better life. Cheung (2016) looked at a large sample of urban and rural Chinese respondents and found that, in rural China, increases in inequality were associated with confidence in the future, which in turn was associated with higher life satisfaction. Among urban respondents, Cheung (2016) found no relationship between inequality and hope, and accordingly, no relationship between inequality and happiness.

These findings and the subfinding found—that, unlike inequality's association with health (Subramanian & Kawachi, 2006) and status competition (Layte & Whelan, 2014; Paskov et al., 2013), the association between inequality and happiness seems strongest for people with lower income levels, make it clear that the link between inequality and happiness is not simple. One explanation of the conflicting findings is that people's personal views about inequality—people seem to prefer unequal distribution of resources as long as these differences seem to arise from a fair system. This belief arises early in development, as even 21-month old infants expect those who work harder to get a larger reward (Sloane, Baillargeon, & Premack, 2012). From adolescence (Almas, Cappelen, Sorensen, & Tungodden, 2010) through to adulthood (Krawczyk, 2010), people playing economic games are far more comfortable with inequality; which arises from differential effort than from inequality; which arises from sheer luck, and people will even punish the beneficiaries of luck-based inequality at a cost to themselves (Dawes, Fowler, Johnson, McElreath, & Smirnov, 2007). The more a person believes that their actions, not societal factors; more generally, are what determines their fate, the more likely they are to support a system in which rewards are unequally distributed. Research shows that the more Americans think about or look for choices, which activates this agentic mindset, the more comfortable they are with wealth inequality (Savani & Rattan, 2012).

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The winners in a society generally like that system to remain in place (e.g., Schmitt, Branscombe, & Kappen, 2003); and those who perceive that their status in society is higher are more likely to be comfortable with the inequality which they perceive has or will benefit them (e.g., Brown-lannuzzi et al., 2015; Kunovich & Slomczynski, 2007; White, Kenrick, Neal, & Neuberg, 2013). That inequality is generally supported by those advantaged and opposed by those disadvantaged is clearest when looking at the change in attitudes when people who think that they are the beneficiaries of inequality discover that inequality actually harms them in some way. Finding out that one is not as advantaged as one imagined oneself to be increases people's worry about income inequality (Kuziemko, Norton, Saez, & Stantcheva, 2015) and increases their support for policies that ameliorate inequality (Cruces, Perez-Truglia, & Tetaz, 2013).

The belief that inequality can be justified, however, extends across the whole distribution of wealth: poor Americans may support inequality as long as they think that, one day, they or their children have the possibility of moving up the income ladder and reaping the rewards of an unequal society (Ladd & Bowman, 1998; Benabou & Ok, 2001; Shariff, Wiwad, & Aknin, 2016), or they may support inequality as a means of reducing the dissonance of not challenging a system which disadvantages them (Jost, Pelham, Sheldon, & Ni Sullivan, 2003; see however Brandt, 2013).

Three studies used survey data to demonstrate that people's attitudes toward inequality can affect the way inequality is associated with their happiness. Napier & Jost (2008) found that self-identified conservatives, in the US and nine other OECD democracies, were more comfortable with inequality abstractly than were self-identified liberals (using responses to questions such as "This country would be better off if we worried less about how equal people are"). This greater comfort in turn predicted how strongly country-level inequality was associated with their happiness. Liberals were less satisfied with their lives when income inequality was higher, as a direct function of their attitudes toward inequality. The more people accepted inequality, the less it correlated with their happiness.

Similar findings come from the work of Alesina, di Tella, and MacCullough (2004). Using large-scale survey data, they find that the relationship between inequality and happiness differed between the US and Europe. Although

people on both continents were more unhappy in years with higher inequality, Europeans showed the impact of inequality more strongly. The impact was not uniformly felt, however in line with some of the arguments above, the happiness of the European rich or political right wing, who are likely more comfortable with inequality, was not associated with levels of inequality, whereas the European political left and the European poor, who are likely more opposed to inequality, had significant declines in happiness in times of high inequality. The authors, unlike Napier & Jost (2008), find no political differences in the association between inequality and happiness in the United States, suggesting that beliefs about inequality may not sort politically as cleanly they do in Alesina, et al.'s European sample (e.g., Ladd & Bowman, 1998; Benabou & Ok, 2001) or that different mechanisms may be mediating the relationship between inequality and unhappiness on the two continents (e.g., Delhey & Dragolov, 2014).

Schneider (2012) further helps understand the relationship of inequality and happiness by suggesting that beliefs about the legitimacy of inequality, not just its actual level, accounts for much of the relationship between inequality and happiness. Using a sample of German participants, she showed that beliefs about the unfairness of income distribution (the difference between how much participants think CEOs and unskilled workers actually make vs. participants' beliefs about what the two groups ought to make) is a stronger predictor of individual unhappiness than perceived levels of inequality (the simple difference between what participants think CEOs and unskilled workers earn). People's perceptions of inequality, not just actual differences in income, seem to be the primary driving force linking inequality with happiness.

Taking a step back, it appears that people's beliefs about the value of inequality influence how it personally affects their well-being. What is less clear, however, is precisely why whether one's beliefs about inequality buffer its impact on happiness through routes laid out in this review, by making people trust each other more or by making people less competitive; or whether beliefs operate through an alternative route, such as through moral outrage, belief that the world is just or other compensatory mechanisms (e.g., Wakslak, Jost, Tyler, & Chen, 2007). Future work is needed to test these possible mechanisms.

4 | FUTURE DIRECTIONS

Even with all-the attention being focused on the effects of income inequality, there are still some gaps in the literature. To our knowledge, no studies have examined at how the two pathways we outline here, mistrust and status competition, relate to each other. Although we have been discussing them as independent from each other, a focused analysis of data; which contains all the relevant variables, such as the U.S. General Social Survey or the Euro-Barometer survey, would be a worthwhile next step to understand how these two paths interactively lead to the problems of individuals living in unequal societies.

The biggest gap we see, however, is in the exploration of variation, both cross-cultural and individual. The vast majority of the work on the effects and antecedents of income inequality comes from the Western world, largely from advanced industrialized democracies, which may have especially strong feelings about inequality (e.g. Delhey & Dragolov, 2014). We know of little work looking at the effects of inequality in other societies, such as the more autocratic or kleptocratic states, where inequality can be very high (Solt, 2016); furthermore, what work we know suggests that the patterns which hold in the West, such as the precise relationship between inequality and happiness, may not hold in the rest of the world (Cheung, 2016; Ferrer-i-Carbonell & Ramos, 2012).

More work could investigate the relationship between personal or cultural attitudes towards inequality and inequality's effects. Although some papers have taken this interactive approach, either at the individual (Napier & Jost, 2008; Schneider, 2012) or national or societal level (Alesina, Di Tella, & MacCulloch, 2004; Delhey & Dragolov, 2014), a fuller understanding of how metabeliefs about inequality combine with the actual lived experience of members of an unequal society will be crucial for better understanding the myriad ways in which an unequal society differs from a more equal one.

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These issues matter because they cut to the core of the problem with income inequality. Income inequality as the simple fact of some people earning more than others likely does not create the outcomes reviewed in this paper (Deaton, 2003). Rather, it is what inequality does to the psychology of residents and how they interpret it and how they react to it, which creates its particular phenomena. To take an example, Oishi, et al.'s (2011) work on the relationship between inequality and happiness found that once the psychological effects of inequality, unfairness, and mistrust were accounted for, simple differences in income distribution had no direct effect on happiness. Understanding how inequality affects individuals and society requires understanding how inequality works psychologically seem to be key to understanding the broader epidemiological and economic outcomes associated with inequality.

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REFERENCES

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- Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and happiness: Are Europeans and Americans different? *Journal of Q7 Public Economics*, 88(9–10), 2009–2042. doi:10.1016/j.jpubeco.2003.07.006
- Alesina, A., & La Ferrara, E. (2000). Participation in heterogeneous communities. *Quarterly Journal of Economics*, 115(3), 847–904. doi:10.1162/003355300554935
- Alesina, A., & Perotti, R. (1996). Income distribution, political instability, and investment. *European Economic Review*, 40(6), 1203–1228. doi:10.1016/0014-2921(95)00030-5
- Alesina, A., & Rodrik, D. (1994). Distributive politics and economic growth. *The Quarterly Journal of Economics*, 109(2), 465–490.
 - Algan, Y., & Cahuc, P. (2013). Trust, growth and well-being: New evidence and policy implications. (No. 7464). Bonn. Retrieved from http://ftp.iza.org/dp7464.pdf
 - Almas, I., Cappelen, A. W., Sorensen, E. O., & Tungodden, B. (2010). Fairness and the development of inequality acceptance. *Science*, 328(5982), 1176–1178. doi:10.1126/science.1187300
 - Andersen, R., & Curtis, J. (2012). The polarizing effect of economic inequality on class identification: Evidence from 44 countries. Research in Social Stratification and Mobility, 30(1), 129–141. doi:10.1016/j.rssm.2012.01.002
- Banerjee, A. V., & Duflo, E. (2003). Inequality and growth: What can the data say? Journal of Economic Growth, 8(3), 267-299.
- Barro, R. J. (2000). Inequality and growth in a panel of countries. *Journal of Economic Growth*, 5, 5–32.
- Bartels, L. M. (2008). *Unequal democracy: The political economy of the new gilded age*. New York: Russell Sage Foundation.
- Beckfield, J. (2004). Does income inequality harm health? New cross-national evidence. *Journal of Health and Social Behavior*, 45(3), 231–248. doi:10.1177/002214650404500301
- Bell, L. A., & Freeman, R. B. (2001). The incentive for working hard: Explaining hours worked differences in the US and Germany. *Labour Economics*, 8, 181–202. doi:10.1016/S0927-5371(01)00030-6
 - Benabou, R., & Ok, E. A. (2001). Social mobility and the demand for redistribution: The Poum hypothesis. *The Quarterly Journal of Economics*, 116(2), 447–487. doi:10.1162/00335530151144078
 - Berg, A., & Ostry, J. (2011). Inequality and unsustainable growth: Two sides of the same coin? *International Monetary Fund Staff Discussion Note*, 1–21. doi:10.1017/CBO9781107415324.004
 - Blake, P. R., McAuliffe, K., Corbit, J., Callaghan, T. C., Barry, O., Bowie, A., ... Warneken, F. (2015). The ontogeny of fairness in seven societies. *Nature*, 528(7581), 258–261. doi:10.1038/nature15703
 - Bowles, S., & Park, Y. (2005). Emulation, inequality, and work hours. Was Thorsten Veblen right? *The Economic Journal*, 115, 397–415. doi:10.1111/j.1468-0297.2005.01042.x
 - Brandolini, A., & Smeeding, T. M. (2011). Income inequality in richer and OECD countries. (B. Nolan, W. Salverda, & T. M. Smeeding, Eds.) *The Oxford handbook of economic inequality*. Oxford: Oxford University Press. doi:10.1093/oxfordhb/9780199606061.013.0004
- Brandt, M. J. (2013). Do the disadvantaged legitimize the social system? A large-scale test of the status-legitimacy hypothesis. *Journal of Personality and Social Psychology*, 104(5), 765–785. doi:10.1037/a0031751
- Brown-lannuzzi, J. L., Lundberg, K. B., Kay, A. C., & Payne, B. K. (2015). Subjective status shapes political preferences. Psychological Science, 26(1), 15–26. doi:10.1177/0956797614553947
- Burns, J. K., Tomita, A., & Kapadia, A. S. (2014). Income inequality and schizophrenia: Increased schizophrenia incidence in countries with high levels of income inequality. *International Journal of Social Psychiatry*, 60(2), 185–196. doi:10.1177/0020764013481426

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- Cheung, F. (2016). Can income inequality be associated with positive outcomes? Hope mediates the positive inequality-happiness link in rural China. *Social Psychological and Personality Science*, 7(4), 320–330. doi:10.1177/1948550615619762
- Cheung, F., & Lucas, R. E. (2016). Income inequality is associated with stronger social comparison effects: The effect of relative income on life satisfaction. *Journal of Personality and Social Psychology*, 110(2), 332–341. doi:10.1037/pspp0000059
- Costa, D., & Kahn, M. (2003). Understanding the decline in American social capital, 1953-1998. *Kyklos*, 56(1), 17-46. doi:10.1111/1467-6435.00208
- Côté, S., House, J., & Willer, R. (2015). High economic inequality leads higher-income individuals to be less generous. *Proceedings of the National Academy of Sciences*, 112(52), 15838–15843. doi:10.1073/pnas.1511536112
- Cruces, G., Perez-Truglia, R., & Tetaz, M. (2013). Biased perceptions of income distribution and preferences for redistribution: Evidence from a survey experiment. *Journal of Public Economics*, 98, 100–112. doi:10.1016/j.jpubeco.2012.10.009
- Dawes, C. T., Fowler, J. H., Johnson, T., McElreath, R., & Smirnov, O. (2007). Egalitarian motives in humans. *Nature*, 446(7137), 794–796. doi:10.1038/nature05651
- Delhey, J., Newton, K., & Welzel, C. (2011). How general is trust in "most people"? Solving the radius of trust problem.

 American Sociological Review, 76(5), 786–807. doi:10.1177/0003122411420817
- de Vries, R., Gosling, S., & Potter, J. (2011). Income inequality and personality: Are less equal U.S. states less agreeable? *Social Science & Medicine*, 72(12), 1978–1985. doi:10.1016/j.socscimed.2011.03.046
 - Deaton, A. (2003). Health, inequality, and economic development. *Journal of Economic Literature*, 41(1), 113–158. doi:10.1257/002205103321544710
 - Delhey, J., & Dragolov, G. (2014). Why inequality makes Europeans less happy: The role of distrust, status anxiety, and perceived conflict. European Sociological Review, 30(2), 151–165. doi:10.1093/esr/jct033
- Easterlin, R. A. (1974). Does economic growth improve the human lot? Some empirical evidence. In P. A. David, & W. R. Melvin (Eds.), *Nations and households in economic growth*. (pp. 89–125). New York, NY: Academic Press.
- Easterly, W. (2007). Inequality does cause underdevelopment: Insights from a new instrument. *Journal of Development Economics*, 84(2), 755–776. doi:10.1016/j.jdeveco.2006.11.002
 - Elgar, F. J. (2010). Income inequality, trust, and population health in 33 countries. American Journal of Public Health, 100(11), 2311–2315. doi:10.2105/AJPH.2009.189134
 - Elgar, F. J., & Aitken, N. (2011). Income inequality, trust and homicide in 33 countries. *The European Journal of Public Health*, 21 (2), 241–246. doi:10.1093/eurpub/ckq068
 - Fairbrother, M., & Martin, I. W. (2013). Does inequality erode social trust? Results from multilevel models of US states and counties. *Social Science Research*, 42(2), 347–360. doi:10.1016/j.ssresearch.2012.09.008
 - Ferrer-i-Carbonell, A., & Ramos, X. (2012). Inequality and Happiness: A Survey. (No. 38). Amsterdam.
 - Forbes, K. (2000). A reassessment of the relationship between inequality and growth. *American Economic Review*, 90(4), 869–887.
- 33 Gilens, M. (2005). Inequality and democratic responsiveness. Public Opinion Quarterly, 69, 778–796.
- Grosfeld, I., & Senik, C. (2010). The emerging aversion to inequality. *Economics of Transition*, 18(1), 1–26. doi:10.1111/j.1468-0351.2009.00376.x
- Hacker, J. S., & Pierson, P. (2010). Winner-take-all politics: How Washington made the rich richer-and turned its back on the middle class. New York: Simon & Schuster.
- Hsieh, C.-C., & Pugh, M. D. (1993). Poverty, income inequality, and violent crime: A meta-analysis of recent aggregate data studies. *Criminal Justice Review*, 18(2), 182–202. doi:10.1177/073401689301800203
- Jong-sung, Y., & Khagram, S. (2005). A comparative study of inequality and corruption. *American Sociological Review*, 70(1), 136–157. doi:10.1177/000312240507000107
 - Jost, J. T., Pelham, B. W., Sheldon, O., & Ni Sullivan, B. (2003). Social inequality and the reduction of ideological dissonance on behalf of the system: Evidence of enhanced system justification among the disadvantaged. *European Journal of Social Psychology*, 33(1), 13–36. doi:10.1002/ejsp.127
- Kawachi, I., Kennedy, B. P., Lochner, K., & Prothrow-Stith, D. (1997). Social capital, income inequality, and mortality. *American Journal of Public Health*, 87(9), 1491–1498. doi:10.2105/AJPH.87.9.1491
- Kondo, N., Kawachi, I., Subramanian, S. V., Takeda, Y., & Yamagata, Z. (2008). Do social comparisons explain the association between income inequality and health?: Relative deprivation and perceived health among male and female Japanese individuals. *Social Science & Medicine*, 67(6), 982–987. doi:10.1016/j.socscimed.2008.06.002
- Kondo, N., Sembajwe, G., Kawachi, I., van Dam, R. M., Subramanian, S. V., & Yamagata, Z. (2009). Income inequality, mortality, and self rated health: Meta-analysis of multilevel studies. *BMJ*, 339(nov10 2), b4471–b4471. doi:10.1136/bmj.b4471

- Kraus, M. W., & Keltner, D. (2013). Social class rank, essentialism, and punitive judgment. *Journal of Personality and Social Psychology*, 105(2), 247–261. doi:10.1037/a0032895
- Kraus, M. W., Piff, P. K., & Keltner, D. (2011). Social class as culture: The convergence of resources and rank in the social realm. *Current Directions in Psychological Science*, 20(4), 246–250. doi:10.1177/0963721411414654
- Kraus, M. W., Tan, J. J. X., & Tannenbaum, M. B. (2013). The social ladder: A rank-based perspective on social class. *Psychological Inquiry*, 24(2), 81–96. doi:10.1080/1047840X.2013.778803
- Krawczyk, M. (2010). A glimpse through the veil of ignorance: Equality of opportunity and support for redistribution. *Journal of Public Economics*, 94(1–2), 131–141. doi:10.1016/j.jpubeco.2009.10.003
- Kunovich, S., & Slomczynski, K. M. (2007). Systems of distribution and a sense of equity: A multilevel analysis of meritocratic attitudes in post-industrial societies. *European Sociological Review*, 23(5), 649–663. doi:10.1093/esr/jcm026
- Kuziemko, I., Norton, M. I., Saez, E., & Stantcheva, S. (2015). How elastic are preferences for redistribution? Evidence from randomized survey experiments. *American Economic Review*, 105(4), 1478–1508. doi:10.1257/aer.20130360
- Ladd, E. C., & Bowman, K. H. (1998). Attitudes toward economic inequality. Washington, D.C.: AEI Press.
- Lancee, B., & van de Werfhorst, H. (2011). Income inequality and participation: A comparison of 24 European countries (No. 6). Amsterdam.
- Layte, R., & Whelan, C. T. (2014). Who feels inferior? A test of the status anxiety hypothesis of social inequalities in health. *European Sociological Review*, 30(4), 525–535. doi:10.1093/esr/jcu057
- Lembregets, C., & Pandelaere, M. (2014). A 20% income increase for everyone?: The effect of relative increases in income on percieved income inequality. *Journal of Economic Psychology*, 43, 37–47. doi:10.1016/j.joep.2014.04.008
- Lynch, J. W., Smith, G. D., Kaplan, G. A., & House, J. S. (2000). Income inequality and mortality: Importance to health of individual income, psychosocial environment, or material conditions. *British Medical Journal*, 320, 1200–1204. doi:10.1136/bmj.320.7243.1200
- Loughnan, S., Kuppens, P., Allik, J., Balazs, K., de Lemus, S., Dumont, K., ... Haslam, N. (2011). Economic inequality is linked to biased self-perception. *Psychological Science*, 22(10), 1254–1258. doi:10.1177/0956797611417003
- Marmot, M. (2004). Status syndrome: How your social standing directly effects your health and life expectancy. London: Routledge.
- Messias, E., Eaton, W. W., & Grooms, A. N. (2011). Income inequality and depression prevalence across the United States: An ecological study. *Psychiatric Services*, 62(7), 710–712. doi:10.1176/appi.ps.62.7.710
- Mishra, S., Hing, L. S. S., & Lalumière, M. L. (2015). Inequality and risk-taking. *Evolutionary Psychology*, 13(3), 1–11. doi:10.1177/1474704915596295
 - Napier, J. L., & Jost, J. T. (2008). Why are conservatives happier than liberals? *Psychological Science*, 19(6), 565–572. doi:10.1111/j.1467-9280.2008.02124.x
 - Neckerman, K. M., & Torche, F. (2007). Inequality: Causes and consequences. *Annual Review of Sociology*, 33(1), 335–357. Q9 doi:10.1146/annurev.soc.33.040406.131755
 - Neville, L. (2012). Do economic equality and generalized trust inhibit academic dishonesty? Evidence from state-level search-engine queries. *Psychological Science*, *23*(4), 339–345. doi:10.1177/0956797611435980
- Newman, B. J., Johnston, C. D., & Lown, P. L. (2015). False consciousness or class awareness? Local income inequality, personal economic position, and belief in American meritocracy. *American Journal of Political Science*, *59*(2), 326–340. doi:10.1111/ajps.12153
- Nishi, A., Shirado, H., Rand, D. G., & Christakis, N. A. (2015). Inequality and visibility of wealth in experimental social networks. *Nature*, 526(7573), 426–429. doi:10.1038/nature15392
- Obama, B. H. (2013). "Remarks by the president on economic mobility." Presentation made to the Center for American Progress, December 4th. https://www.whitehouse.gov/the-press-office/2013/12/04/remarks-president-economic-mobility.
- Oishi, S., & Kesebir, S. (2015). Income inequality explains why economic growth does not always translate to an increase in happiness. *Psychological Science*, 26(10), 1630–1638. doi:10.1177/0956797615596713
- Oishi, S., Kesebir, S., & Diener, E. (2011). Income inequality and happiness. *Psychological Science*, 22(9), 1095–1100. doi:10.1177/0956797611417262
 - Paskov, M., Gërxhani, K., & van de Werfhorst, H. G. (2013). Income inequality and status anxiety. (No. 2013). Amsterdam.
- 45 Persson, T., & Tabellini, G. (1994). Is inequality harmful for growth? American Economic Review, 84(3), 600–621.
 - Pickett, K. E. (2005). Wider income gaps, wider waistbands? An ecological study of obesity and income inequality. *Journal of Epidemiology & Community Health*, 59(8), 670–674. doi:10.1136/jech.2004.028795

- Pickett, K. E., & Wilkinson, R. G. (2015). Income inequality and health: A causal review. *Social Science & Medicine*, 128, 316–326. doi:10.1016/j.socscimed.2014.12.031
- Piketty, T., & Saez, E. (2014). Inequality in the long run. Science, 344(6186), 838-843. doi:10.1126/science.1251936
- Rothstein, B., & Uslaner, E. M. (2005). All for all: Equality, corruption, and social trust. World Politics, 58(01), 41–72. doi:10.1353/wp.2006.0022
- Saez, E., & Zucman, G. (2016). Wealth inequality in the United States since 1913: Evidence from capitalized income tax data. *The Quarterly Journal of Economics*, 131(2), 519–578. doi:10.1093/qje/qjw004
- Savani, K., & Rattan, A. (2012). A choice mind-set increases the acceptance and maintenance of wealth inequality. *Psychological Science*, 23(7), 796–804. doi:10.1177/0956797611434540
- Schmitt, M. T., Branscombe, N. R., & Kappen, D. M. (2003). Attitudes toward group-based inequality: Social dominance or social identity? *British Journal of Social Psychology*, 42(2), 161–186. doi:10.1348/01446603322127166
- Schneider, S. M. (2012). Income inequality and its consequences for life satisfaction: What role do social cognitions play? Social Indicators Research, 106(3), 419–438. doi:10.1007/s11205-011-9816-7
- Shariff, A. F., Wiwad, D., & Aknin, L. B. (2016). Income mobility breeds tolerance for income inequality: Cross-national and experimental evidence. *Perspectives on Psychological Science*, 11(3), 373–380. doi:10.1177/1745691616635596
- Sloane, S., Baillargeon, R., & Premack, D. (2012). Do infants have a sense of fairness? *Psychological Science*, 23(2), 196–204. doi:10.1177/0956797611422072
- Solt, F. (2008). Economic inequality and democratic political engagement. *American Journal of Political Science*, *52*(1), 48–60. doi:10.1111/j.1540-5907.2007.00298.x
- Solt, F. (2016). The standardized world income inequality database. *Social Science Quarterly*, 90(2), 232–242. doi:10.1111/ssqu.12295
- Steijn, S., & Lancee, B. (2011). Does income inequality negatively affect general trust? Examining three potential problems with the quality-trust hypothesis. (No. 20). Amsterdam.
- Subramanian, S. V., & Kawachi, I. (2004). Income inequality and health: What have we learned so far? *Epidemiologic Reviews*, 26(1), 78–91. doi:10.1093/epirev/mxh003
- Subramanian, S. V., & Kawachi, I. (2006). Whose health is affected by income inequality? A multilevel interaction analysis of contemporaneous and lagged effects of state income inequality on individual self-rated health in the United States. *Health and Place*, 12(2), 141–156. doi:10.1016/j.healthplace.2004.11.001
- Task Force on Inequality and American Democracy (2004). American democracy in an age of rising inequality. *Perspectives on Politics*, 2(4), 651–666. doi:10.1017/S1049096506060069
- Uslaner, E. M., & Brown, M. (2005). Inequality, trust, and civic engagement. *American Politics Research*, 33(6), 868-894. doi:10.1177/1532673X04271903
- Wakslak, C. J., Jost, J. T., Tyler, T. R., & Chen, E. S. (2007). Moral outrage mediates the dampening effect of system justification on support for redistributive social policies. *Psychological Science*, 18(3), 267–274. doi:10.1111/j.1467-9280.2007.01887.x
- Walasek, L., & Brown, G. D. A. (2015). Income inequality and status seeking: Searching for positional goods in unequal U.S. states. *Psychological Science*, *26*(4), 527–533. doi:10.1177/0956797614567511
 - White, A. E., Kenrick, D. T., Neel, R., & Neuberg, S. L. (2013). From the bedroom to the budget deficit: Mate competition changes men's attitudes toward economic redistribution. *Journal of Personality and Social Psychology*, 105(6), 924–940. doi:10.1037/a0033808
- 38 Wilkinson, R. G. (1992). Income distribution and life expectancy. BMJ, 304(6820), 165-168. doi:10.1136/bmj.304.6820.165
- Wilkinson, R. G., & Pickett, K. E. (2006). Income inequality and population health: A review and explanation of the evidence. Social Science & Medicine, 62(7), 1768–1784. doi:10.1016/j.socscimed.2005.08.036
- Wilkinson, R. G., & Pickett, K. E. (2009a). The Spirit level: why more equal societies almost always do better. London: Penguin.
 - Wilkinson, R. G., & Pickett, K. E. (2009b). Income inequality and social dysfunction. *Annual Review of Sociology*, 35(1), 493–511. doi:10.1146/annurev-soc-070308-115926
 - Zheng, H. (2012). Do people die from income inequality of a decade ago? *Social Science & Medicine*, 75(1), 36–45. doi:10.1016/j.socscimed.2012.02.042

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