

## Supplementary-Material for

Day, M. V., & Fiske, S. T. (2017). Movin' on up? How perceptions of social mobility affect our willingness to defend the system. *Social Psychological and Personality Science*, 8, 267-274.

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## Materials

### Study 1

Some of the materials used in Study 1 can be found in the cited prior research, including measures of system defense, group-based dominance, opposition to inequality, and belief in a just world. The social mobility manipulation, measures of meritocratic values, perceived societal social mobility, and demographic information, are included below.

### Study 1: Social-Mobility Manipulation (Original)

All social mobility frames included the instructions below.

#### **Instructions:**

Please read the following summary of a recent report relating to American society.”

[Moderate Social-Mobility Frame]

#### **Moving on up!**

A recent study released by a Federal Reserve Bank examined people’s chances to succeed in American society. Someone who works hard and has great ability, but is born in the lowest ranks should have an equal chance of making it to the top as someone in the highest ranks. Few people may be surprised that this is not the case - we know that humans and the system aren’t perfect. But what does this new data reveal?

The main way to measure people’s ability to move up and down the societal ladder is to examine how similar one generation is to the next. If the income of a parent is different than their son’s or daughter’s income, this likely means that there are opportunities in society to move up.

**Fortunately, this study found that the chances that a person who starts in the bottom 20% will move up are actually reasonably good.** Although only 5% make it to the very top, many are able to make changes, and 66% – the vast majority – improve their incomes compared to their parents. **In other words, many of the hard working people at the bottom move up and end up in a social class higher than their parents.**

But mobility does not only occur at the bottom. For instance, those in the top 20% don’t necessarily stay there. Although only 6% of children who start at the top will slip to the very bottom, 40% of those at the top are making significantly less than their parents, moving to one of the lower income brackets. Overall, children who start at the bottom are able to move up. Similarly, those who start at the top may not stay there. These up and down changes are indicators of a healthy level of social mobility.

It may be difficult to perfectly match people’s desires for this country to be a place of opportunity, but the reality is that there are many opportunities for people to change their social class. The evidence suggests that Americans currently live in an era of reasonably good social mobility.

[Low Social-Mobility Frame]

### **Moving on up?**

A recent study released by a Federal Reserve Bank examined people's chances to succeed in American society. Someone who works hard and has great ability, but is born in the lowest ranks should have an equal chance of making it to the top as someone in the highest ranks. Few people may be surprised that this is not the case - we know that humans and the system aren't perfect. But what does this new data reveal?

The main way to measure people's ability to move up and down the societal ladder is to examine how similar one generation is to the next. If the income of a parent is very similar to their son's or daughter's income, this likely means that there are societal barriers to moving up.

**Unfortunately, this study found that the chances that a person who starts in the bottom 20% will make it to the top 20% are slim – a mere 5%. In other words, many of the hard working people at the bottom can't move up.** People are ending up in the same social class as their parents. Around 44% don't move up at all. Although some people are able to make modest changes compared to their parents, 66% of them – the vast majority – do not even reach the middle range of incomes.

But the lack of mobility is not just a problem at the bottom. For instance, those in the top 20% also seem to stay there. Of children who start at the top, only 6% will slip to the bottom. Instead, 72% of them will stay in either the top or second highest income bracket, earning money much like their parents. Overall, children who start at the bottom are more likely to stay there. Similarly, those who start at the top are more likely to remain at the top. This lack of up and down changes indicates an unhealthy level of social mobility.

Despite people's desires for this country to be a place of opportunity, in reality it has become harder and harder for people to change their social class. The evidence suggests that Americans currently live in an era of low social mobility.

### **Study 1: Measures**

[Meritocratic Beliefs]

**Instructions:** Please indicate how much you agree or disagree with the following statements." (1 = *strongly disagree*, 7 = *strongly agree*)

1. Anyone who is willing and able to work hard has a good chance of succeeding.
2. Getting ahead is a matter of working hard and relying on yourself.
3. The person who can approach an unpleasant task with enthusiasm is the person who gets ahead.
4. Most people who don't succeed at life don't put in enough work or effort.
5. People who fail at getting ahead have usually not tried hard enough.
6. The poor are poor because they don't try hard enough to get ahead.
7. The system does very well at rewarding individual ability and motivation.
8. A person can take almost all responsibility for their standing in society.
9. A person's success is almost never due to having advantages in the system.

10. In our society, a person is deserving of almost every success.

[Perceived Societal Social Mobility]

The first six-items were based on prior research and were assessed using a 7-point agreement scale (Tablante, 2015). We added the last two social mobility questions that were rated using the following 7-point scale (1 = *very hard*, 7 = *very easy*).

**“Instructions:** Please indicate how much you agree or disagree with the following statements about society.”

1. It is not too difficult for people to change their position in society.
2. There are a lot of opportunities for people to move up the social ladder.
3. It is common for people who are motivated enough to go "from rags to riches."
4. Most people end up staying in the same social class for their entire lives. (rev)
5. If you are born rich, it is very unlikely you will ever be poor. (rev)
6. If you are born poor, it is very unlikely you will ever be rich. (rev)
7. These days, how easy is it to change one's social class?
8. In your opinion, how easy is it to move up in life?

Table 1: Demographic Questions Asked in All Studies

Variable	Question	Response options
Gender	What is your gender?	(Female/Male)
Age	How old are you?	(open-ended)
Ethnicity	What is your ethnicity?	(Native American/Black/Asian/East Indian/Hispanic/Middle Eastern/White/Other - specify)
Citizenship	Are you a US citizen?	(Yes/No)
Birthplace	Were you born in America?	(Yes/No)*
Residence	Do you currently live in America?	(Yes/No)**
Political Orientation	In general, when it comes to politics, do you usually think of yourself as liberal, moderate, conservative, or something else?	(1 = Very liberal, 2 = Liberal, 3 = Slightly liberal, 4 = Moderate/Middle-of-the-road, 5 = Slightly conservative, 6 = Conservative, 7 = Very conservative, 8 = Don't know/not political, 9 = Libertarian, 10 = Other)
Perceived SES	Think of this ladder to the right [image of ladder] as representing where people stand in America. At the top of the ladder are the people who are the best off - those who have the most money, the most education, and the most respected jobs. At the bottom are the people who are the worst off - who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.	If 10 is the top of the ladder and 1 is the bottom, where would you place yourself on this ladder? (1-10)

Education	What is the highest level of education you have completed?	(1 = Less than high school, 2 = Some high school, 3 = High school graduate – high school diploma or equivalent (e.g., GED), 4 = Some college but no degree, 5 = Associate Degree, 6 = Bachelor’s Degree (e.g., BA, AB, BS), 7 = Master’s Degree (e.g., MA, MS, MSW, MBA), 8 = Doctorate or Professional Degree (e.g., MD, DDS, JD)
Income	Please choose the range of your annual household income:	(1 = 0-\$5000, 2 = \$5001-\$10,000, 3 = \$10,001-\$20,000, 4 = \$20,001-\$30,000, 5 = \$30,001-\$45,000, 6 = \$45,001-\$60,000, 7 = \$60,001-\$80,000, 8 = \$80,001-\$100,000, 9 = \$100,001-\$125,000, 10 = \$125,001-\$150,000, 11 = \$150,001-\$200,000, 12 = More than \$200,001)

Note: Many of these questions were based on prior research (e.g., Adler, Epel, Castellazzo, & Ickovics, 2000; Graham, Haidt, & Nosek, 2009).

\* Asked in Studies 1 & 2. \*\* Asked in Studies 2 & 3.

## Study 2

The social-mobility manipulation, as well as measures of perceived individual social-mobility and optimism, are listed below.

### Study 2: Social Mobility Manipulation (Shortened)

[Moderate Social-Mobility Frame]

#### Moving on up!



A recent study released by a Federal Reserve Bank examined people’s chances to succeed in American society. Someone who works hard and has great ability, but is born in the lowest ranks should have an equal chance of making it to the top as someone in the highest ranks. Hardly anyone is surprised that this is not the case – after all humans and the system aren’t perfect. But what does this new data reveal?

The main way to measure people’s ability to move up and down the societal ladder is to examine how similar one generation is to the next. If the income of a parent is different than

their son's or daughter's income, this likely means that there are opportunities in society to move up.

**Fortunately, this study found that the chances that a person who starts in the bottom 20% will move up are actually reasonably good.** Although only 5% make it to the very top, many are able to make changes, and 66% – the vast majority – improve their incomes compared to their parents. **In other words, many of the hard working people at the bottom move up and end up in a social class higher than their parents.**

But mobility does not only occur at the bottom. For instance, those in the top 20% don't necessarily stay there. Although only 6% of children who start at the top will slip to the very bottom, 40% of those at the top are making significantly less than their parents, moving to one of the lower income brackets. Overall, children who start at the bottom are able to move up. Similarly, those who start at the top may not stay there. These up and down changes indicate that there is a healthy level of social mobility in America.

[Low Social-Mobility Frame]

### Moving on up???



A recent study released by a Federal Reserve Bank examined people's chances to succeed in American society. Someone who works hard and has great ability, but is born in the lowest ranks *should* have an equal chance of making it to the top as someone in the highest ranks. Hardly anyone is surprised that this is not the case – after all humans and the system aren't perfect. But what does this new data reveal?

The main way to measure people's ability to move up and down the societal ladder is to examine how similar one generation is to the next. If the income of a parent is very similar to their son's or daughter's income, this likely means that there are societal barriers to moving up.

**Unfortunately, this study found that the chances that a person who starts in the bottom 20% will make it to the top 20% are very slim – a mere 5%. In other words, almost all of the hard working people at the bottom can't move up.** Many people are ending up in the same social class as their parents and a large number don't move up at all.

But the lack of mobility is not just a problem at the bottom. For instance, those in the top 20% stay there – only 6% will slip to the bottom. Of children who start at the top, almost all of them will stay in the top two highest income brackets, earning money much like their parents.

Overall, children who start at the bottom are more likely to stay there. Similarly, those who start at the top are more likely to remain at the top. The lack of up and down changes indicates that there is not much social mobility in America.

## Study 2: Measures

In addition to many of the same measures in Study 1, Study 2 included the following:

[Perceived Individual Social Mobility]

**“Instructions:** Please indicate how much you agree or disagree with the following statements.” (1 = *strongly disagree*, 7 = *strongly agree*)

1. There are many opportunities for me to move up in society.
2. It wouldn't be too hard for me to improve my rank in society.
3. In today's society, I could change my social class.
4. If I wanted to, I could become much richer.
5. I have many options to move up in life.
6. It is unlikely that I could greatly increase my social standing. (rev)
7. I might be stuck in my current social class for life. (rev)
8. I don't have many chances to increase my position in society. (rev)

[Optimism]

The following measure of optimism (Scheier, Carver, & Bridges, 1994) was included among the demographic questions (3-items,  $\alpha = .79$ ).

**“Instructions:** Please indicate how much you agree or disagree with the following statements.” (1 = *strongly disagree*, 7 = *strongly agree*)

1. In uncertain times, I usually expect the best.
2. I'm always optimistic about my future.
3. If something can go wrong for me, it will. (rev)

## Study 3

See the Additional Study Details section for the rationale of Study 3.

### Study 3: Social Mobility Manipulation (Refined)

[Moderate Social-Mobility Frame]

#### **Moving on up!**

A recent study released by a Federal Reserve Bank examined people's chances to succeed in American society. According to American values, someone born in the lowest ranks should have an equal chance of making it to the top as someone in the highest ranks. Few people may be surprised that this is not now the case - humans and the system aren't perfect. But what does this new data reveal?

First, the yardstick: The main way to measure people's ability to move up and down the societal ladder is to examine how similar one generation is to the next. If a son's or daughter's income

differs from their parents' income, this likely means that there are opportunities in society to move up.

**Fortunately, this study found that the chances that a person who starts in the bottom 20% will move up are actually reasonably good.** Although only 5% make it to the very top, many are able to make changes, and 66% – the vast majority – improve their incomes compared to their parents. **In other words, many of the people at the bottom move up and end up in a social class higher than their parents.**

But mobility doesn't only occur at the bottom. For instance, those in the top 20% don't necessarily stay there. Although only 6% of children who start at the top will slip to the very bottom, many of those at the top are making less than their parents, moving to one of the lower income brackets. Overall, children who start at the bottom are able to move up. But, similarly, those who start at the top may not stay there. These up-and-down changes are indicators of a healthy level of social mobility.

Perfectly matching people's ideals for this country to be a place of opportunity may be difficult, but reality offers many opportunities for people to change their social class. The evidence suggests that Americans currently live in an era of reasonably good social mobility.

[Low Social-Mobility Frame]

### **Moving on up?**

A recent study released by a Federal Reserve Bank examined people's chances to succeed in American society. According to American values, someone born in the lowest ranks should have an equal chance of making it to the top as someone in the highest ranks. Few people may be surprised that this is not now the case - humans and the system aren't perfect. But what does this new data reveal?

First, the yardstick: The main way to measure people's ability to move up and down the societal ladder is to examine how similar one generation is to the next. If a son's or daughter's income differs from their parents' income, this likely means that there are opportunities in society to move up.

**Unfortunately, this study found that the chances that a person who starts in the bottom 20% will make it to the top 20% are slim – a mere 5%. In other words, many of the people at the bottom can't move up.** People are ending up in the same social class as their parents. Although some people are able to make modest changes compared to their parents, 66% of them – the vast majority – do not even reach the middle range of incomes.

But the lack of mobility is not just a problem at the bottom. For instance, those in the top 20% also seem to stay there. Of children who start at the top, only 6% will slip to the bottom. Instead, most of them will stay in either the top or second highest income bracket, much like their parents. Overall, children who start at the bottom are more likely to stay there. Similarly, those who start at the top are more likely to remain at the top. This lack of up and down changes indicates an unhealthy level of social mobility.



Despite people’s desires for this country to be a place of opportunity, in reality it has become harder and harder for people to change their social class. The evidence suggests that Americans currently live in an era of low social mobility.

## Additional Study Details and Study-Specific Analyses

### Study 1

#### Study 1: Additional Study Information

Participants were recruited for pay from Mechanical Turk during daytime hours. We excluded participants that appeared to have “clicked-through” (i.e., that spent less than 5 seconds) instead of reading the materials. The significance and overall pattern of results do not change if these participants were included in the analyses.

#### Study 1: Supplementary Analyses

##### Factor analyses

We used factor analyses to examine the distinctness of the four system-justifying measures used in Study 1. These analyses revealed that the social dominance subscales were distinct factors, similar to prior research (Jost & Thompson, 2000; Kugler, Cooper, & Nosek, 2010). The meritocratic and belief in a just world measures were also mostly distinct. Full analyses are available from the first author. Two additional items were not included in the final 10-item meritocratic scale because they initially loaded on a separate third factor. Additional analyses indicated that if these items were kept in the measure, the significance levels reported in Study 1 would be unchanged. Participants in Study 2 only assessed the final 10 meritocratic items. The meritocratic items below were removed following factor analysis.

1. Hard work offers little guarantee of success. (rev)
2. An education, hard work, and talent are all anyone needs to be successful.

##### Political orientation and control analyses

For all analyses involving political orientation, we only included participants who identified along the 7-point liberal-conservative measure (> 92% of the samples). Results of control analyses conducted on the main dependent measures, as well as correlations among all variables, can be found in Tables 1 and 2 below. All additional analyses mentioned in the main paper are available from the first author.

Table 2: Betas for control variables entered into separate regressions for the significant dependent variables in Study 1. Variables were mean-centered; Gender was coded as 0 = Female, 1 = Male. For all tests, the effect of low vs. moderate social-mobility (dummy coded as 0, 1) on system defense remained significant.

		<i>Regression Analyses</i>		
Control Variable	Dependent Measure	<i>Beta</i>	<i>t</i>	<i>p-value</i>
Age	Meritocratic Beliefs	-.08	-1.20	.233
	Belief in a Just World	-.08	-1.12	.262
	System Defense	.05	.71	.477

Gender	Meritocratic Beliefs	.12	1.75	.081
	Belief in a Just World	.16	2.19	.030
	System Defense	-.02	-.23	.812
Education	Meritocratic Beliefs	-.20	-2.84	.005
	Belief in a Just World	-.08	-1.12	.232
	System Defense	-.06	-.86	.389
Income	Meritocratic Beliefs	.14	1.98	.049
	Belief in a Just World	.18	2.60	.010
	System Defense	.18	2.58	.011
Perceived SES	Meritocratic Beliefs	.26	3.85	< .001
	Belief in a Just World	.29	4.25	< .001
	System Defense	.32	4.79	< .001
Political Orientation	Meritocratic Beliefs	.42	6.20	< .001
	Belief in a Just World	.35	5.00	< .001
	System Defense	.39	5.77	< .001

### Possible interactions

As suggested by a reviewer, we conducted exploratory tests of whether gender, race, income and perceived SES interacted with the manipulation of social mobility for measures of group dominance, group opposition to equality, and system defense (e.g., it may have mattered that participants were part of an advantaged or disadvantaged group). Specifically, we conducted 12 separate regressions, which on the first step included a dummy-coded term for our manipulation of social mobility, and the appropriately dummy-coded or mean-centered proposed variable (e.g., gender, income). The interaction term of these variables was entered on the second step. The results are in the Table below. For brevity, we focus on the interaction terms. It does not appear that gender, race, income, or perceived SES significantly interacted with our manipulation of social mobility for these measures.

Table 3: Regression interaction terms of possible moderators (Study 1)

		<i>Interaction term (with Social Mobility)</i>		
Moderator	Measure	<i>Beta</i>	<i>t</i>	<i>p-value</i>
Gender (0 = Female, 1 = Male)				
	Group Dominance	-.11	-.92	.360
	Group Opposition to Equality	-.03	-.21	.835
	System Defense	-.05	-.47	.642
Race (0 = Minority, 1 = Majority)				
	Group Dominance	-.24	1.31	.192
	Group Opposition to Equality	.17	.93	.355
	System Defense	-.07	-.37	.708
Income (mean-centered)				
	Group Dominance	-.03	.32	.750
	Group Opposition to Equality	.07	.70	.483

System Defense	.03	.31	.760
Perceived SES (mean-centered)			
Group Dominance	.16	1.62	.107
Group Opposition to Equality	-.07	-.76	.451
System Defense	.00	.03	.975

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Table 4: Correlations among measured variables in Study 1. Low vs. moderate social-mobility frames were dummy coded as 0, 1, respectively; Gender was coded as 0 = Female, 1 = Male.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Social mobility	(-)	.29**	.24**	.18*	.00	-.05	.42**	.00	-.11	.01	-.14*	-.12	-.07
2. System defense		(-)	.72**	.76**	.19**	.29**	.70**	.05	-.05	-.06	.13	.28**	.37**
3. Meritocratic beliefs			(-)	.84**	.39**	.38**	.73**	-.08	.10	-.19**	.10	.23**	.40**
4. Belief in a just world				(-)	.28**	.27**	.66**	-.08	.13	-.08	.15*	.27**	.34**
5. Group-based dominance					(-)	.58**	.21**	-.26**	.12	-.18*	.04	.12	.26**
6. Group-based opposition to equality						(-)	.25**	-.03	.02	-.03	.21**	.30**	.52**
7. Perceived societal social mobility							(-)	-.06	-.03	-.12	.01	.20**	.33**
8. Age								(-)	-.15*	.19**	.06	-.01	.08
9. Gender									(-)	-.11	.06	.05	-.02
10. Education										(-)	.20**	.32**	-.14
11. Income											(-)	.54**	.18*
12. Perceived SES												(-)	.13
13. Political Orientation													(-)

Note. \*\*  $p < .01$ , \*  $p < .05$ .

## Study 2

### Study 2: Additional Study Information

Participants were recruited for pay from Mechanical Turk during daytime hours. As in Study 1, the significance and overall pattern of the results do not change if the excluded participants were included in the analyses.

### Study 2: Supplementary Analyses

#### Optimism and control analyses

A measure of optimism was included to help address the possible concern that the manipulation of social mobility affected people's future outlooks. Although the measure of perceived individual social mobility may more directly addresses this concern, we also examined whether participants' level of optimism was affected by the social mobility frames. A one-way ANOVA indicated that optimism did not significantly vary by condition  $F(2, 489) = 1.37, p = .256$ . That is, exposure to social mobility information did not significantly affect participants' general beliefs concerning their future. Moreover, the main results remained significant even when controlling for optimism. Further control analyses and correlations can be found below. All additional analyses referred to in the main paper are available from the first author.

Table 5: Betas for control variables entered into separate regressions for the significant dependent measures in Study 2. Variables were mean-centered; Gender was coded as 0 = Female, 1 = Male. For all tests, the effect of low vs. moderate social mobility (coded as 0, 1) on system defense remained significant.

Control Variable	Dependent Measure	Regression Analyses		
		Beta	t	p-value
Age	Meritocratic Beliefs	.06	1.21	.228
	Belief in a Just World	.07	1.28	.203
	Individual Social Mobility	-.03	-.63	.530
	System Defense	.17	3.18	.002
Gender	Meritocratic Beliefs	.12	2.26	.024
	Belief in a Just World	.17	3.18	.002
	Individual Social Mobility	.04	.77	.441
	System Defense	.12	2.21	.028
Education	Meritocratic Beliefs	-.02	-.28	.779
	Belief in a Just World	.02	.31	.755
	Individual Social Mobility	.07	1.22	.224
	System Defense	.11	2.05	.041
Income	Meritocratic Beliefs	.16	3.02	.003
	Belief in a Just World	.17	3.23	.001
	Individual Social Mobility	.21	4.03	< .001
	System Defense	.18	3.28	.001

Perceived SES				
	Meritocratic Beliefs	.36	7.32	< .001
	Belief in a Just World	.37	7.22	< .001
	Individual Social Mobility	.38	7.65	< .001
	System Defense	.35	6.75	< .001
Political Orientation				
	Meritocratic Beliefs	.44	9.03	< .001
	Belief in a Just World	.36	6.80	< .001
	Individual Social Mobility	.22	3.97	< .001
	System Defense	.40	7.78	< .001

### Political Orientation

For Study 2 we ran separate exploratory tests for participants who identified as liberals, moderates, and conservatives. Specifically, for each group, we examined the effects of the low vs. moderate social-mobility frames on the societal social-mobility manipulation check, and the measure of system defense. As seen in Table 6 below, the manipulation was effective for each of these groups. A similar pattern emerged for each group on system defense.

Table 6: Separate tests of perceived social mobility and system defense for political liberals, moderates, and conservatives (Study 2).

	Social Mobility				<i>F</i>	<i>p-value</i>
	Low		Moderate			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Liberals (n = 164)						
Perceived Societal Social Mobility	2.54	1.04	3.30	0.99	23.11	< .001
System Defense	3.03	1.14	3.42	1.15	4.78	.030
Moderates (n = 60)						
Perceived Societal Social Mobility	2.91	0.95	3.88	1.14	12.29	.001
System Defense	3.49	1.17	4.11	1.25	3.89	.053
Conservatives (n = 73)						
Perceived Societal Social Mobility	3.57	0.95	4.21	0.84	9.15	.003
System Defense	4.13	1.04	4.77	1.05	6.98	.010

Table 7: Correlations among variables by social mobility condition in Study 2. Top right-half compares low social-mobility vs. control conditions (coded as 0, 1, respectively); bottom left-half compares control vs. moderate social-mobility conditions (coded as 0, 1, respectively). Gender was coded as 0 = Female, 1 = Male.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Social mobility	(-)	.10	.22**	.14*	.15**	.20**	-.05	.08	.10	.12*	.12*	.08	.08
2. System defense	.10	(-)	.72**	.75**	.55**	.71**	.11*	.15**	.12*	.24**	.42**	.38**	.37**
3. Meritocratic beliefs	.08	.72**	(-)	.85**	.65**	.78**	-.03	.16**	.03	.22**	.35**	.42**	.40**
4. Belief in a just world	.06	.76**	.84**	(-)	.58**	.72**	-.01	.24**	.06	.20**	.37**	.35**	.44**
5. Perceived individual social mobility	.08	.51**	.67**	.59**	(-)	.71**	-.13*	.11*	.09	.28**	.39**	.18**	.48**
6. Perceived societal social mobility	.15**	.67**	.75**	.69**	.68**	(-)	-.08	.12*	.04	.18**	.32**	.35**	.37**
7. Age	.03	.14**	.03	.08	-.11	-.04	(-)	-.10	.03	.14**	.10	.12*	.06
8. Gender	-.06	.14**	.14*	.21**	.16**	.10	-.10	(-)	.02	.03	.09	.07	.05
9. Education	-.07	.09	.02	.02	.05	.00	.11*	.09	(-)	.38**	.36**	-.06	.12*
10. Income	-.07	.24**	.23**	.23**	.17**	.17**	.23**	.04	.32**	(-)	.52**	.15**	.20**
11. Perceived SES	-.11	.34**	.36**	.31**	.34**	.29**	.13*	.09	.34**	.58**	(-)	.15**	.33**
12. Political Orientation	-.05	.42**	.47**	.41**	.23**	.36**	.16**	.08	-.02	.15**	.20**	(-)	.18**
13. Optimism	.00	.35**	.39**	.38**	.47**	.37**	.08	.13*	.15**	.18**	.30**	.17**	(-)

Note. \*\*  $p < .01$ , \*  $p < .05$ .

## Study 3

### Rationale

Following peer-review of Studies 1 and 2, concerns were raised about some of the specific content of the social mobility manipulations. One concern was that the social-mobility manipulations may have affected system defense, in part, because low and moderate social-mobility information was provided for individuals described as “hardworking.” Another concern was that some of the statistical information in the low social-mobility frame focused on different comparisons than in the moderate social-mobility frame. We conducted Study 3 to help address these issues.

### Study Details

We tested the effect of social mobility on system defense with a revised manipulation. Although we do not believe these changes are critical to the central message being framed, we believe they move toward a theoretically cleaner manipulation. The manipulation in Study 3 was similar to Study 1, but we removed any mention of “hardworking” from the social-mobility frames, and made the statistical information presented more comparable across conditions. There were also minor wording changes to improve the readability of the information. As in Studies 1 and 2, we expected that the low social-mobility frame would significantly lower system defense as compared to the moderate social-mobility frame.

### Methods

#### Participants

In Studies 1 and 2, the smaller effect of social mobility (low vs. moderate) on system defense was attained in Study 2 (i.e.,  $d = .41$ ). Thus, we aimed to recruit 150 participants as this was the approximate number required for 80% power for the smaller effect size. We recruited 150 participants for pay from Mechanical Turk during daytime hours. We excluded nine participants (6.0%) who spent less than 5 seconds reading the study manipulation. As in the earlier studies, including these participants in the analyses does not affect the significance of the study results. The final sample included 141 participants (42.6% women, 77.3% White,  $M_{\text{age}} = 34.0$ ).

#### Materials and Procedure

The procedure was very similar to Studies 1 and 2. Participants were randomly assigned to read the refined low or moderate social-mobility frame (see the Materials section above). Participants then completed the same measure of system defense ( $\alpha = .92$ ), manipulation check of perceived societal social mobility ( $\alpha = .89$ ), and demographics, as in Studies 1 and 2.

#### Results and Discussion

The manipulation in Study 3 was successful. The low social-mobility frame decreased perceived social mobility ( $M = 2.84$ ,  $SD = 0.98$ ) as compared to the moderate social-mobility frame ( $M = 3.82$ ,  $SD = 1.01$ ),  $F(1, 139) = 33.94$ ,  $p < .001$ ,  $d = .98$ . As predicted, we also found support for our central hypothesis. The low social-mobility frame led to lower defense of the overall system ( $M = 3.19$ ,  $SD = 1.11$ ) relative to the moderate social-mobility frame, ( $M = 4.28$ ,  $SD = 1.23$ ),  $F(1, 139) = 30.19$ ,  $p < .001$ ,  $d = .93$ . Overall, this study replicates the pattern of findings observed in Studies 1 and 2. The effect of the social mobility manipulation on system defense in this study was also larger than expected. Although the larger effect could be due to the refined



manipulation, the interpretation of the effect size of social mobility on system defense should take into consideration all studies conducted.

### Additional Analyses Across Studies

#### Effect of the Social Mobility Manipulation on Individual System Defense Items

A concern raised in the review process was that two of the system defense items may conceptually overlap with social mobility. The identified items were: “Everyone has a fair shot at wealth and happiness,” and “American society is set up so that people usually get what they deserve.” It is possible that participants may have interpreted these items in terms of system defense (e.g., there are generally *fair procedures* to gain access to wealth and happiness in the American system; the arrangement of the *American system* enables deservingness in a multitude of ways, respectively), or in terms of assessing social mobility, or in some other way.

In the Table below we show the effects of the social mobility manipulation on all system defense items (in the order presented to participants). As normally the case, there is variability in which items show the strongest pattern across studies (sometimes the cited items, sometimes others). The identified ambiguous items were listed (and thus most likely completed) after many of the less ambiguous ones. Overall, there appear to be strong social mobility effects on many items, including earlier ones. Moreover, as a further exploratory test, we examined the impact of the social mobility manipulation when we removed the two questioned items from the system defense measure. Even with this truncated 6-item measure, the low vs. moderate social mobility frames significantly affected system defense in Study 1,  $F(1, 193) = 14.99, p < .001$ , Study 2,  $F(1, 322) = 10.81, p = .001$ , and Study 3,  $F(1, 139) = 27.56, p < .001$ . To be clear, we are not making the claim that it is impossible to interpret 1 or 2 items differently than intended, however, we do not see robust evidence that the overall effects reflect such alternative explanations.

Table 8: Tests of low vs. moderate social mobility on system defense items.

System Defense Item	Study 1		Study 2		Study 3	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
1. In general, American society is fair	9.91	.002	15.56	<.001	32.89	<.001
2. In general, the America political system operates as it should.	6.14	.014	4.42	.036	9.27	.003
3. American society needs to be radically restructured. (rev)	10.50	.001	5.02	.026	21.69	<.001
4. America is one of the most just and fair countries in the world.	5.79	.017	4.08	.044	9.52	.002
5. In America, most policies serve the greater good.	8.38	.004	6.96	.009	9.48	.003
6. In America, everyone has a fair shot at wealth and happiness.	14.87	<.001	13.96	<.001	21.96	<.001
7. American society is getting less fair every year. (rev)	9.08	.003	7.34	.007	23.79	<.001
8. American society is set up so that people get what they deserve.	14.74	<.001	12.48	<.001	23.29	<.001

## Additional Analyses for Studies 1 and 2

### Examination of Multicollinearity

As evident in the correlation tables, the key variables moderately to strongly correlate, and thus warrant further examination. We sought to determine whether the degree of multicollinearity is of considerable concern. A common guideline for multicollinearity suggests that there should be some concern when the Variance Inflation Factor (VIF) exceeds 10 (e.g., Stevens, 2002), or more conservatively, when the VIF exceeds 5 (Menard, 1995). We conducted a multiple regression for each study to observe multicollinearity. We examined the VIF coefficients of the consistent predictor variables across studies as they each relate to the system defense variable. As seen in Table 11 below, none of the detected levels warrant caution using either the VIF > 10 or the VIF > 5 guidelines. Although these guidelines are approximate, we also do not observe obvious examples of multicollinearity, such as particularly high standard errors, or betas that change in sign (Cohen, Cohen, West, & Aiken, 2003). As mentioned in the manuscript, we also expect these variables to be correlated most strongly in the American context, and less related in other contexts. For these reasons the observed multicollinearities seem to be within a tolerable range.

Table 9: Multicollinearity coefficients for system defense

	Study 1	Study 2
	VIF	VIF
1. Social Mobility (Low vs. Moderate)	1.06	1.11
2. Meritocratic Beliefs	3.42	4.18
3. Belief in a Just World	3.33	3.98

### Supplementary-Material References

- Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology, 19*, 586-592.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied Multiple Regression / Correlation Analysis for the Behavioral Sciences*. Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology, 96*, 1029-1046.
- Jost, J. T., & Thompson, E. P. (2000). Group-based dominance and opposition to equality as independent predictors of self-esteem, ethnocentrism, and social policy attitudes among African Americans and European Americans. *Journal of Experimental Social Psychology, 36*, 209-232.
- Kugler, M. B., Cooper, J., & Nosek, B. A. (2010). Group-based dominance and opposition to equality correspond to different psychological motives. *Social Justice Research, 23*, 117-155.
- Menard, S. (1995). *Applied Logistic Regression Analysis: Sage University Series on Quantitative Applications in the Social Sciences*. Thousand Oaks, CA: Sage.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the life orientation test. *Journal of Personality and Social Psychology, 67*, 1063-1078.
- Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4<sup>th</sup> ed.). Mahwah, NJ: Routledge.
- Tablante, C. B. (2015). *All work and no pay? Effects of reward structures on perceptions of social mobility in the United States*. Doctoral dissertation, Princeton University, Princeton, NJ.