On wealth and the diversity of friendships: High social class people around the world have fewer international friends

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ABSTRACT

Having international social ties carries many potential advantages, including access to novel ideas and greater commercial opportunities. Yet little is known about *who* forms more international friendships. Here, we propose social class plays a key role in determining people's internationalism. We conducted two studies to test whether social class is related positively to internationalism (the *building social class hypothesis*) or negatively to internationalism (the *restricting social class hypothesis*). In Study 1, we found that among individuals in the United States, social class was negatively related to percentage of friends on Facebook that are outside the United States. In Study 2, we extended these findings to the global level by analyzing country-level data on Facebook friends formed in 2011 (nearly 50 billion friendships) across 187 countries. We found that people from higher social class countries (as indexed by GDP per capita) had lower levels of internationalism—that is, they made more friendships domestically than abroad.

Forming friendships and alliances is one of the most important social actions people take in their lives. Friendships provide social support, opportunities for innovation and collaboration, social delights, and a sense of community and cooperation (Dakhli & De Clercq, 2004; Weisz & Wood, 2005). Given these functions of friendships, scientific studies have documented that friendships are important predictors of well-being and health (Berkman, 2001). While much of the past work on friendships has focused on close ties, *cross-national friendships* are far less well understood. Yet greater international ties can lead to many benefits, including greater peace between nations and cultural exchanges that can foster innovation through the introduction of novel ideas from foreign cultures (Maddux & Galinsky, 2009). Indeed, cross-national friendships stand to enrich our knowledge of intergroup relations (Davies, Tropp, Aron, Pettigrew, & Wright, 2011; Yzerbyt & Demoulin, 2010) and interpersonal stratification (Fiske, 2010).

There are well known barriers to forming friendships with people from different groups than one's own, including distrust, intergroup anxiety, and even prejudice (Pettigrew & Tropp, 2008). Yet we know little about what factors are positively related to cross-national friendships. In the present investigation, we ask how social class—both

subjective accounts of one's place in society relative to others and objective accounts of a person's income level (Kraus, Piff, Mendoza-Denton, Rheinschmidt, & Keltner, 2012)—at the individual and national level, predicts the tendency to form friendships with people from different nations than one's own. The literature on power, status, and social class yields two competing predictions, which we test in this investigation: the *building* and *restricting social class hypotheses*.

1. Competing perspectives on social class and internationalism

On the one hand, studies suggest that people from high social class groups are action-oriented in connecting with others (Keltner, Gruenfeld, & Anderson, 2003). At the individual level of analysis, high-social class individuals tend to feel more positive emotion, send out more approach-related signals (such as smiles or friendly eye contact), and approach others to the extent that they can be useful to fulfilling their needs and/or goals (Gruenfeld, Inesi, Magee & Galinsky, 2008). Select studies find that, depending on situational demands, people from high-social class groups tend to take responsibility and be more inclined to assist low-social class members (Brewer, 1988; Keltner, Gruenfeld, Galinsky, & Kraus, 2010; Overbeck & Park, 2001). In light of these processes, one might expect upper class individuals to form more friendships across national boundaries (Maddux & Galinsky, 2009). Objective conditions of the lives of upper class individuals—where they work, travel to,

and are educated—would make it reasonable to predict that they will have more international friends. These findings and reasoning converge on the *building social class hypothesis*: upper class individuals and people from high-social class countries build up their international social capital through the formation of more international friendships relative to their lower class counterparts.

A competing hypothesis is found in recent analyses of status, wealth, and social class (Kraus et al., 2012; Vohs, Mead, & Goode, 2006). This line of reasoning holds that high social class individuals are endowed with greater resources, and therefore less dependent upon others. As a result, the wealthy tend to be less socially engaged with others, in particular those from different groups than their own. In keeping with this restriction of social capital perspective, studies have found that higher class individuals show higher patterns of nonverbal social disengagement (e.g. doodling) compared to individuals from lower class backgrounds (Kraus & Keltner, 2009), they prove to be less responsive to others' suffering, and they tend to share less with others (Piff, Kraus, Côté, Cheng, & Keltner, 2010; Piff, Stancato, Côté, Mendoza-Denton, & Keltner, 2012; Stellar, Manzo, Kraus, & Keltner, 2012). By contrast, lower class individuals have perhaps more to gain from diversifying their social connections and prove to be more oriented towards reaching out and connecting with others (Piff et al., 2010). These findings and theoretical analysis lend themselves to a competing hypothesis that we tested in this investigation, the *restricting social class hypothesis*: upper class individuals will form fewer international friendships than low-social class people.

2. Testing the building and restricting social class hypotheses

In the present research, we tested these two competing hypotheses about who is likely to form friendships with people from different countries than one's own. We did so in two complementary studies, one at the individual level of analysis, and a second at the national level of analysis. In Study 1, we tested the relationship between personal social class (income and social class) among individuals in the United States and the percentage of their total Facebook friends (a proxy of social relationships) that came from outside the United States. In Study 2, we examined the relationship between every friendship made on Facebook in 2011 and GDP per capita (as a proxy of social class).

Several aspects of the Facebook platform allow us to overcome certain classic challenges in social sciences. First, Facebook's user base is massive, spanning over 1.3 billion users; thus, in our second study, our findings provide insights based on data from every corner of the earth and most walks of life. With growing concerns about the robustness of findings based on Western, educated, student samples—indeed, even cognitive psychology findings vary massively across cultures—such a huge, culturally, ethnically, and class mixed sample provides a vital step forward to generalizing effects (Henrich, Heine, & Norenzayan, 2010). Second, Facebook friendship structure mirrors real-world friendships (Wilson, Gosling, & Graham, 2012). In fact, unlike other social networking sites, real-world friendships tend to be a precursor to becoming Facebook friends (Ross et al., 2009). These findings highlight the validity of using Facebook friendships as a proxy for a person's social contacts. However, even given these findings, we suggest that Facebook friendships should ultimately be treated as a *proxy* for real relationships as there are almost certainly social ties on Facebook that are with individuals that users have only met once or not at all. Facebook friendships provide a convenient way to approximate a person's social sphere, but there is some error in this metric. Similarly, income, social class, and GDP per capita are powerful proxies for individual and national social class given the central role that money plays in people's determinations of social class (Kraus, Piff, & Keltner, 2011). Third, using Facebook friendships allow us to quantify the percentage of a person's friends that are international without relying on self-report—thus, many classic biases are not threats to the interpretation of the findings. Indeed, it would be exceedingly difficult to quantify the number of international

social ties a person has since—by virtue of them being international—the individual is unlikely to see them often and thus more likely to forget them when asked to make a list of friends.

Our research makes two principal contributions to the intergroup and social class literatures. By demonstrating how social class underpins the creation of cross-national friendships, we shed light on how people reach across social divides and form connections to disparate others, a phenomenon we know to be important for cultural change, increased chances of innovation, and less hostile intergroup attitudes (Maddux & Galinsky, 2009; Pettigrew & Tropp, 2008). In addition to underscoring how social class is a major driver of these cross-national friendships, we also provide support for the idea that, despite status being beneficial in many aspects of everyday life, it affects the composition of social networks in a way that reduces international diversity. Thus, our research strengthens and enhances a budding line of evidence (Kraus et al., 2012; Piff et al., 2012) that social class carries certain risks as well as advantages.

3. Study 1

3.1. Method

3.1.1. Participants and procedure

We recruited 1069 individuals from Amazon's Mechanical Turk who lived in the United States to participate in the study in exchange for $1.00. At the beginning of the study, participants completed a consent form which detailed all parts of the study. No deception was used. Of these individuals, 857 participants consented to authorizing our Facebook app to gather some information from their profiles automatically. This information included their total number of friends and their friends' current location—we note that friend location data was not available for all friends, but it was available for the majority of friends. Facebook researchers were not directly involved in Study 1—the data collection was done independently through the Cambridge team's own app. We focused only on the participants who had at least one Facebook friend (sample $N = 815$). These participants had on average 353 friends, and all together had 287,739 friends.

For each participant, we examined their friends' current location, calculating the percentage of friends who lived outside the United States, which served as our metric of internationalism. In examining the internationalism histogram, we found extreme positive skew: the vast majority of participants had a small percentage of international friends (on average, 4%), with a small minority having high levels of international friendships. Since such outliers can extremely skew the results of a regression model, we followed the recommendations of Tabachnick and Fidell (2006), z-scoring all internationalism values, excluding any values more than 3 SDs away from the mean, z-scoring the remaining values, excluding any values of the new z-scores that are 3 SDs away from the mean, and so forth until the z-scores revealed no scores more than 3 SDs out. This procedure left 671 individuals for analyses (mean age = 28.6, sd = 9.2; 54% female), with internationalism scores ranging from 0 to 14% (mean = 4%, SD = 3%). Since these scores were still skewed positively, we natural log transformed the data, which created an approximately normal distribution of results.

Importantly, we note that we ran all models without excluding the outliers, instead simply natural log transforming the data to account for skew—and all results in that procedure were consistent with the reported findings below. We also ran all models using a Poisson regression without removing any outliers, as a further alternative to taking the natural log, and again found the same pattern of results highly significant. We therefore present the results yielded by the first approach since it offers the best interpretability and protection from bias due to outliers, but note the conclusions of our paper are not dependent on the chosen method of analysis and/or outlier removal.

3.1.2. Self-report measures

Participants responded to two items aimed to measure their social class: (a) income, "What is your total annual household income?" (1 = Under $10,000, 11 = Above $100,000) and (b) social class, "Where would you place yourself on the following spectrum for social class?" (1 = Working class, 5 = Upper class). Participants also indicated how long they have been members of Facebook (months, years) and how frequently they use it (1 = Never; 5 = Several times a day). While there was some skew towards lower values for both these metrics, the skew was below 1 for both. Furthermore, when conducting all analyses using the logged versions of the variables, we found the same pattern of results. Thus, we have used the non-logged versions of the variables for ease of interpretation.

4. Results

We included several key control variables in all models that could potentially suppress or confound the association between social class and internationalism. First, we controlled for age, because we found that older individuals tend to have higher social class and use Facebook less in our data. Second, gender is related to both social engagement (women slightly more likely to have more friends) and social class (trending towards lower income), so we controlled for this variable as well. Third, Facebook users with more friends had more international friends in our data—likely because they have larger social networks. Thus, in all our models, we controlled for participant age, gender, natural log number of total Facebook friends, length of using Facebook, and self-reported frequency of using Facebook. We note that all effects held even without controlling for age or gender. However, when removing all Facebook control variables, we did not find significant effects. This is to be expected, however, as Facebook can only function as an effective proxy of social relationship for people who actually use Facebook; therefore, usage rates need to be accounted for.

We set up three regression models to test the building and restricting social class hypotheses—which yielded contrasting predictions concerning whether social class is positively or negatively predictive of internationalism. In each model, we tested a different social class indicator to establish robustness of our effects—specifically, in Model 1, we used income as the predictor; in Model 2, we used self-reported social class as the predictor; and finally, in Model 3, we used a composite of income and social class as the predictor. We did this because the two indicators of social class often only moderately correlate with one another, and can be thought of as objective and subjective forms of social class (Kraus et al., 2012). We found that higher income, $b = -.05$, $CI_{95}(-.08, -.02)$, $r_{partial} = -.13$, $t(477) = -2.96$, $p < .01$, self-reported social class, $b = -.18$, $CI_{95}(-.29, -.07)$, $r_{partial} = -.15$, $t(476) = -3.33$, $p < .01$, and the composite of the two, $b = -.09$, $CI_{95}(-.15, -.04)$, $r_{partial} = -.15$, $t(479) = -3.37$, $p < .01$, were each negatively related to internationalism. In examining internationalism percentages between low ($-1SD$ social class) and high-social class ($+1SD$ social class) individuals, the models indicate that low-social class people have nearly 50% more international friends (2.9% internationalism) than high-social class people (2.0% internationalism). Thus, these results provide support for the restricting social class hypothesis.

5. Study 2

In Study 1, we showed that among individuals living in the United States, self-reported social class is negatively related to internationalism, thus providing support for the *restricting social class hypothesis* for personal social class. In Study 2, we examined how GDP per capita predicts the percentage of Facebook friendships that are international in each nation in the world. In transitioning to data at the national level, we therefore tested the two competing hypotheses across cultures

that vary dramatically in terms of their social values, economic development, religion, political organization, and self-construals, thus allaying some concerns about potential biases of Western samples (Henrich et al., 2010). It's important to note that Study 2 does not intend to extend the insights of Study 1 at an individual level—instead, Study 2 focuses on macro-level, cultural effects, and thus it would be premature to take its results as equivalent to conducting individual level studies around the world to provide universal evidence for our Study 1 individual-level effect.

5.1. Method

Facebook provided data on every friendship formed in 2011 in every country in the world at the national aggregate level. These data set included a total of 57,457,192,520 friendships. From these data, we knew how many friendships were made within each country (domestic friendships) and also how many friendships were made between every country pair (international friendships). We note that we did not receive data on individuals—but rather only the macro-level, national sums. While most countries had at least tens of millions of friendships formed, a small number had relatively few. Thus, we removed from our analyses nations with less than 1 million friendships. This left 204 countries in the sample. We quantified social class as GDP per capita in 2011 (World Bank, 2012). Full data across all variables was available for 175 countries which make up the majority of the global population (5,291,704,711) and Facebook's user base (952,818,100). For these countries, we examined every domestic (a total of 48,458,812,050 friendships) and international friendship (a total of 7,572,368,093 friendships) made on Facebook in 2011. For each country, we calculated an internationalism score by dividing total international friendships by total friendships (2 * domestic + international)—we note that domestic friendships were multiplied by 2 because every international friendship is counted twice (once for each nation part of the friendship) and to keep the percentages consistent, domestic friendships need to be counted twice (once for each person who can claim the friendship in the nation). Since GDP per capita was highly positively skewed, we normalized it by taking the natural log. We also included net migration per capita (latest figures for each country from World Bank) as a control to account for the possibility of migration explaining our effects. There was substantial skew in net migration; we therefore logged the scores to make them more normally distributed.

6. Results

Fig. 1 shows two world maps: (a) percentage of internationalism on Facebook and (b) GDP per capita. As these maps suggest, and in keeping with the individual level results from Study 1, there is a negative correlation between GDP per capita (national social class) and percentage of Facebook friends that are foreign in a nation (internationalism$_{log}$), $r = -.18$, $CI_{95}(-.32, -.04)$, $t(172) = -2.44$, $p = .02$, thus providing support on a global level for the *restricting social class hypothesis*. Examining low-social class ($-1SD$ GDP per capita) and high-social class ($+1SD$ GDP per capita) countries, people from low-social class countries had on average 35% of their friendships be international while people from high social class countries on average had 28% of their friendship be international. We also considered potentially controlling for variables that could influence the relationship. However, the difficulty with these variables (i.e., percentage of population with internet, rate of travel, immigration) is that they tend to be heavily correlated with GDP per capita. For instance, GDP per capita and total friendships per capita are correlated at $r = .73$. Thus, including them both in a model would greatly change the meaning of both variables, and in turn change the meaning of any potential correlation. Given these issues—and also the convergence of the global correlation with the individual level correlations presented in
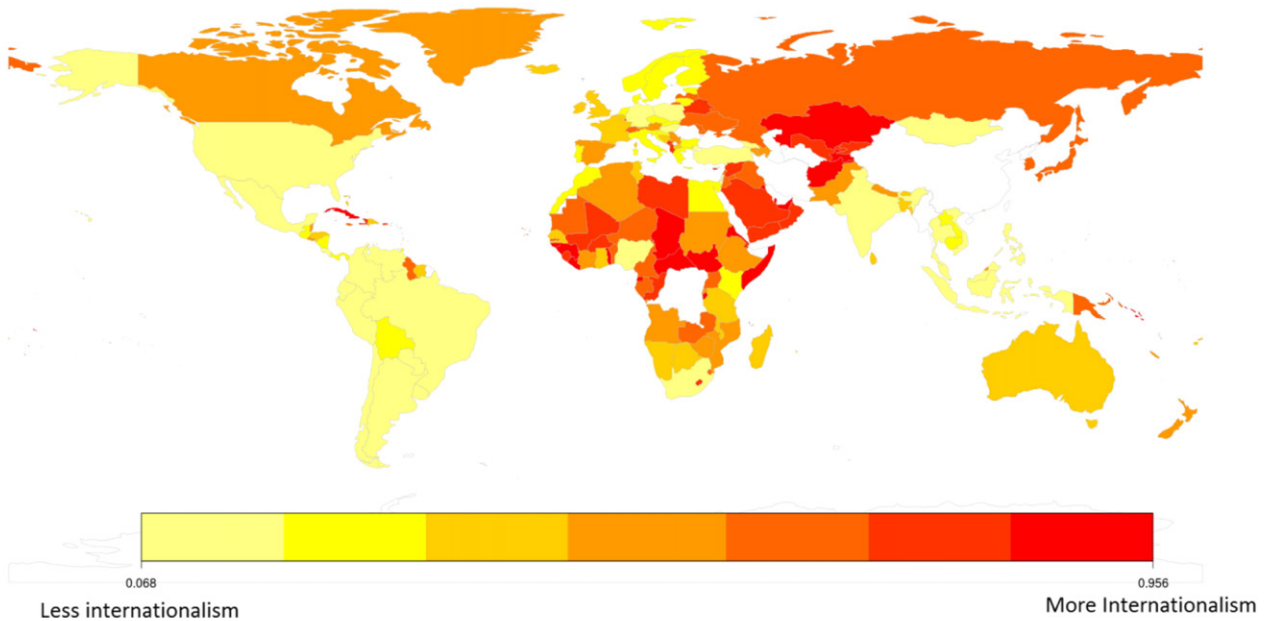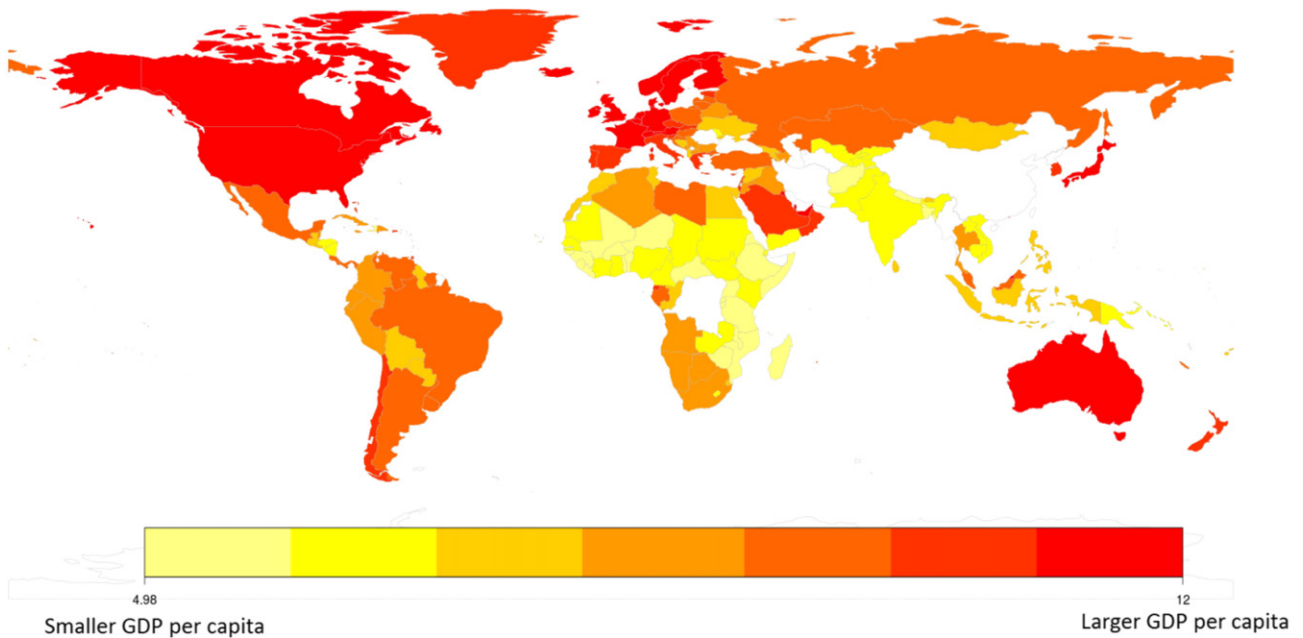
A: Internationalism

B: log GDP per capita

Fig. 1. Panel A: Internationalism. Panel B: Log GDP per capita.

Study 1 with a full set of controls—we felt that the most prudent approach is to keep the model as a simple correlation between GDP per capita and internationalism without adding controls. However, net migration proved an exception to this because (a) it had a relatively moderate correlation with GDP per capita ($r = .49$) and (b) it represented a potential mediation mechanism of our effects. We therefore ran a regression model controlling for net migration. We did not find evidence to support a relationship between net migration and internationalism, $b = .04$, $CI_{95}(−.03, .12)$, $r_{partial} = .10$, $t(172) = 1.27$, $p = .21$; in contrast, the effect of GDP per capita not only remained significant and negative, but in fact increased in magnitude, $b = −.03$, $CI_{95}(−.05, −.01)$, $r_{partial} = −.25$, $t(172) = −3.34$, $p < .01$.

7. Discussion

Friendships can provide wide-ranging benefits and can be closely related to health, trust and well-being. The barriers to forming friendships with individuals from groups that differ from one's own are well-known, and include in group bias, intergroup anxiety, and prejudice (Pettigrew & Tropp, 2008). In the present investigation, we relied on individual and national level data to ask how social class, both objective (income) and subjective (perceived social class), personal (individual level) and national (nation level), influence the likelihood of forming friendships on Facebook with individuals from different countries.

The literature on power and social class justified two competing predictions. Given the association between power and social approach (Gruenfeld, Inesi, Magee, & Galinsky, 2008; Magee & Galinsky, 2008), one might expect the wealthy to reach out and form more friendships with people from different groups—the building social class hypothesis. In contrast, given the tendency for the upper class to be socially disengaged with other individuals (Hall, Coats, & LeBeau, 2005; Kraus & Keltner, 2009), and the well documented tendency for lower class individuals to be more prosocially oriented to others (Piff et al., 2010), one might expect the wealthy and higher social class to privilege friendships within one's own group, and not have as many international friends—the restricting social class hypothesis.

In line with the restricting social class hypothesis, our results across two studies at the micro-individual and macro-national levels showed that people and nations with greater objective and subjective social class had fewer international friends on Facebook. In Study 1, people who reported that they had higher income and were from upper class categories had fewer international friends than individuals who had lower incomes and self-identified with lower class categories. In Study 2, wealthier countries, as indexed in per capita GDP, had fewer international friends than poorer countries. Despite having fewer resources at their disposal, it is actually low-social class people and poorer nations who tend to have friendship networks populated with more international connections.

These findings make a number of important contributions to the social class and social network literatures. First, the negative link between social class and international friendships may underscore a tendency for high-social class people to accrue relational resources such as social support in their local vicinity. According to the self-reinforcing account of social class (Magee & Galinsky, 2008), high-social class people tend to think and act in ways that reinforce their own social class. However, by forming fewer international friendships (relative to their low-social class counterparts), high-social class people may be at risk of strengthening their local social class at the expense of improving their broader social class.

Second, theory and research highlight the value of developing weak ties to others in distant social circles because these ties offer access to resources not likely to be found in one's immediate social circle (Agrawal, Kapur, & McHale, 2008; Burt, 2008; Granovetter, 2005). An encouraging sign is that low-social class people tend to have greater access to these resources on account of having more international friendships. Thus, contrary to research describing the plight of low-social class individuals with poor access to social resources (Magee & Galinsky, 2008), our findings point to international friendships as a means by which low-social class individuals can benefit from the resources inhering in social ties.

Third, our study showcases a new approach to studying internationalism at the global level—through the usage of nation-level social media. This approach opens the doors for new investigations of the micro- and macro-forces that promote or inhibit internationalism. One particularly fruitful avenue is to study how cultural differences—on dimensions such as individualism-collectivism—are related to internationalism. Several datasets are available at the nation level that have cross-cultural scores, including Hofstede's Cultural Dimensions (Hofstede & Bond, 1984), Schwartz Cultural Values (Schwartz & Bilsky, 1990), and the World Values Cultural Dimensions (Minkov & Hofstede, 2010). These scores can be used to probe the relationship between culture and internationalism in future work.

We do note that there are several important limitations to our work which require important future extensions. First, both of our studies were correlational, and thus making strong causal claims at this stage is premature. While we believe that it is most likely the causal arrow that flows from social class to internationalism, explicit experimental work is needed to test this thesis. Second, our sample in Study 1 consisted of MTurk users which are not representative of the general US population. While MTurk users tend to be as good—if not better—than typical undergraduate samples (Buhrmester, Kwang, & Gosling, 2011), future work should endeavor to recruit a nationally representative sample to further corroborate the results. Third, while we believe that Facebook friendships offer a powerful proxy for studying social relationships—and previous work does support the notion that Facebook friendships tend to mirror real world relationships (Wilson et al., 2012)—further replication of the findings using traditional self-report metrics of friendships would be a welcomed further validation of our approach. Fourth, we do not know the place of birth of participants in Study 1; thus, it is possible that migration flows could be a potential mechanism behind this effect. Future work should explore this issue in greater detail. However, we do note that we found evidence against a migration explanation in Study 2. Fifth, the effect sizes were of a small-to-moderate nature in both Studies 1 and 2. This is not surprising as there are likely a large multiplicity of factors involved in internationalism; however, it does highlight that we should be careful in over-interpreting the effects and their suggested consequences.

In a world with more global connections than ever, some individuals are creating more international ties than others. Despite the benefits of having international connections, and the fact that high-social class people should be better positioned to travel and meet people from different countries, our results provide one empirical demonstration as to how low-social class people may actually stand to benefit most from a highly international and globalized social world.

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