How Large the Huddled Masses?
The Causes and Consequences of Public Misperceptions about Immigrant Populations

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Abstract

The public is prone to overestimate the size of minority group populations. Does providing information about the actual size of populations affect attitudes towards those groups? We investigate innumeracy about immigrant populations. As in previous studies, we find that people tend to overestimate the size of the foreign-born population, and that these estimates are associated with an individual's formal education and with the number of immigrants in the surrounding context. Then, in two different survey experiments, we test whether information about immigrants affects attitudes—either by correcting these overestimates or by priming the annual level of immigration. In both experiments, the information influenced attitudes very little. We conclude by noting the potential limits of "information effects" on mass attitudes.

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Introduction

Why do people express hostility toward ethnic "others"? Are there ways to replace such sentiments with tolerance and even goodwill? Satisfactory answers to both questions have obvious practical significance, as inter-ethnic tensions plague numerous countries, at times manifesting themselves in deadly violence. One common explanation for ethnic conflict is competition over scarce resources. In theory, this kind of competition may prevail without negative stereotyping of the other group, though this is rarely the empirical situation. In a competitive situation, of course, the size and strength of one's antagonists clearly increases the threat to one's chances of prevailing. But also is clear that ethnic prejudice can persist in the absence of realistic group competition. The tendency to favor one's own group appears instinctive, even when group identities have little intrinsic meaning. Attitudes toward different ethnic groups appear driven by ingrained predispositions learned early in life. Thus, solutions to ethnic hostility are much in demand and range from optimistic policies that foster contact and integration between groups to pessimistic solutions that to separate groups, even partitioning them into largely independent territories.

One potential solution to inter-ethnic tension is to correct particular misperceptions and misunderstandings that each group possesses about the other—a solution that could be accomplished either through particular modes of contact between groups or, absent any substantive contact, simple by "educating" group members about who the other group is. This solution assumes that attitudes toward groups stems not just from long-standing predispositions, which presumably are largely fixed, but also from "bad facts." That is, hostility toward a group may be undergirded by erroneous beliefs about the group's attributes and intentions, beliefs that enhance feelings of threat and danger to cherished values or interests. Presumably, then, providing information that corrects that belief would mitigate hostility. Conversely, providing information that accentuates or "primes" that belief would only reinforce or exacerbate hostility. Our study examines both possibilities—the effects of "correcting" and "priming."

This study explores this proposition be examining the relationship between a particular category of information and attitudes toward a particular minority group. The belief is a simple one: the estimated size of a group's population. Previous studies have shown that people tend to over-estimate the size of minority

groups, often by a gargantuan amount. Other research suggests that the size of a minority group in one's residential or political environment increases hostility toward this group among the majority population. One obvious question is whether the perceived as well as the objective size of the minority group is associated with greater hostility and prejudice, presumably because an inflated estimate heightens the perception of threat. If so, the counterfactual becomes: does correcting overestimates about minority groups change attitudes toward those groups? In particular, do those attitudes become more favorable?

The group we focus on here is immigrants. This focus is motivated both by a lacuna in the scholarly literature on knowledge about minority populations—which has focused on discrete ethnic and religious groups and not on immigrant populations more generally—and by the continued significance of immigration in maintaining and increasing ethnic diversity cross-nationally. To study ethnicity in Western democracies is no longer a question of investigating only "native" groups, as does much of the literature on racial attitudes in the United States, which deals only with whites and blacks. Instead, studying ethnicity entails investigating the relationship among native citizens and recently arrived immigrants from a variety of countries. This is not only an imperative in "settler societies" such as the United States, but in Western Europe, where the challenges of integrating diverse immigrant populations have become even more salient. Immigrants are by definition strangers in one's land and pose a challenge to the sense of common identity that is the lifeblood of the modern nation-state. This flow of people across borders is likely to continue and, in the Western societies we examine here, the immigrants almost certainly with differ from the ethnic core of the receiving states. Even if immigrants provide necessary labor, their presence is controversial. The public often expresses concern about the consequences and level of immigration; at various times, policymakers respond to or foment these concerns. Thus, an investigation into beliefs about the size of the immigrant population, and the effects of correcting any "innumeracy," is especially timely.

Innumeracy and Its Causes

Innumeracy is mathematical illiteracy, or "an inability to deal comfortably with the fundamental notions of number and chance" (Paulos 1988: 3). Innumeracy derives in part from limitations in cognitive

processing. People substitute simple and efficient decision rules for more refined, but potentially effortful, decision-making processes. For example, Tversky and Kahneman's (1974) work on the "availability heuristic" shows that judgments often derive from salient, and therefore easily remembered, examples. Similarly, people often use a "representativeness heuristic," selecting the outcome of which the evidence appears representative, regardless of how probable that outcome is. Thus, common cognitive processes often produce erroneous results (but see Gigerenzer et al. 1999).

In politics, innumeracy is likely especially prevalent. On average, the public's attention to politics is intermittent at best. As Converse (1990: 372) famously put it: "The two simplest truths about the distribution of political information in modern electorates are that the mean is low and the variance high." Moreover, there is rarely any incentive for the public to think in concerted ways about political questions (Kuklinski and Quirk 2000); a certain level of ignorance may in fact be rational (Downs 1957). The public's command of specific political facts is therefore often weak. Delli Carpini and Keeter (1996) provide plenty of evidence with regard to political figures, institutions, and policy. Although one can debate the merits of knowing these kinds of facts (e.g., Lupia 2006), no one can dispute that the public often does not know them.

Unsurprisingly, then, the public exhibits considerable innumeracy with regard to minority populations. In particular, people tend to over-estimate the size of minority groups. For example, studies of this phenomenon in the United States have shown that, on average, people over-estimate the size of the African-American, Latino, Asian-American, and Jewish population (Nadeau, Niemi, and Levine 1993; Sigelman and Niemi 2001; Theiss-Morse 2003; Wong 2007). For example, in most recent survey data (from 2002), the average estimated proportion of African-Americans was 39 percent, while in the 2000 Census it was approximately 12 percent (Theiss-Morse 2003). Overestimation of the Hispanic (33 vs. 12%), Asian (24 vs. 4%), and Jewish (26 vs. 2.5%) populations was equally if not more dramatic. At the same time, respondents tended to underestimate the size of majority populations, specifically whites (60 vs. 71%) and Christians (61 vs. 83%). Are these estimates merely random guesses given only at the behest of the survey interviewer—akin to a sort of "non-attitude"? Wong (2007) suggests that they are not. Citing examples from in-depth interviews with survey respondents, she notes that respondents elaborate their estimates of minority

populations with colorful observations about the apparent prevalence of minorities in their daily lives. Sigelman and Niemi (2001: 93) make a similar point: "The fact that overestimates have been found on multiple surveys, in which the timing and interview context differed, suggests that these may be genuine beliefs."

Moreover, estimates of immigrant numbers vary systematically across individuals—suggesting again that these estimates are not simply random guesses. A first explanation for this variation is *ability*: those with greater cognitive ability will produce more accurate estimates, for at least two reasons. First, the more cognitively "sophisticated" will have a greater facility with numbers and probability; in short, they are more "numerate." Second, these people are also more likely to possess relevant and even correct information about political and sociological reality. Thus, in empirical analyses, a higher level of formal education is associated with lower estimates of the size of minority populations (Nadeau, Niemi, and Levine 1993; Wong 2007).

A second explanation for variation in estimates is *availability*: the more easily people can call to mind salient examples—in this case, of immigrants—the larger their estimate will be. This role of available information (whether accurate or not) illustrates a broader finding: the public's answers to factual questions depend in part on external cues (Nadeau and Niemi 1995) and the surrounding information environment (Jerit, Barabas, and Bolsen 2006). Similarly, the role of available information also dovetails with some models of survey response (e.g., Zaller 1992), which postulate that responses are quickly assembled aggregations of salient ideas, information, and beliefs. In the context of minority populations, availability's effect is evident in two kinds of empirical results. First, estimates of the overall size of the national minority population are larger in areas with more such minorities (Nadeau and Niemi 1995; Nadeau, Niemi, and Levine 1993). Second, members of specific minority groups appear more likely to overestimate the size of this group (Sigelman and Niemi 2001), and, presumably, minorities are more likely to interact with other members of their group. In both cases, the heightened presence of minorities in the context of daily life appears to generate a larger number of salient examples and thus a larger overall estimate.

Three major hypotheses emerge from this discussion. First, as in studies of other minority groups, average estimates of immigrant numbers will be significantly higher than the actual number. Second, estimates will be lower among those with greater cognitive ability. Third, estimates will be higher among immigrants themselves, and among those who live in areas with larger concentrations of immigrants.

Should Information about Immigrant Numbers Change Attitudes?

The pervasive misestimation of minority populations coexists with well-known enduring stereotypes of and prejudice toward these groups (Kinder and Sanders 1996; Sniderman and Piazza 1996). This suggests a tantalizing possibility: that the former is at least partly responsible for the latter. Why might misestimation produce hostility? An extensive literature on racial context, dating back to Key (1949) and Blalock (1967), suggests that a larger minority population heightens majority perceptions of threat. A similar logic could obtain for the perceived, rather than actual, size of the majority population. The visibility of minority populations leads majority group members, via the availability heuristic, to overestimate their numbers. These overestimates exacerbate the majority's sense that the minority is a threat (material, symbolic, or otherwise). Majorities respond to this perceived threat with stronger in-group solidarity and out-group derision, devaluation, or discrimination. Thus, perceptions of minority populations matter, over and above the actual size of those populations in an individual's community. Indeed, there is some evidence that perceptions may be more powerful than reality (Wong 2007)—a fact that could explain the lack of a context effect in some studies (e.g., Scheve and Slaughter 2001).

If this logic were true, then hostility toward minorities would decrease if these misperceptions were corrected, thereby reducing the majority's sense of threat. Such a result conforms to other political science research documenting the general effects of information on preferences (Althaus 2003; Bartels 1996). In particular, information about minority populations falls into the category of "domain-specific" information, which may have relevance for attitudes above and beyond that of general political information (see McGraw and Pinney 1990). For example, Gilens (2001) shows that providing specific facts about the amount of foreign aid and the declining crime rate led some respondents to desist in favoring cuts to foreign aid and

increases in spending on prisons, respectively. With regard to immigration in particular, the potential for such information effects seems great. There is no reason to think that people know many facts about immigration, such as its current level, or immigrants, such as their demographic composition. Such information is available to intrepid citizens eager to peruse government websites, but obviously few do so. As Freeman (1995: 883) notes, "there are serious barriers to acquisition of information about immigration."

For this reason, we might also expect that providing information about immigrant numbers could have an opposite effect, exacerbating perceptions of threat. For this to occur, the information provided would need to suggest or imply that the current number or influx of immigrants was large. In this scenario, relative ignorance about immigrant populations might create a kind of "bliss" that then changes quickly to concern and even hostility once the apparent extent of immigration is made known. This could occur via a "priming" effect (see Iyengar and Kinder 1987), whereby the transmission of information increases its accessibility in memory. If people's subsequent stated attitudes toward immigration are to some extent aggregations of accessible considerations, then this information would weigh more heavily and would tend to decrease favorability toward immigrants.

However, the effects of information—whether correcting innumeracy or priming perceptions of threat—are far from certain. Despite the cited evidence of "information effects," we do not know whether such effects emerge consistently across different kinds of attitudes, and whether some attitudes are more or less susceptible to these effects than others.[1] In this case, there are good reasons to believe that attitudes toward minority groups are in fact *less* susceptible. Instead these attitudes may prove relatively stable despite any new, and more accurate, information. Several veins of literature suggest that attitudes toward minority groups derive from strong and durable predispositions that change little over time. Attitudes toward minority groups may derive from an "authoritarian personality" (Adorno et al. 1950), which arises in childhood as a response to certain family dynamics. Despite the documented problems with the Adorno et al. research and

[1] Althaus (2003) investigates other kinds of factors that condition the magnitude of information effects, such as question format and the salience of political issues. Another factor he identifies is differences between knowledgeable and less knowledgeable people in their attitude structures and modes of information-processing. Our central hypothesis builds on this notion, but is different: we suggest that different issues themselves tend to involve different kinds of attitude structures and information-processing.

despite modern-day skepticism about their psychoanalytic account of authoritarianism's origins, more recent studies continue to find that authoritarianism is strongly associated with stereotypes of minorities (Sniderman and Piazza 1993). Moreover, attitudes linked to authoritarianism appear to have some inherited basis (Alford, Hibbing, and Funk 2005), suggesting that this orientation does arise very early in life—in this case, because of DNA and not harsh paternal discipline—and is durable over time (see also Stenner 2005).

Another prominent approach, symbolic politics theory, provides a similar account. This theory suggests that feelings toward minority groups are learned early in life via a process of classical conditioning, are stable over the lifespan, and are activated by the symbolic content of political debate (Sears 1993; Mendelberg 2001). In both accounts, attitudes toward groups develop so as to minimize the potential consequences of learning specific facts. If anything, strong, durable predispositions would tend to filter out potentially discordant information or, at least lead individuals to rationalize the information in a way that preserved their preexisting attitudes (see Zaller 1992).

The consequences of authoritarianism and symbolic predispositions have been documented mostly with regard to certain groups, Jews and African-Americans most notably. However, it is quite likely that attitudes toward immigrants have similar foundations. Though concerns about immigration often center on its economic impact—and thus these concerns derive in part from individuals' labor market location and financial uncertainty (Scheve and Slaughter 2001, Citrin et al. 1997)—concerns about immigration's cultural impact are also evident (Sniderman, Hougendoorn, and Prior 2004), which suggests a role for symbolic predispositions. Again, authoritarian values are relevant (Sniderman, Hougendoorn, and Prior 2004). Another important predisposition is national identity. In particular, a more aggressive nationalism (de Figueiredo and Elkins 2003) and an "ethno-cultural" conception of national identity (Schildkraut 2005; Sides and Citrin 2007) are associated with concerns about immigration.

Thus, there are good reasons both to believe that information about immigrant numbers may change attitudes and to doubt that such information would change anything. Ultimately, no extant findings speak to either possibility. Despite documented associations between misperceptions of minority numbers and perceptions of minority threat (Nadeau, Niemi and Levine; Sides and Citrin 2007), causality has proven

elusive. Nadeau and colleagues (1993: 341) state the problem well: "…lacking longitudinal data or other such features, we cannot hope to determine the causal direction linking estimates of minority population size and perceived threats" (Nadeau, Niemi, and Levine 1993: 341). A major contribution of this study is to examine the causal impact of information about immigrant population size on perceived threats from immigration.

The Extent of Innumeracy about Immigrant Populations

To ascertain the extent of innumeracy, we draw upon a large array of survey data from Europe and the United States. There are three datasets in particular: the 2002-2003 European Social Survey, or ESS (Jowell et al. 2003); the 2005 Citizenship, Involvement, and Democracy Survey, or CIDS (Howard, Gibson, and Stolle 2005); and the 2006 Cooperative Congressional Election Study, or CCES (Sides et al. 2006; Schickler 2006). The ESS data included samples from 20 countries and an extensive battery of questions about immigration.[2] The CIDS and CCES were designed to include certain of these ESS indicators as well as others relevant to the debate about immigration in the United States. The CCES data are particularly important because they include two experiments that tested for information effects. The CCES was a cooperative study involving 39 universities, each of which designed a module of questions that was administered on-line to 1,000 respondents. In addition, the combined sample of approximately 37,000 respondents received a common set of questions centered on the 2006 election. We draw on the modules developed by George Washington University and the University of California, Berkeley, each of which contained a separate experiment. (More information about each survey is available in Appendix I.)

We combine the ESS data with the two US surveys to examine whether innumeracy is a cross-national phenomenon. Each survey asked the following question: "Out of every 100 people living in the United States, how many do you think were born outside of the country?" The CCES randomized the sample to be asked either the previous question or this question, "Out of every 100 people living in the United States, how many do you think entered this country illegally?" In both cases, the number respondents

[2] These include Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Luxemburg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, and Switzerland. The ESS also included samples in Israel and Slovenia, which we do not utilize here because we lack comparable country-level data on their immigrant populations.

provide corresponds to their estimate of the proportion of the population that is foreign-born or that came to the United States illegally. We first compare estimates of the foreign-born population to the actual foreign-born population, calculated from OECD data (OECD 2005).[3]

Figure 1 plots the average estimate against the actual percent foreign-born, with a 45-degree line indicating a perfect correspondence between estimate and truth. The data points strongly confirm the first hypothesis: every country is above the 45-degree line, suggesting that, on average, respondents in these 21 different countries over-estimate the size of the foreign-born population.[4] The magnitude of the overestimation is often substantial. For example, in both surveys of the US, the mean estimate is 28 percent, which exceeds the actual figure (12%) by more than a factor of 2. Similar results obtain in several other nations, including France, where the estimate is 28 percent and the actual figure 10 percent, the United Kingdom (24 vs. 8%), and Italy (17.5 vs. 4%).[5]

Figure 1 also provides descriptive evidence of the availability hypothesis. Even though respondents in each country overestimate the foreign-born population, there is a relationship between reality and perceptions: as the actual percent foreign-born increases, so does the average estimate. The correlation between the two is r=.84. Thus, these estimates are not completely removed from "reality." But they are consistently too high.

[insert Figure 1 about here]

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[3] These OECD data contain a count of the number of residents in each country, broken down by their country of origin. To calculate the number of immigrants, we simply summed up the number of residents and subtracted the native-born. Some residents' country of origins could not be determined and they were coded as "unknown." For the purposes of this analysis, we count them as native-born. In practice, this has little effect on the estimates except in Germany, where a large number of residents were classified as "unknown." Considering the "unknowns" in Germany to be foreign-born generates an estimate of the proportion foreign-born of 19 per cent, while considering them native-born generates an estimate of 11 per cent. Given that this latter figure better corresponds to other OECD analysis (see Dumont and Lemaître n.d.), we employ the measure that counts the "unknowns" as native-born.

[4] Respondents who did not provide an estimate are excluded from this figure. These respondents comprise 18 percent of the pooled sample. Within countries, there is significant variation in the level of "missingness," which ranges from about 5 to 40 percent. We do not attempt to account for such variation or its consequences—e.g., through a selection model—but will do so in later versions. However, because accounting for selection effects often produces only small shifts in aggregate opinion (Berinsky 2002), we do not expect more complicated models to produce very different findings about the level of innumeracy.

[5] Wong (2007) finds lower levels of innumeracy about minority populations in the respondent's local community, as opposed to the nation as a whole. Unfortunately, we lack measures that tap knowledge about more proximate geographical settings.

The American public manifests an even larger degree of innumeracy with regard to the illegal immigrant population. The public's average estimate was approximately 21 percent. Though there is no rigorous census of illegal immigrants, one plausible estimate derives from research by the Pew Hispanic Center (Passel 2006), which derives from data from the Census Bureau's Current Population Survey. The Pew Center estimates that approximately 3 percent of those living in the US came here illegally. If we accept that as even a rough approximation of the truth, then the American public's estimate is off by a factor of about 6 or 7. There is even more innumeracy with regard to illegal immigrants than with regard to immigrants generally.

The Causes of Innumeracy

Estimates of immigrant populations should be higher among those with less formal education and among those who are immigrants themselves. They should also be higher in contexts with a larger proportion of foreign-born residents. To test these three expectations, we construct simple models. The dependent variable is the respondent's estimate, coded 0-100. There are two individual-level variables, an ordinal measure of formal education and a dichotomous measure of whether the respondent is foreign-born, and one contextual variable, the percentage of the immigrant population in the respondent's "context." Each individual-level variables is coded 0-1 or 0 and 1. The first such model combines the ESS and CIDS data. We treat "context" as the country, drawing on the same OECD data as in Figure 1. The second such model draws on a pooled dataset including both the CIDS and CCES. We measure "context" at the state level, drawing on 2000 Census data about the percent foreign-born in the U.S. states.[6] Given this data structure, with individual respondents nested inside countries or states, we estimate the following multi-level model:

$$ESTIMATE_{ij} = \beta_{0j}+\beta_{1j}EDUC_{ij}+\beta_{02}IMMIGRANT_{ij}+r_{ij}$$

$$\beta_{0j} = \gamma_{00}+\gamma_{01}PCTFOREIGNBORN+u_{0j}$$

$$\beta_{1j} = \gamma_{10}+u_{1j}$$

[6] In future iterations, we will attempt to construct contextual measures at lower levels of aggregation—e.g., county, zip code, and/or census tract. The state-level data is available at: http://www.census.gov/prod/2003pubs/c2kbr-34.pdf (accessed 27 February 2007).

$$\beta_{2j} = \gamma_{20} + u_{2j}$$

In this case, *i* indexes individuals and *j* indexes countries or states. These models are estimated in HLM 6.02, using a restricted maximum likelihood estimator.

Table 1 presents the results, which are quite comparable across models and confirm both hypotheses. Other things equal, an increase in education from the lowest to highest categories is associated with a 10-point decrease in the estimate of immigrant populations. The magnitude of education's effect is slightly higher than the average error across these 20 countries, which is approximately 9 points. Immigrant status also has its hypothesized effect: in both models, immigrants are likely to give a higher estimate—a result possibly driven by the availability heuristic. Availability's role is also evidence in the effects of context: respondents living in countries or states with more immigrants provide higher estimates. In the cross-national model, there is nearly a one-to-one correspondence between the actual percentage and the estimate. Ceteris paribus, a one-unit shift in the actual percentage of foreign-born citizens is associated with a .96 increase in the estimated percentage.[7]

[insert Table 1 here]

These simple models confirm previous findings about the roles of both ability and availability.[8] Though estimates of immigrant populations are systematically too high, there is considerable and predictable variation across individuals. Individuals estimate the immigrant population more accurately when they are more educated, suggesting that formal education may increase facility with numbers, may be associated with the individual's level of information about immigration, or both. Individuals in contexts with larger concentrations of immigrants tend to make higher estimates, suggesting that larger concentrations make mental pictures of immigrants more accessible. Of course, we have measured context only at very high levels

[7] In the model of the US states, we also examined the effect of changes in immigrant numbers. They did not have a significant impact. It appears that estimates depend more on "levels" than on "flows."

[8] Some studies have found that the factors associated with estimates vary across majority and minority populations. For example, both education and the racial context affect whites' estimates of the black population more than blacks' estimates (Sigelman and Niemi 2001). Other analysis of the ESS and CIDS data (not shown) suggests that both education and the context matter in similar ways for the native- and foreign-born. Other analysis of the CIDS and CCES data suggests that education matters for both populations, though context matters only for the native-born. However, given the small sample of immigrants (N=106) in the CIDS-CCES data, it is probably premature to conclude much from this result.

of aggregation. We might find stronger effects with measures that more carefully demarcate individuals' "life space."

The Consequences of Correcting Misestimation

Would correcting the number of immigrants change attitudes toward immigration? As previous studies have found regarding other minority populations, those who provide larger estimates of immigrant populations also tend to have less favorable views of immigration. The ESS and CIDS included items gauging the perceived consequences of immigration for culture, crime, and government services (see Sides and Citrin 2007). We combined these items into an index and then examined its association with the number of estimates. In 16 of these 21 countries, the bivariate correlation was statistically significant; every significant correlation indicated that larger estimates were associated with more negative perceptions (the correlations ranged in magnitude between .07 and .25). Of course, this bivariate relationship can only suggest an answer to the counterfactual question posed above.

To provide a more definitive answer, we conducted an experiment—the "correcting" experiment—within the George Washington University module of the CCES. Though this experiment involves only an American sample, it is the first such test of whether correcting innumeracy matters. The experiment had a 2x2 design. As noted previously, respondents were first randomized to be asked about immigrants or illegal immigrants. Then they were randomized to receive correct information about immigrant population, or to receive no such information. Thus, respondents first estimated the proportion that was foreign-born or entered the country illegally, then received correct information (or not), and finally answered a series of items about immigration or illegal immigration. In the immigration condition, the correct information was presented in the following way:

> We are interested in whether you've heard about a story that has been in the news lately.
>
> The story is: the Census Bureau has estimated that about 12 out of every 100 people living in the United States are immigrants who were born outside of the United States. Have you heard about this story?

Those who did not receive the correct information instead answered this question:

> We are interested in whether you've heard about a story that has been in the news lately. The story is about a Census Bureau report about immigration in the United States. Have you heard about this story?

In the illegal immigration condition, this manipulation was similarly worded, referring in the information condition a "story" in which "researchers have estimated that about 3 out of every 100 people living in the United States entered this country illegally," and in the no-information condition to "a new report on illegal immigration in the United States." This manner of presenting information in the context of "news stories" is modeled on Gilens (2001).

The subsequent questions about immigrants and immigration addressed the consequences of immigration for government services, crime, and culture, as well as whether immigration should be increased or decreased. The questions about illegal immigration addressed the seriousness of the issue, whether in the long run illegal immigrants become "productive citizens" or "cost taxpayers too much," and respondent's support for the "enforcement only" and "guestworker" proposals that had been debated in 2006. (The wording for each item is in Appendix II.) These questions were designed to capture different dimensions of public opinion toward immigration and to speak to ongoing political debates. To render the attitude items on a comparable scale, and to facilitate presentation, we simply computed the proportion of respondents who expressed less favorable attitudes about immigration—e.g., on the scales capturing its consequences, those on the half of the scale suggesting negative consequences. We then compare those proportions across the "information" and "no information" conditions, supplementing this comparison with statistical tests drawing on the original ordinal scales when necessary.

Figure 2 presents the results of the immigration experiment. The crucial question is whether the difference between the two sets of bars is substantively and statistically significant. These results suggest few meaningful differences. Respondents who received the correct information were not less likely to say that immigrants have negative consequences or that immigration should be decreased. In fact, if anything, they

were *more* likely to express less favorable views, though none of the observed differences were statistically significant.

[insert Figure 2 about here]

Similar results obtain in the illegal immigration experiment. Figure 3 presents similar proportions for the illegal immigration items. Again, few differences of note emerge. Respondents who received correct information were slightly less likely to say that illegal immigration is a serious issue—a difference that is statistically significant. They were also less likely to say that illegal immigrants cost taxpayers too much. However, these respondents were also more opposed to a guestworker program. In any case, neither of these latter findings is statistically significant. The experimental treatment did not affect attitudes toward the "enforcement only" plan, or preferences over this plan and a plan that would include a guestworker provision.

[insert Figure 3 about here]

On average, then, providing correct information does not change attitudes toward immigration. One possible explanation for this result is that the experimental treatment's impact depends on respondents' initial estimates of immigrant numbers. Those with estimates close to the truth will not learn anything particularly new from the "information" treatment. However, those with large over-estimates have learned something, and, if information's effect is to reduce the perception of threat, then these respondents should exhibit more favorable attitudes toward immigration. To examine this possibility, we divided respondents by their initial estimates—collapsing them into categories—and then compared attitudes toward immigrants across the experimental conditions.

Figure 4 presents the results for the immigration condition, with separate graphs for each attitudinal indicator. Again, the bars represent the proportion of respondents that expressed less favorable sentiments. We have divided the respondents into four quartiles based on their original estimate: those who originally underestimated the number (1-11%) and three groups with differing levels of overestimation (12-24, 25-35, 36-99). The results suggest no clear effect of the treatment among respondents in the two middle categories (12-24, 25-35); at times, the treatment increases negative sentiments and at other times decreases such sentiments. However, there is a consistent result in the other categories. Among those who initially under-

estimated the size of the immigrant population, receiving the correct information *increases* their concern about immigration. More surprisingly, this same effect emerges among those with the largest initial estimates. Thus, among the very group who arguably perceives the largest threat, correct information about the size of the immigrant population does nothing to mitigate this perception of threat. If anything, correct information magnifies this perception. A speculative explanation is that respondents with large over-estimates believe that a foreign-born population that comprises 12 percent of the total population is still too large. Moreover, this 12 percent figure is presented in the experimental treatment as definitive, potentially reinforcing and even exacerbating these respondents' concerns about immigration.[9]

However, a comparable graph for the illegal immigration experiment (not shown) reveals no pattern comparable to that in Figure 8 and, overall, no consistent interaction between initial estimates and the effect of the treatment. The most general conclusion about this experiment, then, is simply that correct information about (illegal) immigrant numbers does little to affect attitudes about (illegal) immigration. There is certainly no evidence that such information engenders more positive attitudes toward immigrant groups.

The Consequences of Priming Immigrant Numbers and Nationality

Thus far, we have investigated whether information can ameliorate any concern about or hostility towards immigrants and illegal immigrants. Now we turn to the second possibility: that certain kinds of information may actually only exacerbate concern and hostility. We examine two kinds of information in particular. First, we provided information about the estimated yearly influx of immigrants and illegal immigrants—hypothesizing that the size of this influx would strike respondents as large, thus producing more concern about immigration and illegal immigration, as well as a preference for more restrictive policies. Second, we provided information went beyond the simple size of the immigrant population to describe its composition in terms of national origin. In particular, we provided an estimate of the Mexican proportion of the U.S. immigrant population. If attitudes towards immigration are in part based on "symbolic" concerns

[9] The effects of the treatment among the "lowest" estimators are statistically significant in two cases (culture, crime) and borderline significant in two cases (services, p=.22; level of immigration, p=.13). The effects of the treatment among the highest estimators are statistically significant in one case (culture) but less significant in the other cases (p-values ranging from .29 to .42). Thus, the results for the highest estimators are only suggestive.

about national identity—and certainly such concerns are regularly expressed, with Spanish-speaking immigrants and in particular Mexicans a primary cause of concern (see Huntington 2004)—then this information may have an effect, above and beyond that of information about the number of immigrants.

Again, we rely on an experimental manipulation (the "priming" experiment), this time within the Berkeley module of the CCES. The experiment had three conditions, one that contained none of this information, one that cited the yearly number of immigrants and illegal immigrants, and one that cited this information as well as that about the proportion Mexican. The specific wording of these conditions is as follows:

> Control: "Turning to some issues that have been in the news lately, one issue is immigration. Do you think the number of immigrants from foreign countries who are permitted to come to live in the United States should be increased a lot, increased a little, left the same as it is now, decreased a little, or decreased a lot?"
>
> Numbers: "Recently, according to the U.S. Census and other estimates, about one million legal immigrants have been permitted to come to the United States each year and about another 300,000 illegal immigrants come each year. Do you think the number of immigrants from foreign countries who are permitted to come to live in the United States should be increased a lot, increased a little, left the same as it is now, decreased a little, or decreased a lot?"
>
> Numbers + Origin: "Recently, according to the U.S. Census and other estimates, about one million legal immigrants have been permitted to come to the United States each year and about another 300,000 illegal immigrants come each year. About 40 percent of all the immigrants presently in the U.S. are from Mexico. Do you think the number of immigrants from foreign countries who are permitted to come to live in the United States should be increased a lot, increased a little, left the same as it is now, decreased a little, or decreased a lot?

The question about the preferred level of immigration is identical in wording to that in the GW CCES module (see Figure 2). There were then subsequent items about whether illegal immigration is a serious issue, both in the country and in area where the respondent lived; how long immigrants should have to wait before they are eligible for certain government benefits; and the preferred policy for dealing with illegal immigrants. (See Appendix II for question wording.) These questions, though not entirely identical to those in the GW module, address similar dimensions about the salience of the issue and appropriate government policies.

Figure 5 presents a set of results similar to Figures 2-4, where we dichotomize responses into the proportions expressing less favorable sentiments and compare those proportions across treatment conditions.

Here, as in the "correcting" experiment, there are few differences across the experimental conditions. In two cases, the effects are in the expected direction. The proportion who wants to decrease immigration increases from 48 to 56% across the three conditions. The proportion who wants to delay eligibility for five years increases from 60% in the "control" and "numbers" condition to 67% in the "numbers + origin" condition, suggesting that mentioning the proportion of immigrants from Mexico does have some effect. When assessed using the original scales, not these dichotomized versions, these differences are statistically significant. However, they are substantively rather small. Moreover, the experimental treatments did not affect the perceived seriousness of illegal immigration or the preferred policy solution.[10] Thus, just as potentially reassuring information about immigrant populations failed to mitigate perceptions of threat in the "correcting" experiment, potentially ominous information failed to exacerbate perceptions of threat, regardless of whether that information concerned immigrant numbers or immigrant nationality.

Conclusion

We began with the hypothesis that information about immigration could have a two-sided effect on attitudes, depending on the content and context of that information. First, information designed to correct people's innumeracy about immigration populations should reduce any perceived threat and thus concerns about immigration's consequences. Although citizens demonstrate considerable innumeracy about immigrant populations, there is little evidence that innumeracy is consequential for attitudes. Correcting citizens' overestimates of the immigrant population had little effect on how they viewed immigrants, whether the population was immigrants in general or illegal immigrants in particular.

Second, information designed to highlight the extent of immigration and the potential ethnic distinctiveness of immigrants should have the opposite effect, increasing people's sense of threat, their negative perceptions of immigrants, and their desire for the government to pursue more punitive policies towards immigrants. But again, no such effect occurred. Reminding respondents about the annual flow of immigrants and about substantial Mexican representation among immigrants had few consequences.

[10] Other analyses did not turn up any significant interactions between the experimental treatment and other individual-level attributes.

What might account for these null effects? One prosaic reason is a methodological artifact: perhaps the experimental treatments were too bland. Perhaps more vivid presentations of information would have had larger effects. However, similar kinds of experimental manipulations (Gilens 2001) have been shown to matter, casting doubt on this hypothesis.[11] Another potential methodological artifact concerns the set of questions asked of all CCES respondents, which occurred before each university's individual module. In that set of questions, respondents were asked their views on the immigration plan before the Senate, and then their perceptions of how each of their Senators had voted. Perhaps this question made respondent's attitudes towards immigration more salient, reducing respondents' susceptibility to information effects. However, there were approximately 25 survey items between these three items about the Senate vote and the subsequent items on the GW and Berkeley modules. We believe that these intervening questions were a "distraction" sufficient to cleanse the mental palate.

Instead, we suggest that the lack of information effects may stem from two more general factors: the nature of the information and the nature of the issue. The nature of the information involves both its content (what it says) and its presentation (how it is said). Certain factual content may be more relevant than other kinds of content, depending on how readily and willingly respondents connect these facts to their attitudes. Facts about immigration populations may be irrelevant if people believe something like this: "It does not matter whether immigrants are 5 or 12 or 25 percent of the population. I am still concerned about the strain they are putting on our community." The presentation of factual content matters because it may not be enough merely to convey a fact. Instead, one may need to explain the fact and highlight its implications. Bartels (2004) makes a similar point in discussing the conundrum of public opposition for the estate tax. He speculates on whether opposition would decline if people understood that only the very wealthy pay this tax. Ultimately he concludes that little would change: "Would correcting this misconception produce widespread public support for the estate tax? Probably not. Americans have always found the juxtaposition of death and taxes peculiarly unsettling…Here, as elsewhere, specific policy-relevant facts are

[11] It may also be possible that the "correcting" experiment induced defensiveness in respondents who were not pleased to be "corrected" and thus intentionally discounted the correct information. However, we believe that the mild and somewhat indirect nature of the correction—in particular, placing it in the context of a fictional news story—lessened the risk of any defensive reaction. Moreover, this explanation does not apply to the "priming" experiment.

only likely to be politically potent in conjunction with a compelling moral interpretation." If the purpose of providing information about immigration is to decrease hostility to immigrants, than revising respondent's estimates of the immigration population may not be sufficient. One may instead need to tell a "moral" story, perhaps one that emphasizes the extent to which immigrants assimilate to dominant norms, such as speaking English (Citrin et al. 2007). Similarly, providing information highlighting the large inflow of immigrants may not heighten perceived threats without specifically making arguments about what this inflow threatens.

A second factor concerns the nature of the issue. By this, we refer more specifically to the nature and origins of attitudes toward a particular issue. We suggested earlier that certain issues engage underlying and even "symbolic" predispositions, making attitudes on those issues less susceptible to information effects. Attitudes towards immigrants, like those towards other groups defined by ascriptive characteristics such as ethnicity or religion, may fall in that category. If so, then factual knowledge or beliefs are secondary in attitude formation. People may instead construct their factual beliefs to match their preexisting attitudes and then, when they encounter information that contradict those beliefs, merely ignore it or explain it away. Kuklinski et al. (2000) observe both processes at work in their study of attitudes towards welfare. People with negative views of welfare tended to overestimate how many people received welfare benefits and how much the government spent on welfare. Providing correct information had few consequences. The symbolic origins of welfare attitudes may explain this. Some scholars have argued that welfare is an "implicit" racial issue and thus that attitudes towards welfare are strongly influenced by symbolic predispositions, particularly feelings towards African-Americans (Gilens 1999; Kinder and Sander 1996). Immigration is arguably explicitly "racial." The most numerous and visible immigrant groups in the United States are distinct in their ethnic backgrounds, native languages, and/or religious preferences. As a consequence, symbolic predispositions such as national identity or a generalized tolerance for difference, predispositions that are developed early in life and durable over time, may be more potent than an encyclopedia's worth of facts about immigration.

A useful extension of this study would investigate information about other minority populations, and in particular whether correcting innumeracy changes attitudes. There is also a need for further investigations

of information effects more generally. We lack a systematic account of the potential for and limitations on such effects, an account that would theorize about and then test the effects of particular kinds of information, as well as specify the sorts of attitudes that are more susceptible to such effects. For example, if we possessed a prior measure of attitudes towards groups, we could then test whether informational effects are stronger among those with weaker attitudes. Ultimately, these sorts of extensions would speak more clearly to the potential normative benefits of information, such as reducing hostility towards particular out-groups.

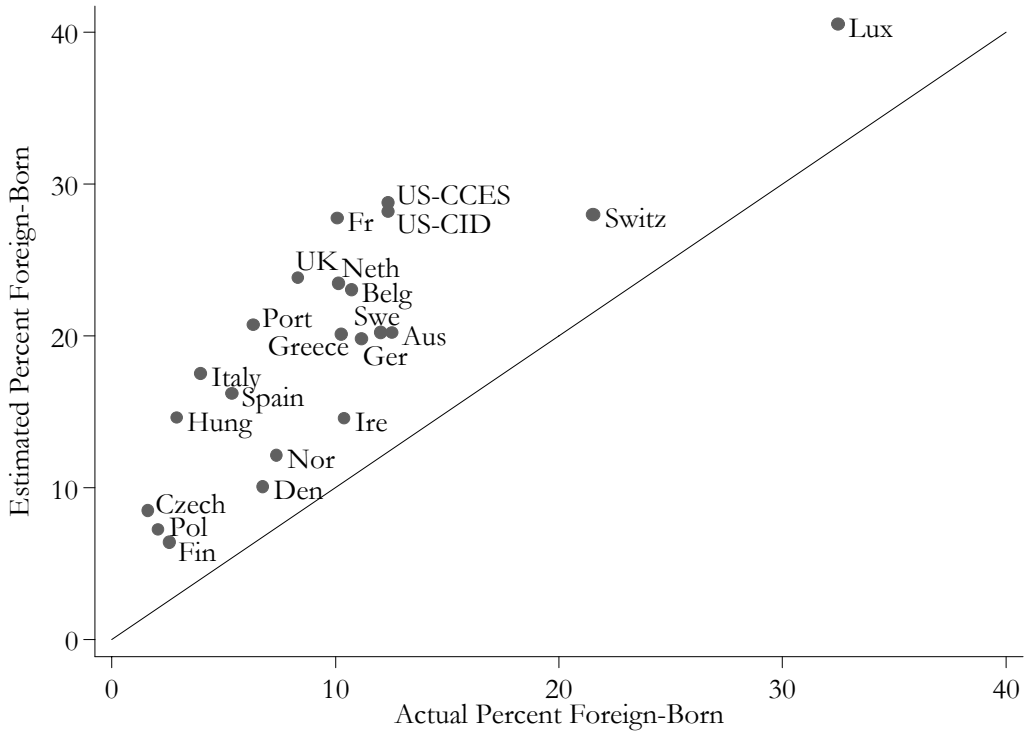
Table 1. Models of Estimates

	Europe and US (ESS, CID)	US states (CID, CCES)
Individual-level		
Education	-10.60	-14.78
	(1.17)	(1.42)
Foreign-born	3.67	5.52
	(0.39)	(2.26)
Country/state-level		
Percent foreign-born	0.96	0.33
	(0.11)	(0.06)
Constant	15.11	28.31
	(1.68)	(1.08)
Proportion variance explained		
Individual	0.04	0.04
Country/state	0.48	0.81
N (individuals)	32431	1807
N (countries/states)	21	50

Table entries are unstandardized coefficients from hierarchical linear models, with standard errors in parentheses. The dependent variable is the respondent's estimate of the immigrant population as a proportion of the country's population (coded 0-100). All variables are significant at $p<.05$ or better.

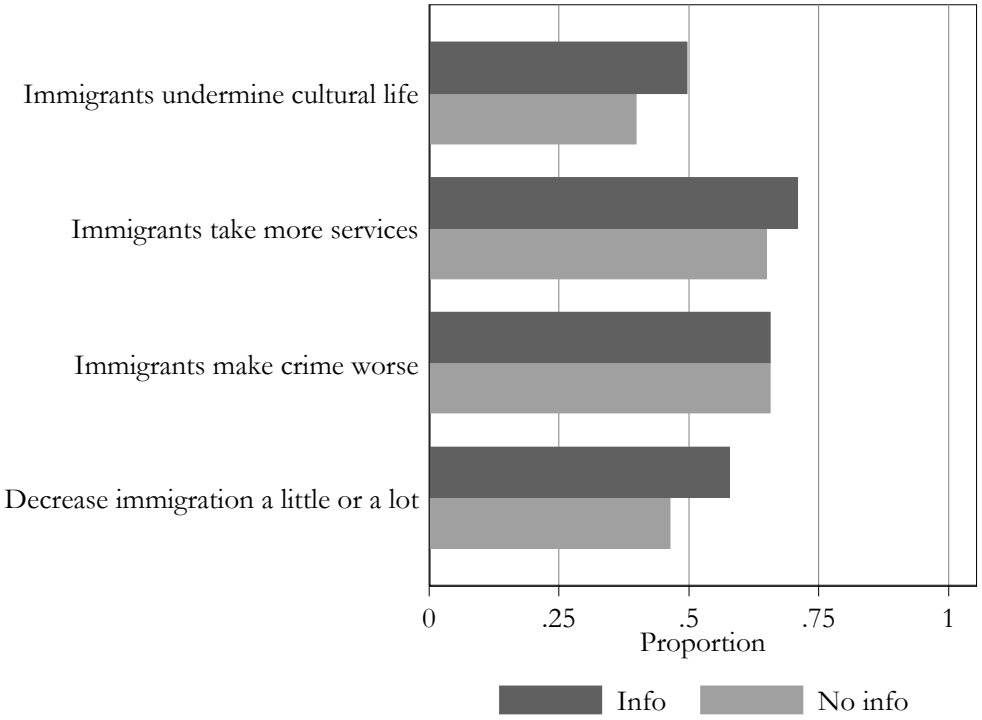
Source: ESS, CIDS, OECD, U.S. Census.

Figure 1. Estimated Percent Foreign-born by Actual Percent Foreign-born



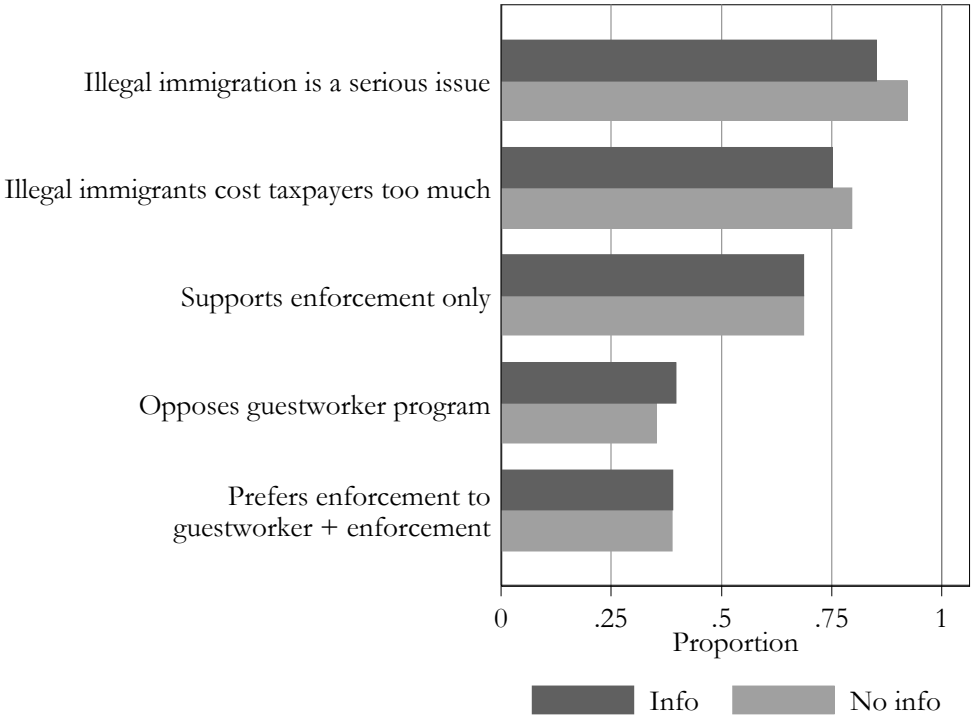
Source: ESS, CIDS, and OECD.

Figure 2. Results of the Correcting Experiment for Attitudes toward Immigrants



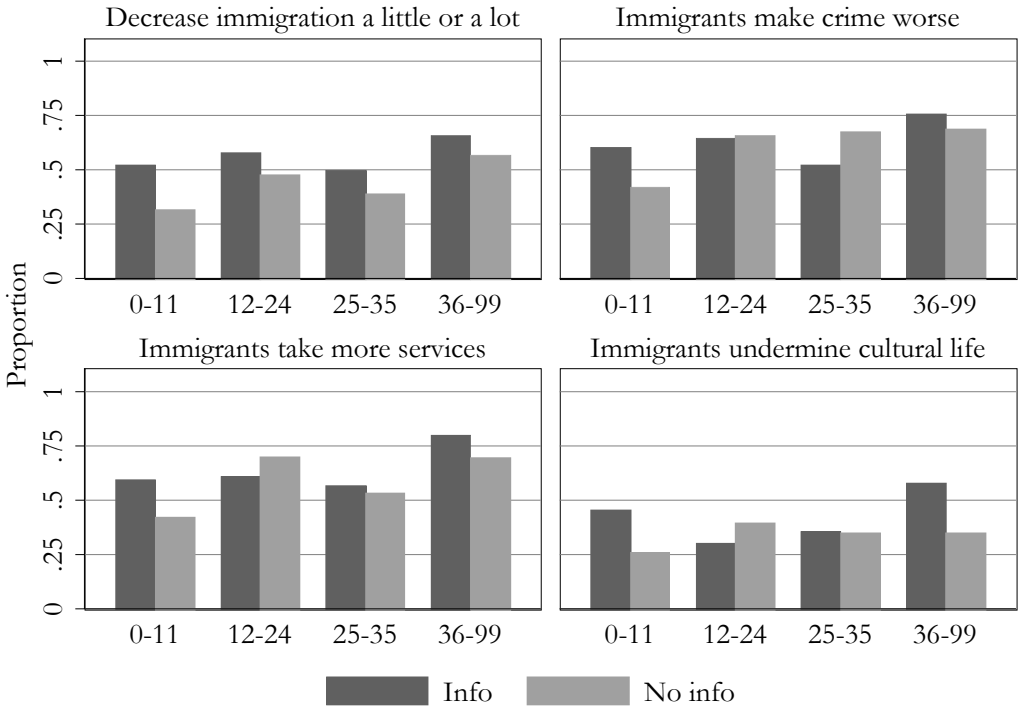
The bars represent the proportion of respondents who express less favorable attitudes toward immigration.
Source: 2006 CCES.

Figure 3. Results of the Correcting Experiment for Attitudes toward Illegal Immigrants



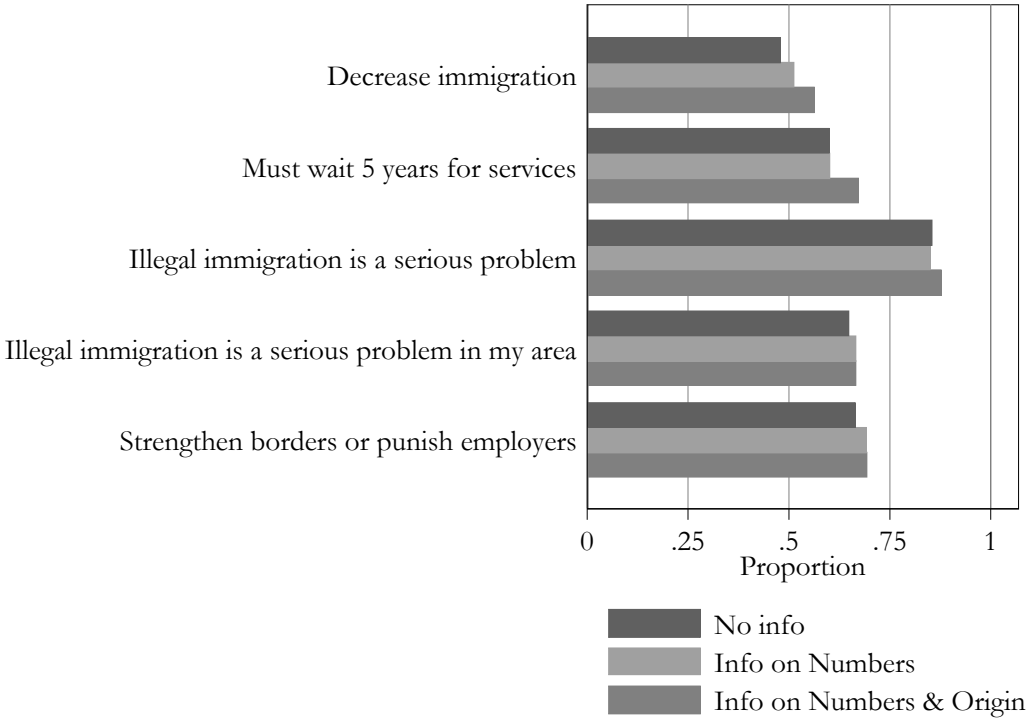
The bars represent the proportion of respondents who express less favorable attitudes toward illegal immigration.
Source: 2006 CCES.

Figure 4. Results of the Correcting Experiment for Attitudes toward Immigrants, by Size of Original Estimate



The bars represent the proportion of respondents who express less favorable attitudes toward immigration. Source: 2006 CCES.

Figure 5. Results of the Priming Experiment



The bars represent the proportion of respondents who express less favorable attitudes toward immigration.
Source: 2006 CCES.

Appendix 1. Information about Survey Datasets

European Social Survey

The European Social Survey (ESS) is a joint venture of the European Commission, the European Science Foundation, and academic organizations in the participating countries. The first round of this survey was fielded in 2002-2003 (Jowell et al. 2003). The sampling design of the ESS varies across countries. In some countries it approximates a simple random sample in that names are drawn from a list of residents. In countries that do not have such lists, a multi-stage or "cluster" sampling procedure is employed. The target response rate is 70 percent. Across these 20 countries, the average response rate was 60 percent, ranging from 33.5 percent in Switzerland to 80 percent in Greece. Both the mean of and variation in the response rate are comparable to other cross-national survey projects. All interviews were conducted face-to-face. For more information, see: http://www.europeansocialsurvey.org.

Citizenship, Involvement, and Democracy Study

The CIDS is a venture of Georgetown University's Center for Democracy and Civil Society, in loose collaboration with the ESS (Howard, Gibson, and Stolle 2005). The survey was fielded from May 16 to July 19, 2005. The sampling design was a multi-stage cluster sample. The response rate was 40 percent. All interviews were conducted face-to-face. For more information, see: http://www.uscidsurvey.org.

Cooperative Congressional Election Study

The CCES was a collaborative venture involving 39 universities in the United States, with Stephen Ansolabehere of MIT as the principal investigator. Each university designed a module of questions that was given to 1,000 respondents; in addition, the combined sample of approximately 39,000 respondents was asked a common module of questions. The common comment always preceded each university's module. The fieldwork for the survey was carried out by Polimetrix, Inc., of Palo Alto, CA. The survey was fielded in October and November of 2006.

The CCES was administered on-line and, as such, was not administered to a traditional probability sample. Respondents were selected from the Polimetrix PollingPoint Panel—a pool of several hundred thousand individuals who have volunteered or been recruited to participate in occasional on-line polls. Respondents were selected for the CCES using the following sampling procedure. First, a random subsample was drawn from the 2004 American Community Study, which is conducted by the U.S. Census Bureau and has a sample size of nearly 1.2 million and a response rate of 93 percent. Then, for each person in this sub-sample, the closest matching respondent was located in the PollingPoint Panel using a function that minimized the "distance" between the ACS and PollingPoint respondents based on several variables, including gender, race, age, marital status, education, party identification, and ideology. (Party identification and ideology were imputed for ACS respondents using demographic variables.) Finally, as is common in many surveys, post-stratification weights were created for the CCES respondents, matching the CCES marginals to the ACS marginals for education, race, gender, and age. For more on sampling matching and weighting, see Rivers (2006).

Though non-probability samples can contain certain kinds of bias (see Malhotra and Krosnick 2007), in this paper this is less of a concern. First, the average estimate of the immigrant population in the weighted CCES data was almost identical to that in the CID. Second, we use the CCES sample only to test for the effects of the experimental treatments, and the CCES sample is certainly much more representative than the convenience samples and subject pools in many conventional experiments.

Appendix II. Wording of Immigration Attitude Items in CCES

GW Module—Immigration Condition

1) Most people who come to live in the U.S. work and pay taxes. They also use health and social services. On balance, do you think people who come here take out more than they put in or put in more than they take out? (0-10 scale)

2) And would you say that America's cultural life is generally undermined or enriched by people coming to live here from other countries? (0-10 scale)

3) In general, do you think that America's crime problems are made worse or better by people coming to live here from other countries? (0-10 scale)

4) Do you think the number of immigrants from foreign countries who are permitted to come to the United States to live should be increased a lot, increased a little, left the same as it is now, decreased a little, or decreased a lot?

GW Module—Illegal Immigration Condition

1) How serious of a problem do you think the issue of illegal immigration is for the country right now? Very serious, somewhat serious, not too serious, or not at all serious?

2) Which of the following two statements comes closer to your point of view? "Illegal immigrants in the long-run become productive citizens and pay their fair share of taxes." OR "Illegal immigrants cost the taxpayers too much by using government services like public education and medical services." [Do you feel strongly or not so strongly about that?]

3) One proposal would allow illegal immigrants who have been living and working in the United States for a number of years, and who do not have a criminal record, to start on a path to citizenship by registering that they are in the country, paying a fine, getting fingerprinted, and learning English, among other requirements. Do you support or oppose this proposal?

4) Another proposal is to toughen immigration laws by making it a felony to be in the United States illegally. It also establishes mandatory prison sentences for reentering the United States illegally after having already been deported. Do you support or oppose this?

5) Now that you have heard some of the immigration legislation proposed by some members of Congress, which would you prefer: An approach that only focuses on tougher enforcement of immigration laws; OR An approach that includes both tougher enforcement of immigration laws and also creates a guest worker program that allows illegal immigrants to work legally in the U.S. on temporary visas

Berkeley Module

1) Do you think that immigrants who come to the U.S. should be eligible as soon as they come here for government services such as Medicaid, Food Stamps, Welfare, and in-state college tuition fees or should they have to wait one year to become eligible, wait three years, or wait the five years required to be eligible to be a citizen?

2) How serious of a problem do you think the issue of illegal immigration is for the country as a whole right now? Very serious, somewhat serious, not too serious, or not at all serious?

3) How serious of a problem do you think the issue of illegal immigration is for the area where you yourself live? Very serious, somewhat serious, not too serious, or not at all serious?

4) You may have heard that Congress has been working on a bill dealing with the problem of illegal immigration. Which of the elements of the problem do you think is the most important for Congress to deal with?
   - Making this country's borders more secure against illegal immigration
   - Creating a guest worker program that allows illegal immigrants to work in the U.S. on temporary visas
   - Punishing employers who hire illegal immigrants
   - Creating a program that allows illegal immigrants who have been here for a number of years and who meet certain conditions to start on a path to citizenship

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