



The use of identity primes to explain behavioral differences between groups: A methodological note



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ABSTRACT

Although economists are increasingly using behavioral experiments to study variation in preferences among human groups (e.g., males vs. females), relatively little attention has been paid to the inferential limitations of such experiments. Focusing on group identity primes, this methodological note considers the conditions under which researchers are able to identify causes and explain differences in behavior or preferences between groups. Main concern is that group identity priming (or other approaches to strengthening causal inference in such experiments) are not a panacea and that a persistent omitted variables problem continues to hamper identification of specific causes of group differences in preferences. This note develops a framework for thinking systematically about the treatment effects of priming individuals' group identity and possible approaches to clean identification of specific group-level traits explaining differences in preferences between groups. Unpacking observed effects of group membership on preferences and identifying specific causes of group differences is paramount from the perspective of policy implications and I clarify the framework's usefulness using concrete examples.

1. Quasi-experiments as tools for measuring differences in preferences between groups

This methodological note provides a systematic discussion of the conditions under which researchers are able to offer clean identification of causes of differences in behavior or preferences between human groups, for instance, males vs. females (Becchetti et al., 2013; Gneezy et al., 2009; Niederle, 2016) or Western vs. non-Western cultures (Ehmke et al., 2010; Fehr and Hoff 2011; Henrich et al. 2001, 2005). Challenging the standard assumption of homogeneous preferences (Stigler and Becker 1977), economists are increasingly studying the effect of group membership on preferences (Akerlof and Kranton 2010). The main approach in these studies is to conduct behavioral experiments, often game experiments, designed to represent stylized choice situations with clear theoretical links to certain types of preferences. Applied this way, experiments are measurement tools, providing rigorous quantification of subjects' preferences (Croson and Gächter 2010). A prominent example is the dictator game, which measures preferences for fairness (Guala and Mittone 2010). If samples of selected groups do not diverge on the most important (economic) parameters, experimental results inform us about whether and to what

degree the groups considered exhibit different behavior and therefore different preferences. Absent a role for beliefs, which holds for games that do not involve strategic interaction and associated endogenous uncertainty (i.e., for games that involve only exogenous uncertainty), preferences can thereby be straightforwardly equated with behavior.²

Of course, using experiments as measurement tools comes with several limitations. First, there is a generic concern with the external and ecological validity of experiments (whether results generalize to the population and whether preferences exhibited in a controlled environment generalize to other environments) as well as small effect sizes that suggest that any differences found may have little real-world relevance (Nelson, 2015). Second, and less well recognized, is the limitation that, when used as a measurement tool, behavioral experiments do not identify anything about the causes underlying observed behavioral differences between the groups considered (Burnham and Kurzban, 2005; Van Hoorn, 2012). The classic difference is between true experiments and quasi-experiments (Cook and Campbell, 1979), where the former requires random assignment to treatment, which is not achieved when groups are pre-existing as would be the case for cultures or male/female comparisons. Nevertheless, understanding and identifying specific causes of group differences in preferences is

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² In addition to the dictator game, various "games against nature" (for example concerning risk or time preferences) also allow equating behavior with preferences. In contrast, the behavior of, say, the first player in an ultimatum game is shaped both by his/her preferences and by his/her beliefs.

important, for instance, when thinking about the role of sex discrimination in male/female disparities in wages or authority attainment (Niederle, 2016) or about the role of culture in economic development (Gaygisiz, 2013; Gorodnichenko and Roland, 2011; Hoorn, 2014; Maridal, 2013; Marini, 2004; Petrakis and Kostis, 2013).

2. Causal identification in experiments with pre-existing groups: the co-variate and identity-priming approaches

Following a large literature in cross-cultural psychology (e.g., Leung and Van de Vijver, 2008), which has a long-standing engagement with quantifying and explaining group differences in such constructs as attitudes and values, two main approaches for strengthening the causal inferences substantiated by behavioral experiments with pre-existing groups can be discerned. The first approach involves the use of additional data or evidence external to the experiment to provide further analysis of experimentally observed group differences and argue a specific explanation for these differences. We may call this approach the “co-variate” approach (Leung and Van de Vijver, 2008, p. 154), as it typically involves the use of regression analysis to provide some evidence on the reason why different groups, on average, behave differently. Apicella et al. (2014) is an example of a study using the co-variate approach. Using group differences in geographic isolation to account for variation in the strength of experimentally observed endowment effects, they find that a dummy variable indicating whether the group is living in an isolated region or not correlates with the strength of these effects among eight groups of Hadza Bushmen in Northern Tanzania.

The second approach involves the use of primes to make group identity salient among randomly selected members of the specific groups considered (Leung and Van de Vijver, 2008, p. 154), what we may call the identity-priming approach. Priming refers to the use of cues (for example the perception or experience of something) to activate certain mental frames (for example values or norms) that then go on to act as guides for subsequent mental processes and behavior (e.g., Higgins, 1996; Oyserman and Lee, 2008). Because researchers can administer primes randomly, behavioral differences between group members that are primed and group members that are not primed reflect the causal effect of belonging to this specific group on preferences. Benjamin et al. (2010) is an example of a study taking this approach, finding that priming Asian identity of Asian-Americans had a positive effect on subjects' time preferences. Two other examples are the studies by Cohn et al. (2013), Cohn et al. (2014). The former study primed the criminal identity of inmates, finding that this prime increased cheating in a coin tossing game. The latter study primed bankers with their professional identity, also finding a positive effect on cheating in a coin tossing game.

3. Omitted variables and identification of the causes of group differences

Both the co-variate and the identity-priming approach provide researchers with interesting tools for strengthening the causal inferences substantiated by experiments involving pre-existing groups. However, these two approaches are not a panacea, as their ability to offer causal understanding of the factors driving behavioral differences between groups can still be limited (Leung and Van de Vijver 2008). In this section I elaborate how both approaches' ability to unpack observed group differences in preferences and provide clean identification of specific causes, i.e., of specific group-level traits explaining these differences is hampered by an omitted variables problem.

As indicated, practical implementation of the co-variate approach tends to involve estimating a regression model with experimentally observed behavior as the dependent variable and other measures as independent variables. The problem of omitted variables subsequently occurs naturally in this situation in the same way that it does in any observational study. Because there are so many potential causes of

systematic differences in experimentally observed behavior, it is simply not feasible to specify a regression model that effectively rules out all possible alternative explanations for observed differences in preferences. Thus, for instance, isolation may be found to correlate with group differences in preferences (Apicella et al., 2014) but based on the results of the regression analysis alone we are not able to rule out that a factor other than isolation is driving this relationship.³

Compared to the co-variate approach, the problem of omitted variables is more subtle when using the identity-priming approach. Because researchers can administer identity primes randomly, the identity-priming approach has no difficulty identifying a causal effect of group membership on individuals' preferences. The problem of omitted variables becomes relevant, however, when taking the next step, which is to unpack the effects of group membership and identify specific sources explaining group differences in preferences, i.e., identify particular group-level traits that explain why certain groups are, say, more risk averse than other groups are. The challenge is that priming individuals' group identity can make multiple distinct group-level traits salient at the same time, all of which could account for a found treatment effect (Schwarz and Strack, 1981). Hence, without additional information, it is not possible to unpack group differences and identify exactly which group-level traits cause individuals from some groups to behave differently than individuals from other groups do and which traits do not.

4. Strengthening identification of causes of group differences

In response to the issues raised in the previous section, in this section I flesh out ways to address the problem of omitted variables in co-variate and, particularly, identity-priming studies of group differences in preferences. In case of a co-variate study, there is a textbook solution, which is instrumental variable analysis. However, I find that the ideas underlying instrumental variable also help think systematically about the problem of omitted variables in identity-priming studies, offering guidance for strengthening the causal inferences substantiated by this type of studies.

The context for instrumental variable analysis is that we have an explanatory variable X that is supposed to have a causal effect on dependent variable Y . However, instead of simply regressing X on Y , the idea is to instrument variable X with a variable Z that affects variable X but has no direct effect on the dependent variable Y . This way, we use variable Z to provide us with the exogenous variation that we need to overcome the problem of omitted variables and provide clean identification of the causal effect of X on Y . For an instrument Z to be valid, it needs to satisfy two criteria:

1. Z correlates with explanatory variable X , what is known as the *inclusion* restriction;
2. Z does not correlate with variables other than X affecting the dependent variable Y , what is known as the *exclusion* restriction.

As an example, to strengthen the identification of geographic isolation as a cause of group differences in the strength of the endowment effect in Apicella et al. (2014) co-variate study, we would need to find a variable that affects groups' geographic isolation but does not have a direct effect on the strength of the endowment effect among members of

³ Although omitted variables exist in any co-variate study, the problem of omitted variables is typically more challenging for quasi-experimental studies because the number of groups considered in these studies is often low, rendering few degrees of freedom. Gneezy et al.'s (2009) finding that gender differences are reversed in a matrilineal vis-à-vis a patriarchal society, for instance, provides convincing evidence that biology or nature cannot be the only cause of observed gender differences and that culture must play a role. At the same time, however, their study does not identify anything about why exactly individuals from the matrilineal society considered, on average, behaved differently than individuals from the patriarchal society did.

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