



Cognitive ability and the division of labor in urban ghettos: Evidence from gang activity in U.S. data

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ABSTRACT

Hernstein and Murray (1994) famously argued that the division of labor in modern society is determined by individual differences in cognitive ability. This paper shows that differences in cognitive ability can also determine the division of labor in poor urban areas. We estimate the effect of IQ on time-to-first gang participation with data from the National Longitudinal Survey of Youth (NLSY97) and Project on Human Development in Chicago Neighborhoods (PHDCN). Results from both the NLSY97 and PHDCN indicate that low-IQ is a robust predictor of gang participation. There are two plausible explanations of this main finding: (1) low-IQ individuals may have comparative advantage in violence as their opportunity costs of engaging in legal activities are low and (2) gangs may prefer low-IQ individuals as a way to reduce agency costs. We find strong evidence in support of the hypothesis that persons with lower IQs have comparative advantage in criminal activity in the PHDCN dataset.

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1. Introduction

Street gangs are endemic to impoverished, urban neighborhoods the world over. Poor infrastructure, lack of access to credit, wide-spread illicit trade, pervasive violence, and dense social/ethnic networks in these areas cause residents to have similar life experiences (Kling et al., 2005a; Venkatesh, 2000, 2006; Wilson, 1987). However, the relatively small ratio of gangsters to citizens, even in the poorest neighborhoods, suggests gang participation is determined by characteristics not shared by neighborhood residents.

Hernstein and Murray (1994) famously argued that the division of labor in modern society is determined by individual differences in cognitive ability. The primary contribution of this paper is to show that differences in cognitive ability can also determine the division of labor in poor urban areas. Economic theory predicts that, in the full employment scenario, labor-market specialization is determined by comparative advantage. Although the economies of poor urban areas are generally depressed, the underground economy is often at full employment (Venkatesh, 2006). Civil

governments' inability to maintain the rule of law in poverty-stricken neighborhoods and lack of legitimate work opportunities may provide low-IQ individuals with comparative advantage to engage in gang activity.

The psychology literature documents a negative relationship between IQ and the propensity for criminal behavior (see Wilson and Hernstein, 1985; Hernstein and Murray, 1994). Sociologists have also noted gang members tend to have lower levels of cognitive ability (Short and Strodtbeck, 1965; Hughes and Short, 2005). In this paper, we investigate the link between cognitive ability and an individual's decision to join a gang. Drawing upon theoretical research by economists and the gang literature in sociology, we present two economic explanations for why cognitive ability is a trait on which selection of gang membership occurs: (1) if gangs provide security and enforce contracts in neighborhoods where civil government does not (Sobel and Osoba, 2009), then low-IQ individuals may have comparative advantage in gang activities, as they generally have fewer legitimate opportunities for socioeconomic advancement and (2) gangs may prefer low-IQ individuals, if they are more likely to identify with the organization because they have fewer outside options, as a way to reduce agency costs (Akerlof and Kranton, 2005).

To uncover the economic relationship between IQ and gang participation, we address the following empirical question. Can IQ scores explain differences in gang participation among individuals

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from similar socioeconomic backgrounds, the same neighborhood, or even the same family?¹ We use two unique data sets in this study: the 1997 cohort of the National Longitudinal Survey of Youth (NLSY97) and the Project on Human Development in Chicago Neighborhoods (PHDCN). The NLSY97 collects extensive information on criminal activity, family background, socioeconomic variables, as well as cognitive and non-cognitive traits. With the NLSY97, we examine the relationship between measured cognitive ability and the general characteristics of gang participation from a nationally representative sample of the United States. Sibling comparisons are also possible with these data, as the NLSY97 samples a large percentage of multiple-respondent households. The PHDCN also collects roughly the same background information as the NLSY97. However, the PHDCN is more closely related to the ethnographic data collected by sociologists, as it contains extensive information on the neighborhood experiences of individuals.

Duration analysis is used to estimate the relationship between cognitive ability and gang participation. Results from the NLSY97 sample, which account for sibling effects, indicate low IQ is a robust predictor of gang participation. A one standard deviation increase in IQ corresponds to a 29–64 percent risk reduction for initial gang affiliation. Non-cognitive traits, increasingly significant in the human capital literature (e.g., Heckman et al., 2006), are also statistically and economically significant in the gang participation decision. Although, the NLSY97 data does not allow a direct test of the theoretical predictions presented above, it does allow us to control for unobserved heterogeneity, particularly at the family level, which may drive gang participation. The results from the PHDCN sample suggest that an individual's IQ is a robust predictor of gang participation. Non-cognitive traits again have a proportionate effect on gang participation. However, the PHDCN results demonstrate gang participation is affected by a person's relative IQ, with respect to one's neighborhood peers. Conditional on individual, family, and neighborhood characteristics, an above average IQ (in the neighborhood) corresponds to a 26–43 percent risk reduction for gang membership. This finding supports our hypothesis that differences in cognitive ability determine the division of labor in poor urban areas.

The rest of the paper is organized as follows. Section 2 describes the theoretical background underlying this research; Section 3 presents data sets used in the analysis, as well as briefly describes the methodology. Section 4 presents main results and Section 5 concludes.

2. Theoretical background

2.1. Nature vs. nurture

In *The Bell Curve*, [Hernstein and Murray \(1994\)](#) argue that higher-order thinking, identified by the scalar 'g' through standardized tests of mental ability, is a heritable trait which predicts socioeconomic success.² The authors cite a wide-ranging literature on social deviance and further argue that 'g' is a primary predictor of criminal behavior. [Heckman \(1995\)](#) and much of his subsequent (coauthored) research downplay the primary role of cognitive ability in the determination of criminal outcomes. Instead, non-cognitive traits—personality characteristics which accentuate (inhibit) the accumulation of human capital—play a commensurate role ([Heckman et al., 2006](#)). The upshot is [Hernstein](#)

and [Murray \(1994\)](#) leave little room for public policy solutions, whereas [Heckman's](#) work emphasizes the potential payoffs of early childhood education, particularly for disadvantaged children (e.g., see [Heckman, 2008](#)). A key benefit of programs which promote non-cognitive skill formation is the reduction of crime later in life ([Heckman et al., 2006](#)). The greater malleability of non-cognitive skills relative to cognitive skills is a fundamental justification for public policy measures which help promote an environment where these skills can be accumulated ([Heckman, 2008](#)).

In most cities where gang activity is prominent, neighborhoods are stratified along socioeconomic boundaries; hence, disadvantaged children grow up in very different environments. The literature also shows that neighborhood environment and peer groups have a large effect on observed behavior ([Case and Katz, 1991](#); [Costa and Kahn, 2003](#); [Anderson, 1999](#); [Glaeser et al., 1996](#); [Thornberry et al., 2004](#)). While it is not yet clear how a child's environment might affect cognitive and non-cognitive traits,³ it is widely known that impoverished, urban areas have low levels of human capital, persistent unemployment, and high rates of crime ([Wilson, 1987, 1996](#)), all of which are associated with low IQ scores for individuals who register those outcomes ([Hernstein and Murray, 1994](#)). As a result, it is difficult to disentangle whether the socioeconomic outcomes which are correlated with latent ability are generated by personal (inherited) characteristics or by social environments which promote neither healthy socioeconomic outcomes nor cognitive/non-cognitive development.⁴

A more recent experimental literature in economics attempts to establish the magnitude and direction of neighborhood effects on a variety of socioeconomic outcomes for people from crime-ridden areas ([Katz et al., 2001](#); [Kling et al., 2005a,b, 2007](#)). Although this literature has yielded mixed results, social experiments on neighborhood transition (from low-to-high socioeconomic status areas) reveal that younger people reap the largest economic benefits from a healthier neighborhood environment ([Ludwig et al., 2008](#)).⁵ Yet, even with a well-designed social experiment, it is difficult to identify the channels through which the neighborhood affects individuals who live there ([Ludwig et al., 2008](#)).

In this paper, we take a different approach by investigating how latent characteristics, specifically cognitive ability, can manifest to the neighborhood level. Gang participation is a unique outcome variable which offers an opportunity to study the effect of psychological differences which drive criminal group selection and, as a result, the composition of neighborhood economies. While we recognize the complementary role non-cognitive traits may play in the determination of gang affiliation, non-cognitive traits have been shown to be more responsive to interventions ([Heckman et al., 2010](#)). As a result, exposure to gangs could affect non-cognitive skill formation. Below, we present two economic hypotheses for the linkage between cognitive ability and gang participation.

2.2. Low IQ equals low opportunity cost of gang activity

To the best of our knowledge, [Short and Strodbeck \(1965, pp. 237–238\)](#) were the first to measure intelligence quotients for gang and non-gang members. The authors find that gang members scored consistently lower on cognitive achievement tests than did non-gang members from the same race/neighborhood.

"These findings are impressive because of their consistency and the care with which the test program was developed and

¹ We use IQ and cognitive ability interchangeably throughout the paper. The test scores used in the analysis would also be considered "IQ" scores.

² Following publication, a literature addressing the claims made in *The Bell Curve* emerged. For an introduction to this literature, see [Currie and Thomas \(1999\)](#), [Goldberger and Manski \(1995\)](#) and [Heckman \(1995\)](#).

³ For example, see [Hanushek and Lindseth \(2009\)](#) and [Heckman et al. \(2010\)](#) for contrary assessments of the HighScope Perry Preschool Program.

⁴ See [Dickens and Flynn \(2006\)](#).

⁵ See [Durlauf \(2004\)](#) for an excellent review of the neighborhood effects literature.

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