

Patents and Ghettos: Evidence from African-American Patents and Their Neighbordhoods,
1963-2006

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ABSTRACT

This paper uses a new data set that permits an empirical investigation of the effects of social interaction on innovation. The data have been constructed from matching African American inventors to U.S. utility-patent data between 1963 and 2006. Exploratory research on this data set reveals three major puzzles. First, from 1983 to the present, which includes the longest economic expansion in recent history, patenting rates among African Americans have fallen nearly 46 percent compared to an increase of 59 percent overall. This is surprising, because most changes in the factors that should affect patenting activity among African Americans, including increases in relative and absolute educational attainment in the sciences, have been favorable over this period. Second, a random sample of African American inventions who patented between 1980 and 2000 reveals that, contrary to the general trend observed since the early 20th century, blacks are more likely to be individual inventors than their non-white counterparts and that those who are members of patent teams are more prolific than individual inventors. In addition, African Americans' inventions are less likely than their counterparts' inventions to be assigned at issue, irrespective of patent classification. These findings suggest that patent-team formation is not wholly mediated through the market for specialized talent. What are the relevant non-market factors that determine patent-team participation? More generally, which types of social interaction raise inventive activity and increase the probability that invention becomes innovation? In the simple model that is presented, any given "social" inventor is more likely to patent when the participation rate among her peers is higher, that is, on a patent team. The model predicts that patenting rates are higher among social inventors, those who form patent teams and select their members, than among non-social inventors. The model is tested using the new data and controlling for other factors, such as education. I find that residence in a racially integrated neighborhood, association with a federal laboratory, possession of a degree from a California university, and association with AT&T or one of its affiliates raise the probability of being a "social" inventor and member or leader of a patent team. The neighborhood result is examined further. Using a random sample of all inventors in the Washington, D.C. area between 1976 and 2006 which are matched to census data, I find that most inventors who are not black are largely concentrated in three residential zip codes, while the firms to which they assign their patents are distributed across twelve zip codes. In addition, neighborhoods of black and white inventors differ appreciably with respect to average educational attainment, poverty rates, and median household income. Corporate policy and government policy, related to innovation and more broadly, are likely relevant to each of these decisions by inventors. The economic significance of this examination is that social decisions may result in nontrivial and persistent changes in the level and direction of inventive activity, the source of improvements in technology that allow sustained increases in per capita income.