Effects of Comparison to a Random Sample from the General Population

- I. There are two fundamental designs used to evaluate programs. Experimental and Observational research designs.
 - a. Experimental designs are characterized by the use of randomized assignment to research groups to control for the effects of influences, other than the program's, that would confound one's understanding of the program effects. Practical and ethical problems with the use of experimental designs in the evaluation of the effectiveness of programs with human subjects.
 - i. It isn't always possible to randomly assign subjects to research groups because individuals ultimately can decide whether they want to participate or not.
 - ii. In many instances it may not be fair to randomly allocate subjects to research groups without consideration of the individuals interests and needs.
 - b. Observational designs do not impose on the process (program) being evaluated but instead attempt to observe and utilize the natural variation in the process to statistically control for effects that might otherwise confound an understanding of how the program affects the outcome. Threats to the validity of studies of human subjects with observational designs.
 - i. Inadequate sample selection.
 - ii. Biased results due to self-selection of subjects into, or out of the study group.
- II. Construction of the comparison group.
 - A. We chose to use an observational design because we felt the problems of observational studies were fundamentally less problematic. Our principle method for reducing the limitations of the observational approach was to model the self selection process.
 - 1. Presumes there were individuals in the population who were interested in training but for whatever reason did not have the opportunity. Since inferences can only be made to individuals who would be interested in participating in a program, our matching objective was to identify these individuals in the population, based on predisposed characteristics that tended to be associated with individuals who had selected themselves into prison industries, or VT or apprenticeship courses. The BOP has far more demand for industries positions than it has positions to fill, so this is a very reasonable assumption.
 - A. Matched individuals who obtained 6 months or more industries experience, or who had successfully completed a VT or apprenticeship program, with individuals who did not have those experiences.

- B. We required exact matches of observations on sex, race and Hispanic ethnicity, and within each of these socio-demographic classes, relied on a statistical match of similarity on an array of measures of prior educational, occupational and criminal history characteristics..
- 2. Resulted in a comparison group that was statistically indistinguishable with respect to these prior incarceration characteristics. Therefore, since the two groups looked virtually identical when they arrived at our door, it is plausible that at least part of any differences we observe in the outcomes of the two groups may be attributable to the training the Bureau provided.
- III. Consequences of selection bias and a lack of research group comparability. How the comparison of self selected study group members to random samples from a general inmate population may have lead to an inability to detect program effects in previous training program evaluations (see for example, Maguire et. al, 1988).
 - A. Work of Nagin and Waldfogel (1993, 1995) and Waldfogel (1994a, 1994b)., while not related specifically to the issue of selection bias, nevertheless yields implications for understanding how such research design flaws and measurement problems may act to confound one's understanding of a programs effects.
 - 1. Studied the effects of convictions on earnings.
 - 2. Interested in explaining why previous research has found a positive association between conviction and increased earnings for individuals under 25 years of age.
 - 3. Found support for their hypothesis that the relationship is due to research designs which did not capture the movement of study subjects from one career path to another which resulted from the conviction. Nagin et. al. observed:
 - 1. Convictions of individuals 25 years of age or younger resulted in an increase in average wages.
 - 2. Conversely, convictions of individuals over 39 years of age resulted in an average decline in wages..
 - 4. Nagin and colleagues explained this phenomenon via an economic theory referred to as the dual labor market which dictates that employment markets are characterized by two employment profiles.
 - 1. Career or primary labor market
 - 2. Spot or secondary labor market
 - 3. An extension of this theory by Bushway (1996), indicates that credentialing can mitigate the movement from the primary to secondary labor market, and therefore has implications for program designs. Bushway's extension may explain why our analyses find higher survival probabilities for VT and Apprenticeship trainees, where the training may be more likely to result in some type of certificate.

- B. Assume the effects hold or are stronger for commitments. Additionally, assume that secondary labor markets favor younger over older workers, and that there are relationships between wages and employment retention, and employment and involvement in criminal activity.
 - 1. Individuals who select themselves into prison training programs are generally older, possibly they have decided that the life of crime is not working out and that having a job skill may help remedy their problem.
 - 2. If a comparison is made between this older group and a random sample of the general population at that prison, the random sample from the general inmate population will probably be younger than the training group.
 - 3. If previous study and comparison groups were composed in such a manner, then it seems plausible that assessments of program effectiveness, based on comparisons of group member's abilities to find and hold a job, legal earnings, and their rates of re-arrest or re-commitment, may be confounded by the same influences that Nagin and his colleagues observed.
 - 4. That is, outcome comparisons are being made between generally older study observations and generally younger comparison observations, who are competing for jobs in a labor market which generally favors younger individuals. Furthermore, younger individuals may be better able to sustain themselves on a more meager spot labor market income, because they are less likely to have as many financial obligations.
 - 5. If there is a relationship between wages and employment retention, and employment and crime, as previous studies have demonstrated, this may lead to higher rates of criminal involvement and revocations among the study observations and to conclusions that the programs are ineffective.

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