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Selection Bias and Econometric Remedies in Accounting and Finance Research

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Abstract

While managers' accounting and financial decisions are, for many, fascinating topics, selection bias poses a serious challenge to researchers estimating the decisions' effects using non-experimental data. Selection bias potentially occurs because managers' decisions are non-random and the outcomes of choices not made are never observable. "Selection bias due to observables" arises from sample differences that researchers can observe but fail to control. "Selection bias due to unobservables" arises from the unobservable and thus uncontrolled sample differences that affect managers' decisions and their consequences. In this article I review two econometric tools developed to mitigate these biases – the propensity score matching (PSM) method to mitigate selection bias due to observables and the Heckman inverse-Mills-ratio (IMR) method to address selection bias due to unobservables – and discuss their applications in accounting and finance research. The article has four takeaways. First, researchers should select the correct method to alleviate potential selection bias: the PSM method mitigates selection bias due to observables, but does not alleviate selection bias due to unobservables. Second, in applying PSM researchers are advised to restrict their inferences to firms whose characteristics can be found in both the sample and control groups. Third, the IMR method, though popular, is limited to situations in which the choices are binary, the outcomes of choices are modeled in a linear regression, and the unobservables in the choice and outcome models follow a multivariate normal distribution. Researchers can overcome these constraints by using full information maximum likelihood estimation. Last, when the IMR method is used, special attention should be paid to the formulas in calculating IMRs. The article also calls for researchers' attention to other approaches to evaluating the effects of managers' decisions.

Keywords: selection bias, propensity score matching, inverse mills ratio, Heckman Model[Suggested Citation](#) >[Show Contact Information](#) >[Download This Paper \(Delivery.cfm/SSRN_ID2230904_code393576.pdf?abstractid=1756911&mirid=1\)](https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID2230904_code393576.pdf?abstractid=1756911&mirid=1)[Open PDF in Browser \(Delivery.cfm/SSRN_ID2230904_code393576.pdf?abstractid=1756911&mirid=1&type=2\)](https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID2230904_code393576.pdf?abstractid=1756911&mirid=1&type=2)

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