

Propensity Score Matching in Accounting Research

Shipman, Jonathan E. and Swanquist, Quinn T. and Whited, Robert L.

The Accounting Review (2017), 92 (1), pp. 213–244

3 PROPENSITY SCORE MATCHING IN ACCOUNTING RESEARCH

■会計研究における PSM の利用 (Table 1 Panel A)

- 2008～2014 年における、*The Accounting Review*, *Contemporary Accounting Research*, *Journal of Accounting and Economics*, *Journal of Accounting Research*, and *Review of Accounting Studies* に掲載された論文延べ 86 件が対象。
- 会計研究で PSM が用いられはじめたのは最近 (86 件中 70 件は 2012～2014 の期間に刊行)。

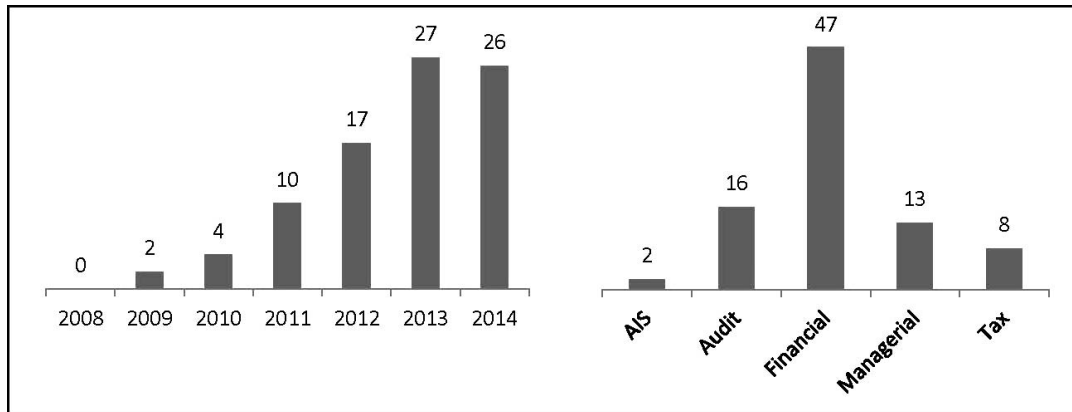
■各研究の PSM の位置付け (Table 1 Panel B)

- 主要な分析 (primary analyses) として用いている研究が 37 件であるのに対し、ロバスト・チェック (sensitivity or robustness tests) として用いている研究は 49 件。
- PSM を採用する理由として FFM や重回帰分析の線形性の仮定を挙げている研究はわずか 20 件。
- PSM が対処しうる内生性の問題を提示することなく、広く“自己選択 (self-selection),” “内生性 (endogeneity),” および“欠落変数バイアス (omitted variable bias)” への対応として PSM を用いている研究が 33 件ある。
- Heckman (1979) の代わりとして誤用してしまっている研究も存在する。

TABLE 1

Descriptive Statistics for Accounting Studies Using PSM

Panel A: Number of Studies in Top Accounting Journals Using PSM Techniques by Year and Topic^a (2008–2014)



^a Topics are classified using the BYU Accounting Research taxonomy (Coyne et al. 2010). Twenty-three studies had more than one BYU topic classification (the majority of which include “financial”). Based on judgement, we placed each study into just one classification.

Panel B: Purpose and Reliance on PSM in Empirical Tests (2008–2014)

Is PSM used as a primary or sensitivity analysis?	Primary	Sensitivity
	37	49
If used as a primary analysis, is PSM the only method for at least one conclusion?	Yes	No
	22	15
Is PSM motivated by concerns about FFM or nonlinearities?	Yes	No
	20	66
Did the paper test for FFM or nonlinearities?	Yes	No
	2	84
Is PSM motivated by generic concerns about “self-selection,” “endogeneity,” or “omitted variable” bias?	Yes	No
	33	53

Panel C: Implementation of PSM (2008–2014)

Was the underlying treatment construct dichotomous?	Yes	No	
	52	34	
For the 64 studies that used other non-PSM tests, were the matching/control variables consistent with other tests?	Yes	No	Unknown
	13	43	8
Does the study match with replacement or without replacement?	With	Without	Unknown
	5	26	55
Did the paper impose a caliper distance?	Yes	No/Unknown	
	29	57	
Was the matching procedure 1:1 or 1:m?	1:1	1:m	Unknown
	68	11	7
Did the paper discuss covariate balance?	Yes	No	
	51	35	
Does the study use MR or a t-test for the second stage?	MR	t-test	Unknown
	58	22	6

Table 1 presents descriptive statistics on the use of PSM in the leading accounting journals from 2008–2014. Studies were identified by searching all publications in *The Accounting Review* (28 studies), *Contemporary Accounting Research* (20 studies), *Journal of Accounting and Economics* (13 studies), *Journal of Accounting Research* (16 studies), and *Review of Accounting Studies* (nine studies) for PSM-related key words (e.g., “propensity,” “PSM”) and manually determining whether a PSM technique was used. Panel A categorizes the studies by year and topic. Panels B and C classify the studies by motivation and methodology. All studies identified are listed in Appendix A.