

Motomart: Mixed Up Over Mixed Costs¹

A.J. Cataldo II*

John S. DeJoy

Abstract

The Motomart case is based on real data and designed to supplement managerial/cost accounting textbook coverage of cost behavior and variable costing. Unlike textbook problems, this data is real. It will not produce a clear solution when attempts are made to analyze cost behavior and apply the basic techniques of scatter plot, high-low, and regression methods to separate mixed costs into their fixed and variable components and develop cost equations. Therefore, this case illustrates the impact and consequences of a failure to properly apply accrual-based financial accounting. The financial information generated by Motomart was not useful. Motomart was not using accrual accounting. Without the properly applied “matching principle” and “periodicity assumptions,” consistent with accrual accounting, financial data cannot be used to separately develop fixed and variable cost measures, break even points, forecasts, or any managerial accounting techniques extended from the development of these basic, cost behavioral measures.

I. Introduction

This case is based on real financial data provided by a retail automobile dealership (Motomart) seeking to relocate closer to an existing retail dealership. You will examine the mixed cost data from Motomart and apply both high-low and regression to attempt to separate mixed costs into their fixed and variable components for break-even and contribution margin computations. You will find that the data are flawed because Motomart, in violation of its own policies and franchise dealership agreement, was not using accrual accounting. Do not attempt to correct the data (e.g., do not remove *outliers* or *influential outliers*). You will be producing a scatterplot and apply high-low and regression methods to the extent practicable and writing a summary report of the findings.

Motomart operates a retail automobile dealership. The manufacturer of Motomart products, like all automobile manufacturers, produces forecasts. It has long been an industry practice to use variable costing-based/break-even analyses as the foundation for these forecasts, to examine their cost behavior as it relates to the *new retail vehicles sold (NRVS)* cost driver. In preparing this financial information, a manual containing standardized financial statement formats and accounting procedures is provided to each retail automobile dealership. The dealership is required to produce monthly financial statements using the guidelines provided by this common accounting procedures manual, and then furnish these financial statements to the manufacturer. General Motors, Ford, Nissan, and all other automobile manufacturers employ similar procedures manuals.

The use of a common format facilitates the development of composite financial statements that can be used to estimate costs and produce financial forecasts for future or proposed retail dealership sites (Cataldo and Kruck 1998; Cataldo 1989). Zimmerman (2003) suggests that as many as 77 percent of manufacturers divide costs into variable and fixed components, and that managers arrive at these estimates by classifying individual accounts as being primarily fixed or

¹ Motomart has been used at introductory, intermediate and graduate levels at Western Michigan University, Oakland University, West Chester University, and by Penn Foster, in their capstone, BUS450 course, in their four year business degree program (Penn Foster, Inc. 2008).

primarily variable (67). For this case, you will examine mixed costs as defined by the manufacturer. Using the scatterplot, high-low, and regression methods, separate these mixed costs into their fixed and variable components. The data is problematic, and a clear solution will not exist. This case will expose you to actual data and require you to summarize your findings, including any conclusions you are able to reach and why the non-accrual-based financial statements and data makes it impossible to separate the mixed costs into their fixed and variable components.

When you complete this case, you will be able to

- Explain the importance of accrual accounting and proper application of the matching principle and periodicity assumption for the computation of contribution margins and break-even points
- Integrate statistical analyses, including scatter plots, line graphs, and regression to determine the accrual-based nature and reliability of financial information prepared for both internal and external use
- Use analytical review procedures to examine a firm's financial statements
- Apply critical-thinking skills to real-world business circumstances
- Practice decision making skills using inconclusive information.

II. Textbook Literature Review

Prior to development of the Motomart case, and its testing and use in the classroom, twenty-four managerial and cost accounting texts were examined. The examination focused on text coverage of variable costing, devoted to mixed cost decomposition into fixed and variable cost components for contribution margin and break-even calculation and/or forecasting. None of these texts was found to “explicitly” state the need for accrual-basis financial data to produce variable costing-based information for decision-making. Only a few of these texts “implicitly” indicated this requirement. These conditions persist in later editions of managerial and cost accounting texts. Therefore, the Motomart case remains usable and useful.

In addition to the review of six texts, which will be characterized as non-traditional, professional and advanced texts (next section), eighteen traditional texts were examined, as follows:

1. Blocher, Chen, Cokins and Lin (2005)²
2. Brewer, Garrison and Noreen (2005)
3. Eldenburg and Wolcott (2005)³
4. Hanson and Mowen (2005)
5. Hilton (2005)
6. Horngren, Sundem and Stratton (2005)
7. Needles and Crosson (2005)
8. Swain, Albrecht, Stice and Stice (2005)
9. Warren, Reeve and Fess (2005)
10. Werner and Jones (2004)
11. Jiambalvo (2004)

² This was the only text to provide for an *annual* expense high-low example, where they used seven annual data points (1998-2004) to introduce the high-low methods in the chapter on cost estimation (190-236). Regression coverage was relatively superior, and “mismatched” time period problems were addressed (205).

³ This text provided a tabular summary of the methods, descriptions, advantages and disadvantages of six cost behavior analysis approaches (61-62).

12. Garrison and Noreen (2003)
13. Hanson and Mowen (2003)
14. Hilton, Maher and Selto (2003)
15. Horngren, Datar and Foster (2003)
16. Weygandt, Kieso and Kimmel (2002)
17. McWaters, Morse and Zimmerman (2001) and
18. Morse, Davis and Hartgraves (2000)⁴

Using key words,⁵ the subject index in each text was searched. *Cost behavior* chapters and text sections devoted to methods of separating mixed costs into fixed and variable components (e.g., high-low and regression) were also examined.

The authors of more than half of these texts were emailed and asked, specifically, about the accrual basis and cash basis method distinctions in their chapters, and if they would consider including some reference to the accrual versus cash basis distinction. All respondents felt the topic was relevant to managerial/cost accounting courses and should be covered, but most felt the topic more appropriate at the intermediate or advanced levels. This, despite the fact that undergraduate and introductory level managerial accounting courses, typically, immediately follow introductory level financial accounting courses with respect to course completion and sequence.

Six of the texts examined represent non-traditional, case study or graduate level texts, as follows:

1. Ansari, Bell and Klammer 2004
2. Atkinson, Kaplan and Young 2004
3. Cooper and Kaplan 1999
4. Kaplan and Atkinson 1998
5. Vance 2003 and
6. Zimmerman 2003

Three were co-authored by Kaplan, emphasizing activity-based costing (ABC) techniques, cases or mini-cases, and de-emphasizing traditional text formats and coverage, excluding coverage of the high-low and regression techniques to separate mixed costs into their fixed and variable cost components.⁶ One was a modular series, suggesting its use as a supplement to traditional texts.⁷

⁴ A 3rd edition of this text was available (2003), but was not reviewed.

⁵ Key words searched included, *accrual* and *accrual basis*, *break-even*, *cash* and *cash basis*, *high low*, *matching* and *matching principle*, *period* and *periodicity* and *periodicity assumption* and *regression*.

⁶ Atkinson et al. (2004) also made reference to the historical or traditional use of external user or GAAP-based financials by cost accountants (34). Fixed and variable cost coverage was not provided, in the traditional sense. The authors referred to variable costs as “flexible” costs and included, as an alternative to variable costing, “marginal” costing. Full absorption costs (e.g., accrual-based financial accounting) were referred to as “capacity” costs (120).

Cooper and Kaplan (1999) made references to traditional fixed and variable costs, and even super-variable costs, which rise faster than sales volume (342). High-low and regression techniques were not discussed and no reference, implicit or explicit, was made to cash or accrual basis formats for the classification of these costs.

Kaplan and Atkinson (1998) did not provide coverage of the high-low or regression techniques in their advanced text, but provided for an introductory chapter on understanding cost behaviors (12-32). Fixed and variable costs were referred to as “committed” costs and “flexible” costs (Atkinson et al. 2004), respectively (13). The traditional cost function (e.g., total cost equals committed costs plus flexible costs) and references to annualizing these costs suggested application of the periodicity assumption, implying the use of accrual accounting. They “...do not try to attribute...costs to individual units of production” (27).

The remaining two texts were designed for the graduate or professional level. They provided coverage of break-even analysis and both implicitly addressed the requirement for external use, accrual-based financial statement data.⁸

Zimmerman provided relatively superior coverage with respect to the considerations that must be taken into account when estimating fixed and variable costs. The below excerpt addresses without overtly defining, the distinction between cash and accrual basis, as well as matching principle concerns, with an illustration:

...if supplies are purchased and expensed in one month but consumed over several months, the reported cost of goods sold contains measurement errors that make estimating fixed and variable costs problematic (66).

Of the six non-traditional, professional or advanced texts examined, Zimmerman (2003) appeared to provide the greatest clarity with respect to the need for (and the problems associated with failure to generate and use) accrual-basis financial information for the separation of mixed costs into their fixed and variable components.

III. Motomart Background: A Litigation Support Engagement

The Motomart case evolved from a litigation support engagement. The author of this case was hired to analyze the data and provide expert testimony. This data is made available to the public (for a fee to cover reproduction costs). A broad description of the relevant points for the Motomart case follows.

Motomart wanted to move its retail automobile dealership, blaming location for declining profits and increasing losses. However, there was an existing dealership located close to Motomart's desired new location. Motomart provided financial projections, using variable costing, to show that after relocation both Motomart and the existing dealership would be profitable. Motomart created these financial projections using a database provided by the manufacturer, which included all North American retail automobile dealerships. Motomart was one of the observations or retail automobile dealerships included in the database used to create these financial projections. You will be examining portions of Motomart's historical financial data. The relocation site was quite close to an existing dealership and the existing dealer felt that, if the relocation was permitted, one or both of the dealerships would fail to break even and eventually go bankrupt, leading to poor service, or what the automobile industry refers to as "orphaned" owners of these new retail vehicles sold.

⁷ Ansari et al. (2004) is a modular series. One module (97-137) specifically identified external financial accounting and generally accepted accounting principle- (GAAP-) based financial information as the historical source of information for cost classifications (100).

⁸ Vance (2003) was a non-traditional text or handbook. It did not provide coverage for the high-low method or regression, but made frequent references to "monthly" break even calculations, suggesting application of the periodicity assumption (205-221). Vance also provided a separate section on cash flow-based break-even (221-225), which implied an accrual/cash basis distinction.

Zimmerman (2003) did not provide coverage of the high-low method. However, this text, which is designed for graduate-level coursework, provided coverage of regression and strongly implied the use of GAAP- or accrual-based financial statements (64-67):

This appendix illustrates some of the practical considerations of estimating fixed and variable costs from *actual company records...publicly available data...in firm's annual reports...* (emphasis added) (64-65)

Antitrust laws provided the existing dealer with a legal remedy – the means to block or prevent the relocation requested by Motomart – but only if those opposing the Motomart relocation could prove that this relocation was not in the best interest of the consuming public. Generally, the only way to prove this is to prove that there is simply not enough business for both retail automobile dealerships to break even or generate a reasonable return on investment, given the risks associated with the industry. Again, the manufacturer, in support of the proposed Motomart relocation, supplied financial projections showing that both retail automobile dealerships would be profitable after the relocation.

The expert witness hired to investigate the merits of the relocation was given the Motomart data, but not the entire database that included the Motomart data. The Motomart data was in such poor form that it wasn't possible to produce a financial forecast. An alternative forecast, not included in this case, was produced. This alternative forecast did *not* support the relocation of Motomart to a site closer to the existing dealer. The alternative forecast showed that the market simply could not support two retail automobile dealerships. The implication was that, as the weaker of the two dealerships, Motomart was losing business to the existing dealer. In conclusion, the relocation request by Motomart was denied.

IV. Income and Expense Data

Tables I and II provide information relating to mixed or semi-fixed expenses from Motomart's financial statements. Completely variable revenues and expenses and completely fixed expenses are summarized in Table I, in aggregate form, but are not relevant to the case or your assignment. Table II contains the mixed costs you are to evaluate.

Refer Table I and II

Apply the high-low, scatterplot, and regression to the financial data contained in Table II. Use new retail vehicle sales (NRVS) as the cost driver.

The first expense, salaries, has been completed for you, and is available in Figures 1a and 1b. You are to replicate this process and create comparable figures for all other expenses contained in Table II, including total expenses.

Refer Figure 1a and 1b

Summary

In the process of our ongoing review of managerial and cost accounting texts, we contacted fourteen authors of the eighteen traditional and six nontraditional managerial and cost accounting texts reviewed. None of their texts “explicitly” stated the need for accrual-basis financial or variable costing information. Twelve responded and all respondents felt that the issue was important or very important, but nearly half felt that the need for accrual-basis financial or variable costing information might not require elaboration or explanation at the introductory (undergraduate) level, and should be introduced only at intermediate (undergraduate) and higher (graduate) levels. We provide the Motomart case for those wishing to supplement their management or cost accounting and cost management texts, at any level, with a case study to illustrate the problems likely to be encountered when non-accrual-based financial information is used to separate mixed costs into their fixed and variable components and develop cost equations. Both high-low and regression will fail to develop reasonable cost equations for forecasting or decision-making. The Motomart financial data was not developed using accrual accounting, no matching principal or periodicity assumption was properly applied, and, so, the Motomart case illustrates the important linkage between financial and managerial accounting as students progress through this typical sequence in their accounting and business coursework.

References

- Ansari, S., Bell, J., and T. Klammer. 2004. *Management Accounting: A Strategic Focus* (Ansari: Editor). Houghton Mifflin Co.
- Atkinson, A.A., Kaplan, R.S., and S. M. Young. 2004. *Management Accounting* (4thEd.). Pearson/Prentice Hall.
- Blocher, E.J., Chen, K.H., Cokins, G., and T.W. Lin. 2005. *Cost Management: A Strategic Emphasis* (3rd Ed.). McGraw-Hill/Irwin.
- Brewer, P.C., Garrison, R.H., and E.W. Noreen. 2005. *Introduction to Managerial Accounting* (2nd Ed.). McGraw-Hill/Irwin.
- Cataldo, A.J. 1989. Break-Even Applications for Megadealers. *Dealers' Choice* 28(2) (Summer): 18-22.
- Cataldo, A.J., and S.E. Kruck. 1998. Motomobile Motors: A Live Case Project. *Journal of Accounting Education* 16(1): 147-162.
- Cooper, R., and R.S. Kaplan. 1999. *The Design of Cost Management Systems: Text and Cases* (2nd Ed.). Prentice Hall.
- Eldenburg, L.G., and S.K. Wolcott. 2005. *Cost Management: Measuring, Monitoring, and Motivating Performance*. Wiley.
- Garrison, R.H., and E.W. Noreen. 2003. *Managerial Accounting* (10th Ed.). McGraw-Hill/Irwin.
- Hanson, D.R., and M.M. Mowen. 2003. *Cost Management: Accounting and Control* (4th Ed.). South-Western.
- Hanson, D.R., and M.M. Mowen. 2005. *Management Accounting* (7th Ed.). Thomson/South Western.
- Hilton, R.W. 2005. *Managerial Accounting: Creating Value in a Dynamic Business Environment* (6th Ed.). McGraw-Hill/Irwin.
- Hilton, R.W., Maher, M.W., and F.H. Selto. 2003. *Cost Management: Strategies for Business Decisions* (2nd Ed.). McGraw-Hill.
- Horngren, C.T., Datar, S.M., and G. Foster. 2003. *Cost Accounting: A Managerial Emphasis* (11th Ed.). Prentice Hall.
- Horngren, C.T., Sundem, G.L., and W.O. Stratton. 2005. *Introduction to Management Accounting* (13th Ed.). Prentice Hall.
- Jiambalvo, J. 2004. *Managerial Accounting* (2nd Ed.). Wiley.
- Kaplan, R.S., and A.A. Atkinson. 1998. *Advanced Management Accounting* (3rd Ed.). Prentice Hall.
- McWaters, C.S., Morse, D.C., and J.L. Zimmerman. 2001. *Management Accounting: Analysis and Interpretation* (2nd Ed.). McGraw-Hill/Irwin.
- Morse, W.J., Davis, J.R., and A.L. Hartgraves. 2000. *Management Accounting* (2nd Ed.). South-Western.
- Needles, B.E., and S.V. Crosson. 2005. *Management Accounting*. Houghton Mifflin. Penn Foster, Inc. 2008. *Senior Capstone: Business. Study Guide for BUS450*.
- Swain, M.R., Albrecht, W.S., Stice, J.D., and E.K. Stice. 2005. *Management Accounting* (3rd Ed.). Thomson/South-Western.
- Vance, D.E. 2003. *Financial Analysis & Decision Making: tools and techniques to solve financial problems and make effective business decisions*. McGraw Hill.
- Weygandt, J.J., Kieso, D.E., and P.D. Kimmel. 2002. *Managerial Accounting: Tools for Business Decision Making* (2nd Ed.). John Wiley & Sons, Inc.
- Warren, C.S., Reeve, J.M., and P.E. Fess. 2005. *Managerial Accounting* (8th Ed.).

Thomson/South-Western.

Werner, M.L., and K.H. Jones. 2004. Introduction to Management Accounting: A User Perspective (2nd Ed.). Pearson/Prentice Hall.

Zimmerman, J.L. 2003. Accounting for Decision Making and Control (4th Ed.). McGraw-Hill/Irwin.

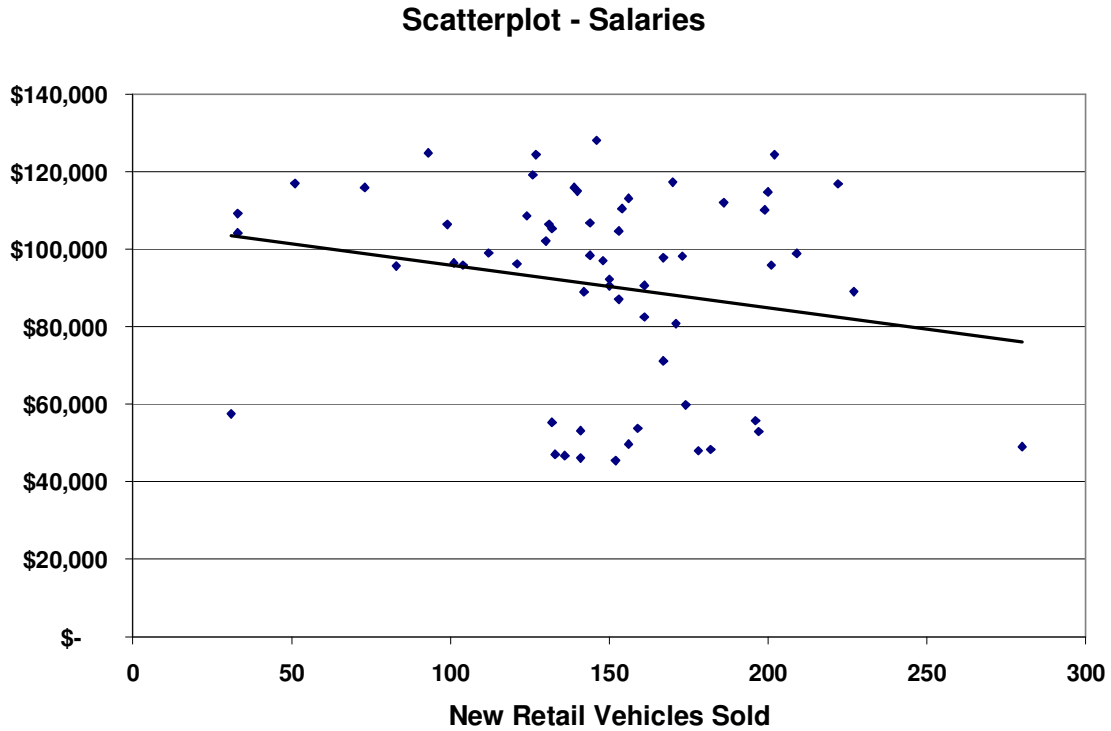
Table I: Selected Historical Income Statement and Related Measures

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Variable (Net) Revenues:					
Net Variable Revenues	<u>\$2,885,969</u>	<u>\$3,828,255</u>	<u>\$4,086,667</u>	<u>\$3,940,799</u>	<u>\$4,298,748</u>
Semi-Fixed (S-F) Expenses:					
Salaries	\$ 613,006	\$ 968,789	\$1,211,464	\$1,289,758	\$1,360,489
Vacation	600	26,705	19,468	19,059	18,268
Advertising & Training	210,226	288,347	281,219	309,608	371,314
Supplies/Tools/Laundry	31,473	46,141	75,468	65,935	81,252
Freight	5,719	5,987	6,528	5,731	4,663
Vehicle	22,913	23,718	23,664	20,370	19,483
Demonstrators	10,465	4,969	(1,513)	4,192	707
Floor-Planning (Interest)	<u>278,531</u>	<u>301,113</u>	<u>276,201</u>	<u>156,129</u>	<u>305,044</u>
Total S-F Expenses	<u>\$1,172,933</u>	<u>\$1,665,769</u>	<u>\$1,892,499</u>	<u>\$1,870,782</u>	<u>\$2,161,220</u>
Fixed Expenses:					
Total Fixed Expenses	<u>\$1,449,208</u>	<u>\$2,050,172</u>	<u>\$2,290,867</u>	<u>\$2,164,362</u>	<u>\$2,653,620</u>
Operating Profit/(Loss)	<u>\$ 263,828</u>	<u>\$ 112,314</u>	<u>\$ (96,699)</u>	<u>\$ (94,345)</u>	<u>\$ (516,092)</u>
New Retail Vehicles Sold	<u>1,798</u>	<u>1,977</u>	<u>1,674</u>	<u>1,450</u>	<u>1,897</u>

**Table II: Detail of Semi-Fixed (Mixed) Expenses for the 60-Month Period
(FY 1984 through 1988)**

Mo	NRVS	Salary	Vacation	Adv/Trng	SplyTls/Lndrv	Freight	Vehicles	Demo's	Floor-Plan	Total
1	197	\$ 52,951	\$ -	\$ 22,561	\$ 1,118	\$ 382	\$ 2,052	\$ 1,881	\$ (78,173)	\$ 2,772
2	133	\$ 47,054	\$ -	\$ 19,040	\$ 3,573	\$ 409	\$ 1,405	\$ 695	\$ 28,456	\$100,632
3	132	\$ 55,372	\$ -	\$ 14,373	\$ 1,388	\$ 742	\$ 1,380	\$ 469	\$ 34,423	\$108,147
4	141	\$ 46,114	\$ -	\$ 15,022	\$ 2,894	\$ 675	\$ 2,057	\$ 125	\$ 5,697	\$ 72,584
5	182	\$ 48,309	\$ -	\$ 19,966	\$ 1,896	\$ 572	\$ 1,603	\$ 131	\$ 34,599	\$107,076
6	156	\$ 49,643	\$ -	\$ 12,019	\$ 1,188	\$ 407	\$ 2,524	\$ 1,229	\$ 53,737	\$120,747
7	196	\$ 55,784	\$ 300	\$ 13,217	\$ 3,912	\$ 643	\$ 2,348	\$ 1,206	\$ 5,507	\$ 82,917
8	178	\$ 47,957	\$ -	\$ 17,303	\$ 2,012	\$ 605	\$ 1,208	\$ 436	\$ 32,436	\$101,957
9	159	\$ 53,743	\$ -	\$ 16,535	\$ 2,717	\$ 209	\$ 2,400	\$ 1,476	\$ 28,950	\$106,030
10	141	\$ 53,109	\$ -	\$ 23,821	\$ 1,102	\$ 184	\$ 2,076	\$ 1,168	\$ 20,876	\$102,336
11	152	\$ 45,491	\$ 300	\$ 14,146	\$ 2,630	\$ 331	\$ 1,677	\$ 635	\$ 45,278	\$110,488
12	31	\$ 57,479	\$ -	\$ 22,223	\$ 7,043	\$ 560	\$ 2,183	\$ 1,014	\$ 66,745	\$157,247
13	280	\$ 49,049	\$ -	\$ 19,992	\$ 1,999	\$ 582	\$ 1,927	\$ (477)	\$ (30,104)	\$ 42,968
14	136	\$ 46,698	\$ 300	\$ 20,251	\$ 1,192	\$ 603	\$ 1,156	\$ 1,839	\$ 50,583	\$122,622
15	174	\$ 59,790	\$ 200	\$ 20,082	\$ 1,336	\$ 492	\$ 1,898	\$ 1,260	\$ 18,803	\$103,861
16	171	\$ 80,773	\$ 600	\$ 26,716	\$ 3,873	\$ 559	\$ 1,808	\$ 510	\$ 23,080	\$137,919
17	167	\$ 71,130	\$ 9,212	\$ 25,223	\$ 5,560	\$ 356	\$ 1,816	\$ 2,350	\$ 18,774	\$134,421
18	161	\$ 82,490	\$ 6,007	\$ 21,106	\$ 1,737	\$ 439	\$ 1,384	\$ (288)	\$ 23,802	\$136,677
19	173	\$ 98,172	\$ 500	\$ 17,799	\$ 1,847	\$1,628	\$ 1,962	\$ 1,591	\$ 33,848	\$157,347
20	161	\$ 90,685	\$ 2,690	\$ 28,038	\$ 4,415	\$ (12)	\$ 2,446	\$ (3,308)	\$ 13,480	\$138,434
21	167	\$ 97,771	\$ 600	\$ 37,284	\$ 2,827	\$ 480	\$ 2,296	\$ 1,709	\$ 22,965	\$165,932
22	153	\$ 87,129	\$ 1,740	\$ 24,236	\$ 5,836	\$ 79	\$ 3,175	\$ 798	\$ 18,898	\$141,891
23	201	\$ 95,910	\$ 2,074	\$ 27,244	\$ 3,387	\$ 188	\$ 1,287	\$ (2,025)	\$ 38,699	\$166,764
24	33	\$109,192	\$ 2,782	\$ 20,376	\$ 12,132	\$ 593	\$ 2,563	\$ 1,010	\$ 68,285	\$216,933
25	227	\$ 89,041	\$ 1,880	\$ 26,719	\$ 4,383	\$ 769	\$ 2,205	\$ 2,493	\$ (44,140)	\$ 83,350
26	150	\$ 92,165	\$ 3,602	\$ 14,727	\$ 10,231	\$ 593	\$ 2,289	\$ (2,051)	\$ 36,311	\$157,867
27	142	\$ 88,981	\$ 744	\$ 27,880	\$ 7,734	\$ 414	\$ 1,891	\$ 386	\$ 19,865	\$147,895
28	104	\$ 95,898	\$ 960	\$ 21,872	\$ (684)	\$ 425	\$ 2,288	\$ 178	\$ 19,013	\$139,950
29	121	\$ 96,245	\$ -	\$ 18,705	\$ 8,329	\$ 483	\$ 2,223	\$ (262)	\$ 16,228	\$141,951
30	99	\$106,364	\$ -	\$ 23,835	\$ 2,540	\$ 417	\$ 1,683	\$ (1,356)	\$ 37,637	\$171,120
31	150	\$ 90,564	\$ 1,950	\$ 25,605	\$ 5,862	\$ 222	\$ 1,586	\$ 486	\$ (1,121)	\$125,154
32	144	\$ 98,418	\$ 1,540	\$ 17,763	\$ 6,998	\$ 49	\$ 1,751	\$ (1,924)	\$ 34,757	\$159,352
33	154	\$110,436	\$ 2,693	\$ 32,379	\$ 8,131	\$ 818	\$ 2,082	\$ 1,547	\$ 26,419	\$184,505
34	130	\$102,042	\$ 1,060	\$ 19,324	\$ 6,026	\$1,015	\$ 1,714	\$ 132	\$ 21,134	\$152,447
35	202	\$124,413	\$ 3,519	\$ 22,412	\$ 9,120	\$1,255	\$ 2,173	\$ (2,337)	\$ 18,578	\$179,133
36	51	\$116,897	\$ 1,520	\$ 29,998	\$ 6,798	\$ 68	\$ 1,779	\$ 1,195	\$ 91,520	\$249,775
37	148	\$ 97,083	\$ 1,080	\$ 9,112	\$ 6,627	\$ 565	\$ 1,324	\$ 1,164	\$ (73,753)	\$ 43,202
38	153	\$104,727	\$ 3,230	\$ 38,616	\$ 5,892	\$ 369	\$ 1,523	\$ (1,839)	\$ 30,443	\$182,961
39	83	\$ 95,622	\$ 953	\$ 22,690	\$ 3,450	\$ (182)	\$ 2,087	\$ 454	\$ 17,725	\$142,799
40	101	\$ 96,438	\$ 1,244	\$ 14,703	\$ 5,259	\$ 709	\$ 2,095	\$ 868	\$ 26,402	\$147,718
41	140	\$114,995	\$ -	\$ 28,764	\$ 2,294	\$1,006	\$ 1,304	\$ (1,990)	\$ (3,789)	\$142,584
42	132	\$105,337	\$ 160	\$ 27,253	\$ 8,155	\$ 521	\$ 1,667	\$ 1,869	\$ 15,090	\$160,052
43	112	\$ 98,989	\$ 2,480	\$ 24,419	\$ 1,621	\$ 514	\$ 1,040	\$ 329	\$ (945)	\$128,447
44	127	\$124,352	\$ 1,800	\$ 26,011	\$ 902	\$ 917	\$ 2,880	\$ (1,897)	\$ 30,405	\$185,370
45	139	\$115,875	\$ 1,417	\$ 24,492	\$ 5,158	\$ (77)	\$ 1,281	\$ 2,959	\$ 14,781	\$165,886
46	156	\$113,035	\$ 1,820	\$ 31,158	\$ 2,901	\$ 450	\$ 2,259	\$ 417	\$ 15,613	\$167,653
47	126	\$119,106	\$ 3,338	\$ 32,213	\$ 14,426	\$ 120	\$ 1,394	\$ (2,659)	\$ 40,968	\$208,906
48	33	\$104,199	\$ 1,537	\$ 30,177	\$ 9,250	\$ 819	\$ 1,516	\$ 4,517	\$ 43,189	\$195,204
49	209	\$ 98,938	\$ 1,866	\$ 26,737	\$ 1,694	\$ 853	\$ 1,657	\$ 601	\$ (20,127)	\$112,219
50	124	\$108,606	\$ 3,676	\$ 31,084	\$ 9,040	\$ 498	\$ 2,266	\$ (284)	\$ 18,236	\$173,122
51	131	\$106,396	\$ 1,197	\$ 33,278	\$ 2,099	\$ 605	\$ 1,952	\$ 668	\$ 15,176	\$161,371
52	144	\$106,778	\$ 241	\$ 32,657	\$ 9,328	\$ 483	\$ 1,852	\$ 1,409	\$ 25,245	\$177,993
53	93	\$124,805	\$ 500	\$ 29,794	\$ 4,268	\$ 788	\$ 1,704	\$ (1,771)	\$ 6,493	\$166,581
54	199	\$110,153	\$ 1,910	\$ 38,431	\$ 5,407	\$ 529	\$ 1,882	\$ 453	\$ 21,851	\$180,616
55	170	\$117,276	\$ 800	\$ 27,640	\$ 9,305	\$ (180)	\$ 977	\$ 1,310	\$ 7	\$157,135
56	186	\$112,055	\$ 980	\$ 28,657	\$ 1,803	\$ (242)	\$ 846	\$ (2,844)	\$ 17,192	\$158,447
57	200	\$114,765	\$ 1,695	\$ 36,425	\$ 8,839	\$ 859	\$ 2,856	\$ 1,532	\$ 14,864	\$181,835
58	146	\$128,007	\$ 1,560	\$ 27,720	\$ 10,944	\$ (492)	\$ 1,864	\$ 1,400	\$ 10,121	\$181,124
59	222	\$116,811	\$ 2,249	\$ 27,941	\$ 5,775	\$ 245	\$ 1,141	\$ (3,513)	\$ 7,946	\$158,595
60	73	\$115,899	\$ 1,594	\$ 30,950	\$ 12,750	\$ 717	\$ 486	\$ 1,746	\$ 188,040	\$352,182

Figure 1a



SALARY = \$106,866 - \$110 NRVS

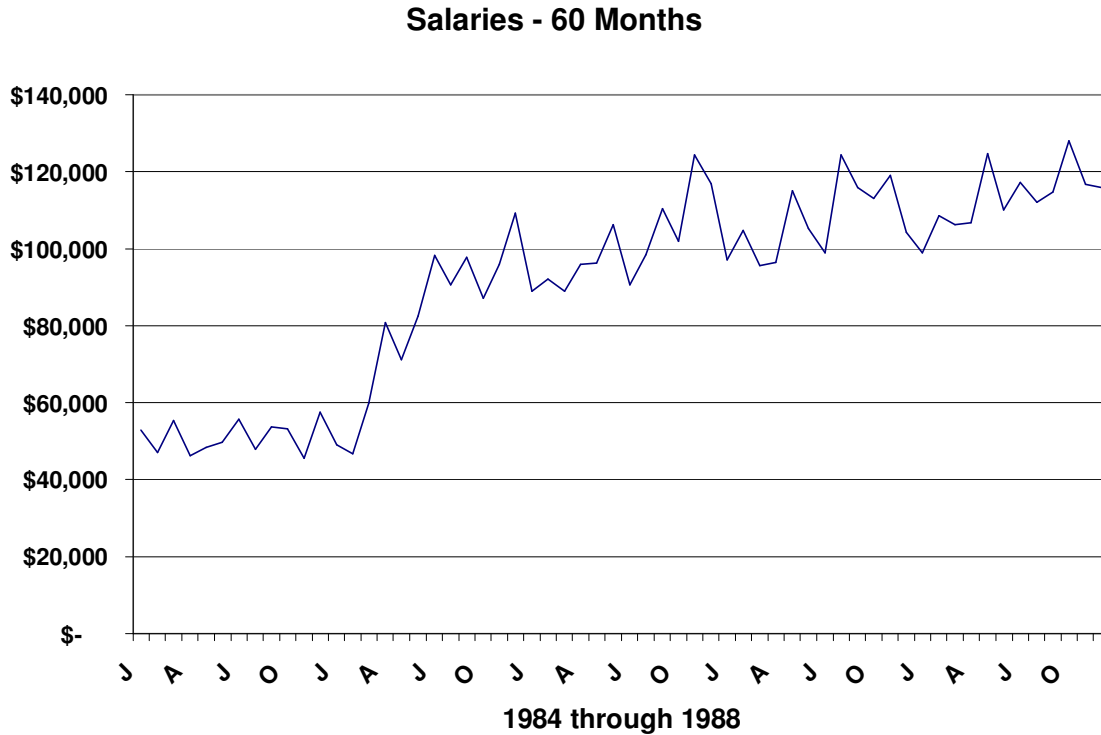
Predictor	Coefficient	Std Deviation	t-statistic	p-value
Constant	106,866.00	10,793.00	9.90	0.000
NRVS	-110.10	70.17	-1.57	0.122

s = 25300 R-sq = 4.1%

Analysis of Variance

SOURCE	DF	SS	MS	F-statistic	p-value
Regression	1	1576139648	1576139648	2.46	0.122
Error	58	37126524928	640112512		
Total	59	38702665728			

Figure 1b



Authors

A.J. Cataldo II*, PhD, CPA, CMA, Professor of Accounting, Department of Accounting, West Chester University, West Chester, PA, email: acataldo@wcupa.edu

John S. DeJoy, PhD, CPA, Associate Professor of Accounting, School of Management, Union Graduate College, Schenectady, NY, email: dejoyj@uniongraduatecollege.edu

*Corresponding Author