

IN THIS ISSUE

Use of Weighted Arrears (“Bills Behind”) Allows Comparisons between Time Periods, between Utilities.

NOTE TO READERS

ON-LINE DELIVERY

This document presents the bi-monthly electronic newsletter of Fisher, Sheehan & Colton: *FSC's Law and Economics Insights*. Previous issues of the newsletter can be obtained from FSC at:

fsconline.com (click on “News”)

Fisher, Sheehan & Colton
Public Finance and General Economics
34 Warwick Road, Belmont, MA 02478
(voice) 617-484-0597 *** (fax) 617-484-0594
(e-mail) roger@fsconline.com

Arrearage Comparisons Over Time, and between Utilities, Generally Not Valid unless Arrearages are Adjusted for Underlying Bills.

One of the enduring fallacies in public utility (water/sewer, electricity, natural gas) analytics is the value of comparing data for one utility to the data from another, generally to support the proposition that “see, we’re not so bad. ‘They’ are much worse.” These comparisons often focus on the level of bills, the extent of residential arrearages, and the reliance on service terminations (or notices threatening such terminations) as a collection technique.

As a general rule, these comparability presentations have little value. The implicit assertion in making such comparisons is that one utility performs better (or worse) on a particular metric *assuming all else is equal*. But, rarely, if ever, is “all else equal.” A need exists to somehow create comparisons that are on the same basis to ensure the true comparability of the involved utilities.

This issue considers an examination of the level of residential arrears in particular. Two types of arrears are examined: (1) the average arrears for residential customers generally; and (2) the average arrears of “Confirmed Low-Income” customers in particular. The data used are for fifteen Pennsylvania utilities, seven of which are electric with the remaining eight being natural gas. The Pennsylvania Public Utility Commission (PAPUC) requires that state’s utilities to collect data for Confirmed Low-Income custom-

ers.” The PUC defines, by regulation, what a Confirmed Low-Income customer is.

Comparative Arrears – “Bills Behind”

Whitewater Utility has residential customers who have an average arrearage of \$300 (of those customers in arrears). Blackwater Utility has residential customers who have an average arrearage of \$240. Whitewater Utility obviously has a bigger collection problem, right? Well, no, not necessarily.

In 1983, the PAPUC’s Bureau of Consumer Services (“BCS”) noted that the severity of a utility’s collections problem, as evidenced by customer arrears, depends in large part on the size of the underlying bill for current service.¹

A utility with a smaller average arrears, in absolute dollar terms, could in fact be *worse* off if its bill for current service was disproportionately lower as well. In our illustration above, for example, if Blackwater Utility had an average monthly bill of \$80, its customers in arrears would be three months in arrears ($\$240 / \$80/\text{month} = 3$ months). If, in contrast, Whitewater customers in arrears had an average monthly bill of \$150, those customers would be only two months in arrears ($\$300 / \$150/\text{month} = 2$ months). Blackwater faces the greater collection problem.

The BCS argued that any assessment of arrears must control for the impact of monthly bills. The report recommended use of a “weighted arrears” or “bills behind” statistic to factor out the impact of increased arrears caused by factors other than

¹ Joseph Farrell (1983). *Utility Payment Problems: The Measurement and Evaluation of Responses to Customer Nonpayment*, Pennsylvania Public Utility Commission: Harrisburg, PA.

nonpayment. BCS explained that its “bills behind” statistic “permits comparisons to be drawn between companies by eliminating the effects of different customer bills on arrearages.” Without such a measure, “the interpretation of average arrearages, either over time or in comparison between companies, presents some difficulties.”²

BCS applied its Bills Behind statistic, for example, to assess the impact of Pennsylvania’s cold weather protections. It reported that, contrary to the argument by that state’s utility companies, the Pennsylvania winter shutoff moratorium did not result in an increase in the number of unpaid bills, or the amount of unpaid bills, that would have existed in the absence of a moratorium.

The BCS study stated that:

Average overdue bills are at a low in November and rise to a high point in March or April. The apparent relationship of this pattern to Public Utility Commission regulations is obvious. That is, arrears are greatest at the end of the Commission’s winter termination restrictions (December 1 to March 31 of the following year) and have been reduced to their lowest point immediately prior to the introduction of those restrictions for the following year. This pattern is consistent with the assertion put forward by utilities that they would be able to control arrearages if there were no winter termination restraints. However, the seasonal fluctuations are substantial only for heating accounts. Arrearages for non-heating accounts show only minor seasonal fluctuations. A comparison of [the data] suggests a simple explanation for this difference, that is, that the size of arrearages is related to the size of monthly bills. Heating

² Id.

customers' bills grow radically in the winter and so do their arrearages. Non-heating customers' bills change very little seasonally and their arrearages follow suit. In other words, if the assertion that winter termination restraints invite nonpayment were correct, then non-heating arrearages should show the same seasonal pattern of variations as do heating arrearages. That they do not casts substantial doubt on the assertion that PUC winter termination restraints are responsible for willful non-payment and consequent collection problems.³

The Bills Behind statistic allows an analyst to make several comparisons that otherwise may not be entirely legitimate. First, the statistic allows an analyst to make inter-utility comparisons. Second, the statistic allows an analyst to make inter-fuel (e.g., gas vs. electricity) comparisons. Third, the statistic allows an analyst to make comparisons between time periods.

An Illustrative Application of Bills Behind

The discussion below presents a Bills Behind analysis of Pennsylvania utilities. Data has been obtained from the PAPUC's annual report of the BCS on Universal Service Programs and Collections Performance. Data is used for the years 2017, 2014 and 2011. The data for 2017 is the most recent year currently available. The data used is for seven electric and eight natural gas regulated utilities.

Pennsylvania's utilities were ranked from "1" (lowest arrears) to "15" (highest arrears) for the years 2011, 2015 and 2017. The utilities were then re-ranked from "1" (lowest Bills Behind) to "15" (highest Bills Behind) for the same three

³ Id., at 19.

years.⁴ Those utilities whose Bills Behind ranking was more than two places (either plus or minus) different from the arrearage ranking were tagged. The difference was obtained by subtracting the Bills Behind ranking from the arrearage ranking. A positive number, therefore, indicates that performance, as measured by Bills Behind, was better using Bills Behind (e.g., an arrears ranking of "7" and a Bills Behind ranking of "2" shows that a utility had the seventh lowest arrears in terms of absolute dollars, but the second lowest arrears in terms in Bills Behind). A negative number thus indicates a poorer performance using Bills Behind.

Bills Behind vs. Dollars of Arrears.

Four observations stand out from an examination of the three years of data. First, use of a Bills Behind statistic makes a noticeable, even if not universal, change in how arrearages will be viewed. In 2011, seven of Pennsylvania's 15 utilities changed their ranking by more than two places using a Bills Behind statistic for residential arrears. Five of 15 changed their ranking by three or more places when Bills Behind was applied to the arrearages of Confirmed Low-Income customers. In 2014, six of 15 utilities changed ranking spots by three or more places for residential arrears, while eight of 15 did for Confirmed Low-Income arrears. In 2017, rank changes of three or more places occurred for seven of 15 utilities for residential arrears, and for eight of 15 utilities did so for Confirmed

⁴ Bills behind were calculated by dividing the average arrears by the average residential revenue per customer. The average residential revenue per customer was calculated by dividing the total residential revenue by the average number of residential customers. Identical calculations were made for Confirmed Low-Income customers.

Low-Income arrears. Overall, 13 of Pennsylvania's 15 utilities experienced a changed ranking of more than two spots in at least one year. Only Duquesne Light and Philadelphia Gas Works did not.

Second, use of the Bills Behind statistic more frequently shows improved performance amongst electric utilities and poorer performance amongst natural gas utilities. In 2011, seven of the 15 utilities changed by more than two places for residential customers. All three electric utilities in that group had an improved performance (Met Ed: +6; PECO-electric: +6; PPL: +13), while all four natural gas utilities had a poorer performance (Columbia Gas: -5; UGI-gas: -3; National Fuel Gas: -5; PECO-gas: -7).

In 2014, performance was more mixed. In 2014, six of the 15 utilities experienced a change of three or more spaces. Two electric utilities experienced changes (Penelec: -5; PPL: +9), while four natural gas utilities did (PECO-gas: +3; Peoples: -3; UGI-gas: -5; UGI-Penn Natural Gas: +4). Natural gas utilities, however, continued generally to perform more poorly using the Bills Behind statistic for Confirmed Low-Income customers. Three of the four gas utilities which changed by more than two places for Confirmed Low-Income had poorer performance using Bills Behind (PECO-gas: -4; Peoples: -7; UGI-gas: -3).

In 2017, however, the differing impacts between electric and gas utilities were again evident. In 2017, two of the seven utilities with a change of three or more spots were electric, both positive (PECO-electric: +4; PPL: +9). In contrast, five of the seven were natural gas, four of which were negative (NFG: -3; PECO-gas: -7; Peoples

Natural Gas: -5; UGI-gas: -4; UGI-Penn Natural Gas: +3).

Third, the same utilities tended to experience consistent changes, both in the direction and in the magnitude of ranking changes. Within the electric industry, PPL experienced a substantial improvement over all three years when its arrears were viewed using the Bills Behind statistic (2011: +13; 2014: +9; 2017: +9). PECO-electric had substantial improvement in two of the three years (2011: +6; 2017: +4). In contrast, four of the natural gas utilities had consistently poorer performance using Bills Behind. UGI-gas had a poorer performance in all three years (2011: -3; 2014: -5; 2017: -5), while National Fuel Gas (2011: -5; 2017: -3) and Peoples Natural Gas (2014: -3; 2017: -5) saw deterioration in two of the three years.

Finally, the performance of Pennsylvania's utilities for Confirmed Low-Income customers tended to mirror the residential performance, even though it did not move in lockstep with residential performance. PPL had substantial positive differences for Confirmed Low-Income as it did for residential, while UGI-gas had substantial negative differences for Confirmed Low-Income (as it did also for residential). PECO-gas had substantive negative differences for Confirmed Low-Income in two of the three years, as it did for residential (though the years with negative differences changed).

Just three utilities had noticeably different Confirmed Low-Income performance. Met Ed had moderately positive differences for its Confirmed Low-Income in all three years (2011: +4; 2014: +3; 2017: +5), even though it had a positive change (+6) in only one year (2011) for its residential customers. PECO-electric had one

year of a negative Confirmed Low-Income (2014: -3), while it had two positive years for residential (2011: +6; 2017: +4).

Overall, high performers were evident (PPL, PECO-electric, UGI-Penn Natural Gas), while poor performers were also evident (UGI-gas, Peoples Gas, PECO-gas).

The three years of Pennsylvania data are attached to this newsletter as an appendix.

Summary

Using the “weighted arrears” (or “Bills Behind”) statistic first developed by the PAPUC’s Bureau of Consumer Services allows the analyst to more accurately compare the payment performance of residential customers in arrears. Both between companies, and between time periods, it is possible to determine that arrears with higher dollar level balances frequently simply reflect the fact that the underlying bill for current service is higher.

When one examines how many “bills behind” the customers is (i.e., how many payments the customer has missed), a customer with a lower dollar balance may represent a higher risk of nonpayment. For example, while Duquesne Light (arrears = \$458) and Penn Power (arrears = \$452) have nearly identical arrears (in dollar terms), Duquesne customers are nearly six months behind in payment (Bills Behind = 5.69) while Penn Power customers are just over four months behind (Bills Behind = 4.41). In contrast, while National Fuel Gas (Bills Behind = 3.64) and UGI-Penn Natural Gas (Bills Behind = 3.63) customers are nearly identical in the number of monthly payments they’ve missed, UGI-Penn Natural customers (arrears = \$281) are, on

average, nearly \$70 deeper in arrears than NFG customers are (arrears = \$209).

Comparisons between fuels can be made as well. While West Penn Power (arrears = \$357) might appear to have substantially deeper arrears than does Peoples Natural Gas (arrears = \$270), both companies’ residential customers, in fact, are nearly identical in the number of payments they have missed (WPP: Bills Behind of 3.99; Peoples: Bills Behind of 4.04).

Comparisons between time periods become more meaningful as well. Consider, for example, that from 2014 to 2017, PECO-gas customers reduced their dollars of arrears from an average of \$412 (2014) to an average of \$389 (2017). Despite this reduction in dollars of arrears, PECO-gas customers had increased the number of payments they had missed from 4.51 (Bills Behind) in 2014 to 6.34 Bills Behind in 2017. Despite having fewer dollars of arrears, PECO-gas customers were deeper in debt.

Similarly, while West Penn Power customers appear to have deepened their arrears from 2014 (arrears = \$302) to 2017 (arrears = \$357), in fact, WPP customers had missed fewer monthly payments in 2017 (2014 Bills Behind = 4.33; 2017 Bills Behind = 3.99).

Care must be taken in comparing the dollars of arrears between time periods and between utilities. The Bills Behind statistic provides a good tool to use to make those comparisons more meaningful. For more information regarding how to generate inter-utility comparisons of residential utility arrearages, please write:

roger [at] fsconline.com

Fisher, Sheehan and Colton, Public Finance and General Economics (FSC) provides economic, financial and regulatory consulting. The areas in which *FSC* has worked include energy law and economics, fair housing, affordable housing development, local planning and zoning, energy efficiency planning, community economic development, poverty and telecommunications policy, regulatory economics, and public welfare policy.

2017 Report on Universal Service Programs and Collections Performance

Line	Utility	Fuel	Residential Arrears	Rank	Confirmed LI Arrears	Rank	Avg Residential Bill (annual)	Residential Bills Behind (monthly)	Rank	Confirmed LI Bill (annual)	Bills Behind (monthly)	Rank Res Arrs	Rank Res BB	Rank CLI Arrs	Rank CLI BB	Res Arrs minus Res BB	CLI Arrs minus CLI BB
1	Duquesne	Electric	\$457.80	14	\$1,014.66	15	\$964.69	5.69	14	\$1,191.92	10.22	14	14	15	14	0	1
2	Met Ed	Electric	\$403.93	10	\$495.38	9	\$1,203.74	4.03	8	\$1,409.83	4.22	10	8	9	4	2	5
3	PECO-Electric	Electric	\$271.63	5	\$493.45	8	\$1,325.56	2.46	1	\$966.91	6.12	5	1	8	10	4	-2
4	Penelec (2003+)	Electric	\$402.67	9	\$473.88	7	\$1,108.97	4.36	10	\$1,342.48	4.24	9	10	7	5	-1	2
5	Penn Power	Electric	\$452.18	12	\$541.93	10	\$1,229.52	4.41	11	\$1,362.19	4.77	12	11	10	7	1	3
6	PPL	Electric	\$442.74	11	\$697.84	13	\$1,611.64	3.30	2	\$2,003.50	4.18	11	2	13	3	9	10
7	West Penn Power	Electric	\$357.20	7	\$438.03	6	\$1,074.57	3.99	7	\$1,336.91	3.93	7	7	6	1	0	5
8	Columbia	Natural gas	\$455.54	13	\$549.70	11	\$997.43	5.48	12	\$1,018.86	6.47	13	12	11	11	1	0
9	NFG	Natural gas	\$209.11	1	\$285.66	1	\$689.65	3.64	4	\$786.64	4.36	1	4	1	6	-3	-5
10	PECO-Gas	Natural gas	\$389.10	8	\$778.23	14	\$736.86	6.34	15	\$730.71	12.78	8	15	14	15	-7	-1
11	Peoples	Natural gas	\$270.75	4	\$391.38	3	\$804.44	4.04	9	\$1,161.96	4.04	4	9	3	2	-5	1
12	Peoples Equitable	Natural gas	\$240.14	3	\$342.47	2	\$766.10	3.76	5	\$766.10	5.36	3	5	2	8	-2	-6
13	PGW	Natural gas	\$473.78	15	\$560.59	12	\$1,031.43	5.51	13	\$861.81	7.81	15	13	12	13	2	-1
14	UGI-Gas	Natural gas	\$226.08	2	\$394.20	4	\$711.95	3.81	6	\$710.32	6.66	2	6	4	12	-4	-8
15	UGI Penn Natural Gas	Natural gas	\$280.91	6	\$421.59	5	\$929.67	3.63	3	\$861.68	5.87	6	3	5	9	3	-4

2014 Report on Universal Service Programs and Collections Performance

Line	Utility	Fuel	Residential Arrears	Rank	Confirmed LI Arrears	Rank	Avg Residential Bill (annual)	Residential Bills Behind (monthly)	Rank	Confirmed LI Bill (annual)	Bills Behind (monthly)	Rank Res Arrs	Rank Res BB	Rank CLI Arrs	Rank CLI BB	Res Arrs minus Res BB	CLI Arrs minus CLI BB
1	Duquesne	Electric	\$562.94	14	\$810.84	13	\$827.27	8.17	15	\$892.14	10.91	13	14	15	13	-1	0
2	Met Ed	Electric	\$498.86	13	\$613.81	10	\$1,080.15	5.54	11	\$1,262.16	5.84	7	13	11	10	2	3
3	PECO-Electric	Electric	\$379.67	3	\$660.69	11	\$1,450.61	3.14	1	\$665.09	11.92	14	3	1	11	2	-3
4	Penelec (2003+)	Electric	\$431.59	9	\$528.76	5	\$895.07	5.79	14	\$1,068.81	5.94	8	9	14	5	-5	-3
5	Penn Power	Electric	\$430.75	8	\$530.21	6	\$967.32	5.34	9	\$1,097.29	5.80	6	8	9	6	-1	0
6	PPL	Electric	\$618.07	15	\$850.80	14	\$1,577.76	4.70	6	\$2,027.40	5.04	4	15	6	14	9	10
7	West Penn Power	Electric	\$301.80	1	\$391.99	1	\$835.92	4.33	3	\$1,048.94	4.48	1	1	3	1	-2	0
8	Columbia	Natural gas	\$458.88	10	\$553.06	8	\$993.49	5.54	12	\$969.34	6.85	9	10	12	8	-2	-1
9	NFG	Natural gas	\$380.25	4	\$557.11	9	\$996.45	4.58	5	\$1,439.30	4.64	2	4	5	9	-1	7
10	PECO-Gas	Natural gas	\$411.81	7	\$541.85	7	\$1,095.76	4.51	4	\$708.86	9.17	11	7	4	7	3	-4
11	Peoples	Natural gas	\$380.87	5	\$480.81	3	\$857.35	5.33	8	\$756.18	7.63	10	5	8	3	-3	-7
12	Peoples Equitable	Natural gas	\$498.41	12	\$1,019.20	15	\$1,046.87	5.71	13	\$625.91	19.54	15	12	13	15	-1	0
13	PGW	Natural gas	\$494.27	11	\$702.12	12	\$1,102.68	5.38	10	\$782.65	10.77	12	11	10	12	1	0
14	UGI-Gas	Natural gas	\$308.43	2	\$408.35	2	\$697.84	5.30	7	\$864.51	5.67	5	2	7	2	-5	-3
15	UGI Penn Gas	Natural gas	\$404.55	6	\$494.61	4	\$1,179.49	4.12	2	\$1,226.28	4.84	3	6	2	4	4	1

2011 Report on Universal Service Programs and Collections Performance

Line	Utility	Fuel	Residential Arrears	Rank	Confirmed LI Arrears	Rank	Avg Residential Bill (annual)	Residential Bills Behind (monthly)	Rank	Confirmed LI Bill (annual)	Bills Behind (monthly)	Rank Res Arrs	Rank Res BB	Rank CLI Arrs	Rank CLI BB	Res Arrs minus Res BB	CLI Arrs minus CLI BB
1	Duquesne	Electric	\$509.00	10	\$709.00	11	\$996.49	6.13	12	\$1,071.89	7.94	10	10	12	11	-2	1
2	Met Ed	Electric	\$559.00	12	\$697.00	10	\$1,524.22	4.40	6	\$1,846.60	4.53	6	12	6	10	6	4
3	PECO-Electric	Electric	\$455.00	9	\$881.00	13	\$1,513.08	3.61	3	\$691.02	15.30	14	9	3	13	6	-1
4	Penelec (2003+)	Electric	\$444.00	8	\$532.00	6	\$1,185.71	4.49	7	\$1,540.59	4.14	3	8	7	6	1	3
5	Penn Power	Electric	\$563.00	13	\$692.00	9	\$1,230.46	5.49	11	\$1,490.19	5.57	8	13	11	9	2	1
6	PPL	Electric	\$565.00	14	\$802.00	12	\$15,310.73	0.44	1	\$2,028.68	4.74	7	14	1	12	13	5
7	West Penn Power	Electric	\$116.00	1	\$247.00	2	\$1,103.42	1.26	2	\$1,447.27	2.05	1	1	2	2	-1	1
8	Columbia	Natural gas	\$397.00	5	\$191.00	1	\$925.30	5.15	10	\$926.42	2.47	2	5	10	1	-5	-1
9	NFG	Natural gas	\$389.00	4	\$1,486.00	15	\$917.81	5.09	9	\$681.19	26.18	15	4	9	15	-5	0
10	PECO-Gas	Natural gas	\$701.00	15	\$516.00	5	\$970.86	8.66	15	\$550.60	11.25	12	15	15	5	0	-7
11	Peoples	Natural gas	\$420.00	7	\$613.00	8	\$755.76	6.67	14	\$957.80	7.68	9	7	14	8	-7	-1
12	Peoples Equitable	Natural gas	\$412.00	6	\$595.00	7	\$1,048.18	4.72	8	\$846.07	8.44	11	6	8	7	-2	-4
13	PGW	Natural gas	\$557.00	11	\$980.00	14	\$1,043.06	6.41	13	\$878.43	13.39	13	11	13	14	-2	1
14	UGI-Gas	Natural gas	\$271.00	2	\$365.00	3	\$810.54	4.01	5	\$1,014.20	4.32	5	2	5	3	-3	-2
15	UGI Penn Gas	Natural gas	\$372.00	3	\$452.00	4	\$1,188.01	3.76	4	\$1,284.16	4.22	4	3	4	4	-1	0