
Note that the analysis of short-term economies of scale is a different issue from the relationship between size and costs in a single, annual period. The latter analysis ignores the effect of growth on costs. By contrast, this edition of *Plan Management Navigator* analyzes the effect rates of change in membership *in each plan* between two consecutive annual periods, without considering plan size. This analysis answers literally the “what happens if you double the size of the health plan” question.

Background: Short-Term and Long-Term Scale

Economies of scale are understood to be the relationship between volume, unit prices, variable costs and fixed costs. Participants in an industry with minimal variable costs and high fixed costs are subject to economies of scale since, at a given price and contribution margin, additional volume yields sharply increased profits since most of the costs are fixed. That the concept is so important to financial analysts is evidenced by the analysts’ warhorse, the cost-volume-profit analysis.

In determining whether costs are fixed or variable, the period in which performance is measured is an important consideration: nearly all costs are variable over twenty years, nearly all costs are fixed over one day. For health plans, approximately one-half of costs are staffing, which can be “right-sized” relatively rapidly, though not instantly. The accounting treatment of health plan facility costs, however, typically reflects a duration of 9-17 years while the duration for information systems costs is 2-3 years.

Thus, a health plan could display economies of scale during the short term but not over the long term. For example, suppose a health plan builds an infrastructure sufficient for an expected volume of members. That infrastructure includes information systems, customer service representatives, case managers and so forth. Planned-for capacity is based on careful observations of frequency of calls per member, how many members will be ill enough to require case management services and what proportion of claims can be expected to be autoadjudicated. Over a single year, investments in these areas are at least “sticky” if not fixed since employees are hired and processes established assuming a volume of members and their underlying service requirements.

While investments in capacity are largely within their control, health plan managers never fully manage the actual volume of members they serve because they cannot control (or even estimate precisely) the pricing and other competitive behaviors of industry rivals. Health plans’ inability to instantly adjust costs for actual versus estimated volumes can mean that costs that are variable over the intermediate term can behave like fixed costs in the short term.

Moreover, it seems likely that the greater the change in membership, the less likely that the change has been anticipated in time to fully adapt to it. So, the differences between the careful modeling of membership needs and the actual results affects per member costs. Thus, this *Navigator's* short duration time-series analysis can measure short-term scale.

By contrast, measuring scale at a single point in time ignores the effect of *changes* in membership within plans or as a group of plans. Since change of membership is not considered, only the actual scale is the focus of such a cross-sectional analysis. This impact of scale may or may not be diluted by the past experience of unexpected membership changes in the plans on their planning. It may also be the case that those unfulfilled expectations are countervailing, making cross-sectional analyses of the cost-membership relationship effectively a measure of long-term scale. In any event we have found that only a minority of health administrative expenses are subject to scale when estimated based on information provided at a specific date.

Point in time scale studies are the most commonly performed by Sherlock Company. Past years' studies are available in past editions of *Plan Management Navigator* and *PULSE*.

Put a different way, the point in time approach used in the economies of scale study in the previous *Plan Management Navigator* is long term since it doesn't take time into account. The approach considering the rates of change of individual plans is short term since the one year period is specified.

The Effects of Scale in the Short Term

Figure 1, on the first page, shows the relationship between changes in membership and changes in total administrative costs ("Sub-total"). We exclude the effect of Miscellaneous Business Taxes which are not usually manageable.

At a P-Value of 0.251, the modeled relationship between the trends is only 25.1% likely to be the result of chance, specifically the chance that the sample analyzed is unrepresentative of the population as a whole. The phrase "statistically significant at the 5% level" means that the P-Value is above that percent. The 5% threshold is common in social sciences, and here, as we customarily do, use a more aggressive 10% (P-Value of 0.100) threshold to cast a wide net for economies of scale.

The R^2 of 5.9% means that the modeled relationship between membership and cost growth, represented by the regression line, explains that percent of the difference between the two variables.

To express each growth-cost relationship, throughout this analysis we divided the calculated slope by 100. Since we are dealing with membership growth rates, the calculated slope yields values higher than in practice. For example, total administrative costs have a calculated slope of negative 28 percentage points as shown in Figure 3. This means that for every 100 percentage point increase in membership growth, the per member cost growth would decline by 28 percentage points.

Since such an increase in membership is unlikely, dividing by 100 yields more familiar results. In this case, we report the slope as 0.28 percentage points, which means that for every 1 percentage point increase in membership growth, cost growth would decline by 0.28 percentage points (pp). See the notes in Figures 2 and 3 for examples.

Growth and Clusters of Expenses

Figure 2 shows the results of the regressions between growth in membership and growth in PMPM clusters of expenses. *No clusters exhibited statistical significance*, but Medical and Provider Management was close with a P-Value of 0.102 with an R² of 11.7%. (As discussed later, the Provider Network Management and Services function within this cluster exhibited statistical significance.) The slope for the Medical and Provider Management cluster implies that the rate of change in cost trends would fall by 0.79 pp for every 1 percentage point increase in membership growth.

The Sales and Marketing cluster was the second closest to significance with a P-Value of 0.113 and an R² of 11.0%. The slope implies that the rate of change in the Sales and Marketing cluster of expenses would fall by 0.30 pp for every 1 pp increase in member growth. No functions in this cluster were statistically significant.

The Corporate Services cluster had a P-value of 0.200 and R² of 7.4%. This cluster's cost growth would have declined by 0.95 pp for every 1 pp increase in enrollment. The only function to post statistical significance was the Association Dues / License Filing Fees functional area. However, this function displayed diseconomies of scale, or an increase in the growth of costs with an increase with the growth of membership.

Account and Membership Administration cluster had a P-value of 0.270 and R² of 5.5%. This cluster exhibited diseconomies of scale with a slope of 0.27, implying a 0.27 pp growth in expenses with a 1 pp growth in membership. The expenses within this cluster are central to health plan operations and are comprised of Enrollment / Membership / Billing, Customer Services, Claims, and Information Systems. The Customer Services function displayed tendencies of economies of scale, while the larger function of Information Systems exhibited diseconomies of scale.

Figure 2. Short Term Economies of Scale
Rate of Membership Growth and PMPM Cost Growth, by Cluster

Function	R-Squared	Slope*	P-Value	Number of Plans
Sales and Marketing	11.0%	-0.30	0.113	24
Medical and Provider Management	11.7%	-0.79	0.102	24
Account and Membership Administration	5.5%	0.27	0.270	24
Corporate Services	7.4%	-0.95	0.200	24
Subtotal	5.9%	-0.28	0.251	24

*Slope here represents the percentage point change in expense growth for every percentage point increase in membership growth. For example, suppose a plan has 5% membership growth in year 1 with 10% Sales and Marketing cost growth. If in year 2 the plan increases its membership growth rate 1 percentage point to 6%, from the above, it can expect its Sales and Marketing cost growth to decline by 0.30 percentage points to 9.70%.

Growth and Expense Functions

Out of the sixteen functional areas, four exhibited statistically significant relationships with membership growth. Those four were Provider Network Management and Services, Customer Services, Information Systems, and Association Dues and License / Filing Fees.

The regression between the growth in Information Systems and growth in membership yielded a P-Value of 0.015 and a R² of 24.0%, displayed in Figure 4. This function exhibited diseconomies of scale, with a slope of 1.25. The Information Systems slope implies that this function's cost growth would increase by 1.25 pp by every 1 pp increase in membership growth.

The R² and P-Value for Customer Services was 18.9% and 0.034, respectively, shown in Figure 5. The rate of change in expenses in Customer Services would fall by 1.47 pp for every 1 pp increase in membership growth.

Figure 6 exhibits the relationship between growth in Provider Network Management and Services and growth in membership. The slope of this relationship suggests that the rate of change within Provider Network Management and Services expenses would fall by 0.93 pp for every 1 pp increase in membership growth. The relationship for this function and membership resulted in a P-Value was 0.095 with an R² of 12.1%.

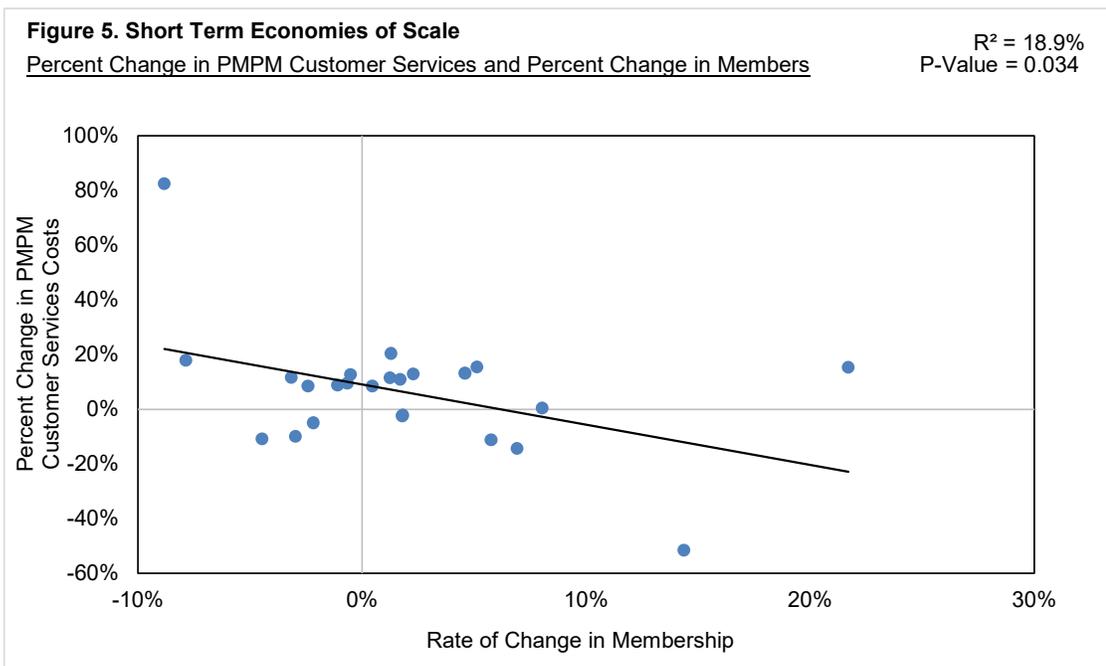
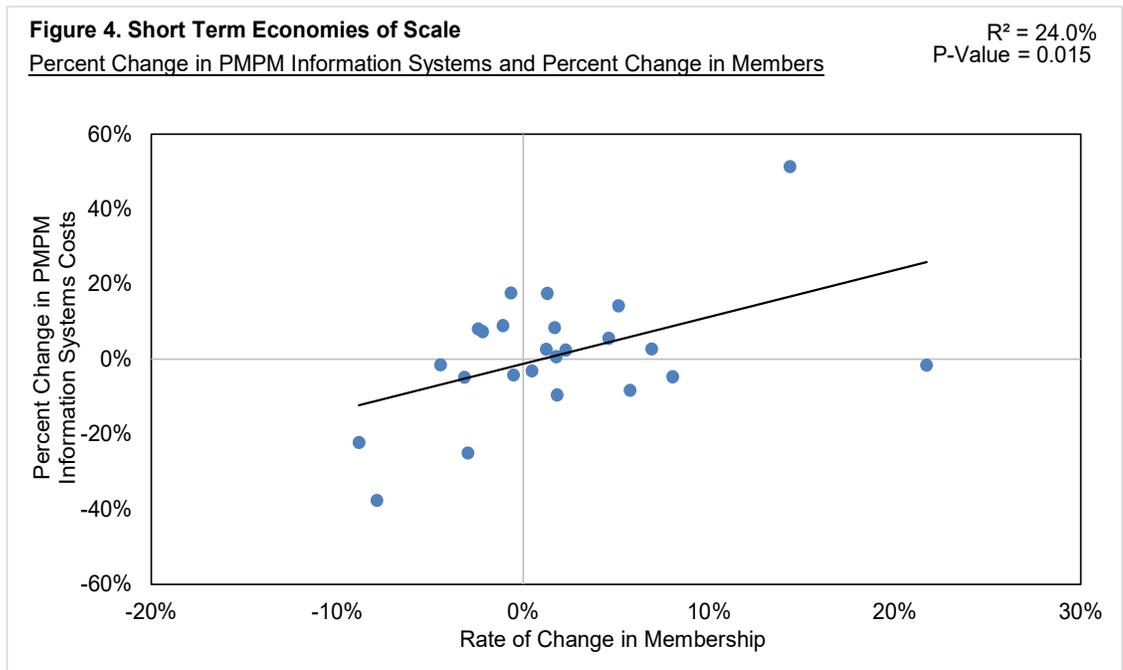
Figure 3. Short Term Economies of Scale

Rate of Membership Growth and PMPM Cost Growth, by Function

Function	R-Squared	Slope*	P-Value	Number of Plans
1. Rating and Underwriting	3.3%	-0.74	0.394	24
2. Marketing	0.3%	-0.19	0.799	24
3. Sales	10.3%	-0.47	0.126	24
4. External Broker Commissions	0.0%	0.02	0.955	24
5. Advertising and Promotion	0.2%	0.25	0.832	24
6. Provider Network Management and Services	12.1%	-0.93	0.095	24
7. Medical Management / Quality Assurance / Wellness	9.4%	-0.79	0.145	24
8. Enrollment / Membership / Billing	5.3%	-0.88	0.279	24
9. Customer Services	18.9%	-1.47	0.034	24
10. Claim and Encounter Capture and Adjudication	9.3%	-0.68	0.147	24
11. Information Systems Expenses	24.0%	1.25	0.015	24
12. Finance and Accounting	3.6%	-0.72	0.376	24
13. Actuarial	7.6%	-0.79	0.192	24
14. Corporate Services Function	4.0%	-0.77	0.349	24
15. Corporate Executive & Governance	0.1%	-0.34	0.875	24
16. Association Dues and License/Filing Fees	11.9%	2.64	0.098	24
Subtotal	5.9%	-0.28	0.251	24

*Slope here represents the percentage point change in expense growth for every percentage point increase in membership growth. For example, suppose a plan has 5% membership growth in year 1 with 10% Actuarial cost growth. If in year 2 the plan increases its membership growth rate 1 percentage point to 6%, from the above, it can expect its Actuarial cost growth to decline by 0.79 percentage points to 9.21%.

Association Dues and License / Filing Fees was the last function that displayed statistical significance with a P-Value of 0.098 and a R² of 11.9%, shown in Figure 7. These expenses are primarily insurance filing fees and dues for associations. Association Dues and License / Filing Fees growth increased with an increase to the rate of change in membership, signified by the upward sloping regression line. This function's rate of growth increased by 2.64 pp for every 1 pp in membership growth.



How We Performed this Study

This is a time-series study of the effect of a one-year change in membership on a one-year change in per member costs. Plans reported costs to us segmented into 16 principle functions. Total costs, all four clusters of costs and each of the functions were separately analyzed. Of the 33 combined Blue Cross Blue Shield and IPS participants, we used 24 plans for this *Navigator* analysis that participated in both the 2020 and 2021 benchmarking cycles. Their size ranged from high tens of thousands to millions of members, so these relationships are free of the high costs and explosive membership growth of start-ups.

Unlike most of our long-term economies of scale studies, we did not adjust to eliminate the effect of product mix differences between the years. While each plan differs, perhaps greatly, in their product mix, the year over year differences in any given plan's product mix is more modest. Though we routinely calculate cost growth eliminating the effect of product mix, there was no satisfactory way of eliminating the effect of product mix from membership growth. Accordingly, when we calculate changes for each of the 24 plans in this analysis, neither changes in membership nor costs eliminate the effect of product mix differences between the two years.

The 16 main functional areas of administrative expenses used in our benchmarking study are grouped into four clusters to gain an overall perspective. Most of the functions have sub-functions. When totaled, there are 60-70 functions and subfunctions into which each plan segments administrative costs. They are grouped as shown below. Miscellaneous Business Taxes are excluded for the purposes of this analysis. Subcategories of functions are also omitted.

Appendix A: Functions Included in Each Administrative Expense Cluster

The 16 main functional areas of administrative expenses used in our benchmarking study are grouped into four clusters to gain an overall perspective. Most of the functions have sub-functions. When totaled, there are 60-70 functions and subfunctions into which each plan segments administrative costs. They are grouped as shown below. Miscellaneous Business Taxes are excluded from the Corporate Services cluster for the purposes of this analysis. Subcategories of functions are also omitted.

Sales and Marketing

- Rating and Underwriting
- Marketing
- Sales
- External Broker Commissions
- Advertising and Promotion

Medical and Provider Management

- Provider Network Management and Services
- Medical Management / Quality Assurance / Wellness

Account and Membership Administration

- Enrollment / Membership / Billing
- Customer Services
- Claim and Encounter Capture and Adjudication
- Information Systems Expenses

Corporate Services Cluster

- Finance and Accounting
- Actuarial
- Corporate Services Function
- Corporate Executive and Governance
- Association Dues and License/Filing Fees

INVITATION TO PARTICIPATE IN THE 2022 SHERLOCK BENCHMARKING STUDY

The highly valid, well-populated *Sherlock Benchmarks* provide an unbiased ranking and helps prioritize cost management activities to have the greatest impact on improving your health plan's overall operating performance.

The 2022 study will be the 25th consecutive year, reflecting a cumulative experience of 929 health plan years. Since June 2018, health plans serving 173 million insured Americans use the Sherlock Benchmarks, including most Blue Cross Blue Shield plans, public companies and the largest Independent/Provider-Sponsored health plans.

For the most recent cycle of the *Sherlock Benchmarks*, of the 33 U.S.-based Blue Cross Blue Shield primary licensees, fourteen serving approximately 41.5 million people, participate in this year's Sherlock Benchmarking Study for Blue Cross Blue Shield Plans. Of the 15 members of the Alliance of Community Health Plans that are not focused on public programs or are staff-model plans, seven are participating in this year's Sherlock Benchmarking Study for Independent / Provider -Sponsored health plans. Most of the members of the Health Plan Alliance with greater than 300,000 members are participating in this year's *Sherlock Benchmarks*.

The *Sherlock Benchmarks* have been called the "Gold Standard" by leading health care consultants. Report publication begins in late June but varies by universe. Participation entails efforts on your part since useful outputs require relatively granular inputs. However, the cost is relatively modest.

The *Sherlock Benchmarks* are also available to license. Please reach out to Douglas Sherlock at sherlock@sherlockco.com or 215-628-2289 if you are interested in either participation or licensing. You will be among good company.