

# Collection Productivity

## Transferring Effort into Dollars

By: Terry Callahan, CCE



### The Credit Research Foundation

An Occasional Paper

October 2002

#### *Executive Summary*

- ◇ Productivity is a measure of the rate at which outputs of goods and services are produced per unit of input. It is calculated as the ratio of the quantity of outputs produced to some measure of the quantity of inputs used.
- ◇ Productivity measures are used at the level of firms, industries and entire economies.
- ◇ Productivity is a 'supply-side' measure, capturing technical production relationships between inputs and outputs; but, implicitly, it is also about the production of goods and services that are desired, valued and in demand.
- ◇ At a very broad level, productivity measures are often used to indicate the capacity of a business to harness its human and physical resources to generate economic growth.

## **Collection Productivity – Transferring Effort into Dollars**

*Improving Productivity is about working smarter, not working harder*

- ✳ Performance measures are a tool to help us understand, manage and improve what our organizations do;
- ✳ Productivity indicates a technical relationship between output and inputs in a production process such as the collection of accounts receivable.

### **Performance**

Measuring performance quantitatively tells us something important about our products or services and the processes that produce them. Performance measures let us know:

- How well we are doing;
- If we are meeting our goals;
- If our customers are satisfied;
- How efficiently we are operating;
- If our processes are in statistical control; and,
- If and where improvements are necessary.

Performance measures provide us with the information necessary to make intelligent decisions about what we do and to guide us to incrementally and efficiently improve. A performance measure is composed of a number and a unit of measure. The number gives us a magnitude (how much or many) and the unit gives the number a meaning (what it is). For example, Days Sales Outstanding = 31.3 days.

Performance measures are always tied to a goal or an objective (the target), otherwise why measure them. They can be represented by single dimensional units like days (as in DSO) or multidimensional units expressed as ratios of two or more fundamental units like the bad debt ratio (as in bad debt to sales). They can show the variation and

distinction in a process over time. Single and multidimensional units of measure usually represent very basic and fundamental measures of some process.

## **Productivity**

Productivity is a measure of the effectiveness with which output is produced. It measures the rate at which outputs of goods or services are produced per unit of input (labor, capital, raw materials, etc). It is calculated as the ratio of the quantity of outputs produced to a measure of the quantity of inputs used.

Productivity can be expressed as a physical measure (for example, number of collection calls generated per employee), a monetary measure (dollars of output or cost per collection call) or an index (output of change in productivity).

Evidence of productivity growth usually means that better ways have been found to create more output from given inputs. For example, the introduction of new technology means that inputs can be utilized to generate a greater quantity of outputs or new, higher-value products or services. (E.g., the deployment of a front-end cash processing system with auto-cash for the cash application process of customer payments). Another example of productivity growth is to reduce the amount of inputs (people) while producing the same or greater result (less ending A/R), while the sales (input) is equal or greater than before.

- Productivity = the relationship of Outputs to Inputs - which also means
- Productivity growth = Output growth / less Input growth

## **Productivity and accounts receivable**

Accounts receivable collection productivity growth is a key source of value you can add to your company. Collection productivity growth means more value is added in the collection process and this means more income is available to be distributed. A/R collection productivity growth is important to the firm because it means that it can meet its obligations to its customers, workers, shareholders and governments (taxes and regulation), and still remain competitive or even improve its competitiveness in the market place.

Furthermore, if you are managing collections as a shared service unit and charging back your services to various business units, then this productivity measure can be used as a leading indicator of your unit's future profitability.

While collecting accounts receivable, there are essentially three ways to promote a growth in output:

- Bring additional inputs (sales dollars) into production (A/R dollars);
- Use technology or somehow become more efficient and reduce A/R over the prior period; or,
- Decrease the number of employees collecting the receivables.

Adding more A/R dollars will not necessarily increase the income earned per unit of input (sales). But, when there is productivity growth, even the existing commitment of resources generates more output and income.

To measure collection productivity, the Credit Research Foundation has developed a simple measure that can be applied to evaluate the relationship between the inputs and the outputs of the collection process. The quantity of output is measured in dollars of accounts receivable, which is the result of the dollars of sales, and; input is measured by number of employees and the cost of technology used in the collection process. The variable of the cost of technology is a fixed factor that will be universally applied in this formula and periodically changed based on the current statistics in the CRF Benchmarking database. To be useful and functional, this productivity measure, like all CRF metrics, must be simple to apply and able to be used consistently across all industries and organizations.

In our formula, a straightforward and easily understood measurement of productivity for the collection of accounts receivable function, we start by determining the sales to employee relationship and the A/R to employee relationship. To establish productivity growth or decline, we simply take the percent change in sales per employee minus the result of the percent change in AR per employee times the average capital investment in technology as a % of labor. (See worksheet and formula, which follows). The result is the expression of growth or decline in productivity of the collection activity.

## Measuring Receivables

Performance measures for credit and receivables management can be grouped into the following five general categories. Some measures, like this new collection productivity metric, cross the boundaries of classifications. Organizations may develop their own categories as appropriate, depending on the company's mission:

1. Effectiveness: A process characteristic indicating the degree to which the process output (work produced) conforms to requirements. (*Are we doing the right things?*) These are the commonly known performance measures for A/R management and are used to establish standards for comparison - benchmarks.

Examples of Effectiveness measures are:

- a. DSO\*\* – Days Sales Outstanding
  - b. BPDSO – Best Possible Days Sales Outstanding
  - c. ADD – Average Days Delinquent
  - d. CEI – Collection Effectiveness Index
  - e. Percent current
  - f. Percent past due
  - g. Bad debt to sales
2. Efficiency: A process characteristic indicating the degree to which the process produces the required output at minimum resource cost. (*Are we doing things right?*)
    - a. Sales dollars per employee
    - b. Sales dollars per employee salary
    - c. Credit & A/R costs per customer
    - d. System cost per customer
    - e. A/R cost per transaction
    - f. System cost per transaction
  3. Quality: The degree to which the service of performing the credit and receivables management function meets customer requirements. (*Are we performing to customer expectations?*) Customers, both internal and external, present opportunities for excellent performance. Measuring your progress toward

minimizing errors (as reflected, for example, in bad-debts) is an example of measuring the value of the credit granted to the customers. Quality is a very subjective characteristic and while all organizations may not uniformly agree with this listing, these are representative of the attribute of quality in measuring the customer financial relationship.

- a. Bad debt to sales
  - b. Ratio of approved new accounts to total new applicants
  - c. Ratio of customers turned over to outside collection agencies as a percent of total active customers
  - d. Percent of orders held for credit reasons to total orders
  - e. DSO\*\*
4. Timeliness: Measures whether a unit of work was done correctly and on time. Criteria must be established to define what constitutes timeliness for a given unit of work such as reviewing and opening new customers. The criterion is usually based on customer requirements. (*Are we doing things when customers want them done?*)
- a. Average time to perform credit review versus established standard
  - b. Average time to resolve customer deductions versus established standard
5. Yield: Measures process efficiency. (*Have we achieved the desired result?*) Yield measures the ratio of the consequential output quantity to the input quantity.
- a. Deductions as a percent of total A/R
  - b. Deductions as a percent of sales
  - c. Deductions as a percent of customer transactions
  - d. Past due dollars as a percent to total A/R

*\*\* DSO is recognized by CRF as an insufficient gauge of performance for credit and collection; however it is presented and indicated in several categories here due to its influence in overall customer satisfaction. If customers are not satisfied with the products or service, that dissatisfaction is usually revealed as a delay in payment or a customer deduction, thus raising DSO.*

## **The Productivity Formula**

To evaluate the level of productivity in the collection process, we must go back to the premise of productivity being a function of outputs and inputs. In our formula, the inputs are sales, people and the investment in technology (considering if technology was not utilized, we would require more people). Outputs are sales and the ending accounts receivable or, the balance due from the sales, which, in an economic sense, is the residual sales.

Before we can measure the change in productivity and further develop a productivity index, we must understand the concept of collection productivity. Productivity is a measure that is usually displayed as a comparison of period-to-period activity – growth or decline. In other words, in this exercise it is not what the productivity is for any given period that is important, but rather the rate of growth or decline in the level of productivity of your collection efforts from period to period that we want to evaluate. Unlike, for example, the Collection Effectiveness Index (CEI), productivity for one period does not provide a representation of how you are doing. If your CEI is 80.0 then you and anyone familiar with the index is able to see that you have done an admirable job however there is room for improvement. Theoretically if your CEI equaled 100.0 you are at the optimal level of performance and there is no more room for improvement. The same could be said for many other performance measures for credit and accounts receivable. Besides CEI, bad debt to sales, DSO, percent current or past due, deductions as a percent of total open A/R items are examples of performance measures that, without knowing anything else about your organization, can begin to give the observer a picture of organizational performance.

## **Rate of change**

Mathematically we calculate the rate of change in collection productivity as the:  
(% Change in sales per employee from year one to year two - Average capital investment in technology as a % of labor) x % change in A/R per employee from year one to year two.

Examining the factors of the formula in a table, more clearly demonstrates how the calculation works. Illustration 1 represents the tabled calculations that you can apply to

develop your own collection productivity worksheet. Simply adjusting years and changing the data in cells B2, B3, B4, D2, D3 & D4 will produce your results.

Illustration 1:

|    | A   | B                    | D                    |
|----|---|----------------------|----------------------|
| 1  | <b>Collection Productivity Worksheet</b>  | <b>Year End 2000</b> | <b>Year End 2001</b> |
| 2  | Sales   | \$ 798,555,123       | \$ 698,555,123       |
| 3  | Average # of Collection Employees in year   | 5                    | 4                    |
| 4  | Year End A/R  | \$ 125,000,000       | \$ 125,000,000       |
| 5  | Sales per employee  | =B2 / B3             | =D2 / D3             |
| 6  | A/R per employee  | =B4 / B3             | =D4 / D3             |
| 7  | % Change in sales per employee  | -                    | =(D5 - B5) / B5      |
| 8  | % Change in A/R per employee  | -                    | =(D6 - B6) / B6      |
| 9  | Average capital investment in technology as a % of labor as derived from CRF's Benchmarking Study | -                    | 0.25                 |
| 10 | <b>Growth or Decline in Collection Productivity</b>   | -                    | <b>=D7- (D9*D8)</b>  |

Example 1:

| <b>Collection Productivity Worksheet</b>  | <b>Year End 2000</b> | <b>Year End 2001</b> |
|---|----------------------|----------------------|
| Sales   | \$ 798,555,123       | \$ 802,456,134       |
| Average # of Collection Employees in year   | 5                    | 4                    |
| Year End A/R  | \$ 125,000,000       | \$ 163,000,000       |
| Sales per employee  | \$ 159,711,025       | \$ 200,614,034       |
| A/R per employee  | \$ 25,000,000        | \$ 40,750,000        |
| % Change in sales per employee  |                      | 25.6%                |
| % Change in A/R per employee  |                      | 63%                  |
| Average capital investment in technology as a % of labor as derived from CRF's Benchmarking Study |                      | 25%                  |
| <b>Growth or Decline in Collection Productivity</b>   |                      | <b>9.86%</b>         |



In this example, we have expressed an illustration of productivity growth comparing the change in collection productivity for 2002 from 2001 of 9.86%. The increase is due to two of the three input and output factors changing favorably: an increase in sales and a decrease in the number of people collecting the sales. Although the ending A/R increased, its influence was not enough to produce a decline (negative result) in the growth of collection productivity.

If, however, the number of collectors would have remained the same in year two, (5 collectors) and everything else remained constant, this example would have produced a negative result or a decline in productivity for 2002 of -7.11%.

In the following example, we see the effect of dramatically reducing sales by 12.5%. However the credit and collection manager, being involved in company sales forecasting, was forewarned of the drop in revenue and anticipated the outcome therefore eliminating one collector over the course of 2002. Even though the ending A/R was not reduced commensurate with the 12.5% drop in sales, productivity still increased by 3.10% due to the reduction of employees as illustrated in example 2.

Example 2:

| <b>Collection Productivity Worksheet</b>  | <b>Year End 2000</b> | <b>Year End 2001</b> |
|---|----------------------|----------------------|
| Sales   | \$ 798,555,123       | \$ 698,555,123       |
| Average # of Collection Employees in year   | 5                    | 4                    |
| Year End A/R  | \$ 125,000,000       | \$ 125,000,000       |
| Sales per employee  | \$ 159,711,025       | \$ 174,638,781       |
| A/R per employee  | \$ 25,000,000        | \$ 31,250,000        |
| % Change in sales per employee  |                      | 9.3%                 |
| % Change in A/R per employee  |                      | 25%                  |
| Average capital investment in technology as a % of labor as derived from CRF's Benchmarking Study |                      | 25%                  |
| <b>Growth or Decline in Collection Productivity</b>   |                      | <b>3.10%</b>         |

## Conclusion

Being responsible for the credit and accounts receivable management of your company brings with it an opportunity to manage one of the largest corporate assets. Collecting those accounts receivable are at least the second most important task that you manage next to the customer evaluation performed beforehand. Like any task, the job of A/R collections can be measured for success using a number of performance metrics; and, in actuality; most company senior executives who receive your performance measure reports don't understand them. How many credit managers have been blamed for poor DSO results, 100% - probably. While all senior business executives may not comprehend the underlying formula for measuring productivity, even a wet-behind-the-ears MBA with no practical experience can understand the theory of productivity growth or decline; and has a sense of comprehension hearing that "collection productivity has increased this year".

The formula presented in this writing represents a clear and fair metric for quantifying growth or decline in the output of your firm's collection initiative. If you are producing more with fewer resources, no one can argue that is admirable performance. On the other hand, if productivity has declined, you need to determine where the problem is and adjust accordingly. Like our previous example, if sales are projected downward, then you should make the necessary adjustments to facilitate performance at the same level of productivity as in the past.

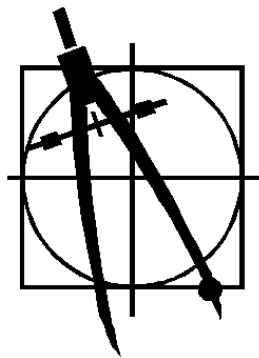
The Credit Research Foundation will conduct an annual survey measuring productivity based on this simple and easy to perform formula to determine an inter- and intra-industry index for productivity growth or decline for the A/R collection function.

# Credit Research Foundation

## RESOURCES

Visit the Credit Research Foundation website for additional resources

<http://www.crfonline.org>



© Copyright 2002 by the Credit Research Foundation.

All rights in this paper are reserved.

No part of the paper may be reproduced in any  
manner whatsoever without written permission.

Printed in the United States of America

Credit Research Foundation  
8840 Columbia 100 Parkway  
Columbia MD 21045

410-740-5499