

September 1976

## Computer Applications in Georgia Manufacturing Firms

Leo G. Parrish Jr.  
*Georgia Southern College*

Harrison S. Carter  
*Georgia Southern College*

Follow this and additional works at: <https://digitalcommons.georgiasouthern.edu/sbr>



Part of the [Business Commons](#), and the [Education Commons](#)

---

### Recommended Citation

Parrish, Leo G. Jr. and Carter, Harrison S. (1976) "Computer Applications in Georgia Manufacturing Firms," *Southern Business Review*. Vol. 2: Iss. 2, Article 7.

Available at: <https://digitalcommons.georgiasouthern.edu/sbr/vol2/iss2/7>

This article is brought to you for free and open access by the Journals at Digital Commons@Georgia Southern. It has been accepted for inclusion in Southern Business Review by an authorized administrator of Digital Commons@Georgia Southern. For more information, please contact [digitalcommons@georgiasouthern.edu](mailto:digitalcommons@georgiasouthern.edu).

**COMPUTER APPLICATIONS IN  
GEORGIA MANUFACTURING FIRMS**

**Leo G. Parrish, Jr.  
and  
Harrison S. Carter**

Members of the Management Department at Georgia Southern College are conducting research into the use of computers in business and non-business organizations in Georgia. The first phase of the project, which is being partially funded by a Georgia Southern College Faculty Research Grant, was completed in September of 1976. This paper reports some of the findings of that study.

**The Study**

The overall research is designed to determine the extent of computer usage in organizations in Georgia, the applications of computers, and the present and projected needs for college-trained data processing personnel. The first phase of the research surveyed manufacturing firms in the State. Phase I had three primary objectives:

1. To determine, by firm size, the number of firms employing computers and/or computer service bureaus.
2. To determine the usage of computers in handling a number of important record-keeping activities.
3. To determine the extent of computer usage in performing management science techniques.

To accomplish the objectives of the study, 1245 questionnaires were sent to manufacturing firms in Georgia. All 1107 firms of size 100 or more employees were sent questionnaires, as were a sample of 138 firms employing fewer than 100 employees. Responses were received from 203 of the larger firms and 28 of the smaller ones. Of the 231 responses, 212 completed the questions on recordkeeping functions, and 159 completed the management science technique section.

**Findings**

The major findings were as follows:

1. One hundred and forty-three (61.9%) of the firms use only their own computer, 27 (11.7%) utilize only service

bureaus, 34 (14.7%) use both their own computers and service bureaus, and 27 (11.7%) use neither.

2. Approximately 75 percent of the responding firms utilize computers in record-keeping activities.
3. Some 67.3 percent (107 of 159) of the respondents use one or more management science techniques.

The following tables provide more specific information on the various areas of study.

Table 1 depicts computer usage by size of firm. The data does indicate a positive correlation between computer usage and size of firm. This table includes all 231 responses.

**TABLE 1**  
**Computer Usage by Size of Firm**  
**(All Firms)\***

Size of Firm (Number of Employees)	Neither Internal Computer nor Service Bureau User	Service Bureau User Only	Internal Computer User Only	Internal Computer and Service Bureau User
1 - 50	4 (80.0%)	0	0	1 (20.0%)
51 - 100	6 (26.1%)	6 (26.1%)	10 (43.5%)	1 (4.3%)
101 - 500	16 (12.5%)	19 (14.8%)	77 (60.2%)	16 (12.5%)
501 - 1000	1 (3.3%)	1 (3.3%)	23 (76.7%)	5 (16.7%)
Over 1000	0	1 (2.2%)	33 (73.3%)	11 (24.4%)
Total	27	27	143	34

\*Percentage based on total firms for that class

The second objective of this phase of the study is to determine the usage of computers in handling a number of important record-

keeping activities. Those activities that were studied are as follows:

- (1) accounts receivable (A/R),
- (2) accounts payable (A/P),
- (3) general ledger (G/L),
- (4) payroll (PAY),
- (5) personnel (PER),
- (6) sales,
- (7) inventory (INV),
- (8) cost accounting (C/A), and
- (9) production (PROD).

Table 2 indicates the extent of computer usage in these activities.

**TABLE 2**  
**Record-keeping Activity by Method\***

Activity	Activity Not Being Conducted	Activity Conducted Manually	Activity Conducted by Computer
A/R	18 (8.5%)	49 (23.1%)	145 (68.4%)
A/P	3 (1.4%)	65 (30.7%)	144 (67.9%)
G/L	9 (4.2%)	67 (31.6%)	136 (64.2%)
PAY	0	30 (14.2%)	182 (85.8%)
PER	17 (8.0%)	104 (49.1%)	91 (42.9%)
SALES	16 (7.5%)	45 (21.2%)	151 (71.2%)
INV	4 (1.9%)	68 (32.1%)	140 (66.0%)
C/A	11 (5.2%)	74 (34.9%)	127 (59.9%)
PROD	10 (4.7%)	83 (39.2%)	119 (56.1%)

\*Percentage based on total of 212 responses

The five most often computer-performed activities in order from most frequent were:

- (1) payroll,
- (2) sales,
- (3) accounts receivable,
- (4) accounts payable, and
- (5) inventory.

In examining the extent of computer usage in each of the record-keeping areas, it is important to look at the use of service bureaus in contrast to the use of internal computers in performing the activities under study. Table 3 partially examines this question by depicting the number and percentage of service bureau usage by activity. The data indicates that the payroll activity is conducted more often by service bureau than is any other activity. However the percentage of use of service bureaus is fairly small for all activities.

**TABLE 3**  
**Service Bureau Usage by Activity\***

Activity	Service Bureau Usage	Percentage of Total (212)
A/R	12	5.7
A/P	9	4.2
G/L	7	3.3
PAY	42	19.8
PER	6	2.8
SALES	12	5.7
INV	11	5.2
C/A	6	2.8
PROD	11	5.2

\*Respondents included in this table are those that indicated any service bureau usage in each of the activity categories

The final objective of this phase of the study was to determine the extent of computer usage in performing various management



science techniques. Those management science techniques that were examined are as follows:

- (1) mathematical programming,
- (2) simulation,
- (3) forecasting models,
- (4) economic order quantity models, and
- (5) PERT/CPM.

Table 4 indicates the extent to which computers are used in performing these management science techniques.

**TABLE 4**  
**Management Science Technique by Computer Usage**

Technique	Technique Not Used	Technique Performed Manually	Technique Performed by Computer	Technique Performed Manually or by Computer
Math. Prog.	92	11	56	67
Simulation	113	12	34	46
Forecasting	86	25	48	73
EOQ	98	15	46	61
PERT/CPM	107	20	32	52

The data in Table 4 indicates that more of the management science techniques are performed with the computer than manually. Additionally, the most frequently used management science technique among the respondents is forecasting. As part of this study reasons for not using the management science techniques were examined. The three most reasons for non-use listed below in order from most frequent given:

- (1) The applicability of the technique to your business is not known;
- (2) The technique is not applicable to your business; and
- (3) The technique is not economically feasible for your firm.

This type of response suggests a need for management scientists to demonstrate the applicability of their techniques to manufactur-

ing firms. The data also suggest a need to expand the knowledge of key personnel in manufacturing firms in Georgia with respect to management science techniques.

### Summary and Conclusions

The initial phase of the research project was directed at manufacturing firms in Georgia. The results of the study provide useful insights into computer applications in these firms. Future studies are planned for other types of organizations, and to determine the needs of organizations in Georgia for computer-related educational programs and for college-trained data processing personnel. The research should lead to increased effectiveness of Georgia Southern and other colleges in meeting the higher educational requirements of organizations in Georgia, and better understanding of the scope of data processing in the State.

---

Dr. Parrish is an Associate Professor and Acting Head of the Department of Management at Georgia Southern College. Dr. Carter is an Assistant Professor in the Department of Management at Georgia Southern College.