Project B-209

TOILETRIES

A MANUFACTURING OPPORTUNITY IN GEORGIA

Prepared for
The Georgia Department of Commerce
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by

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Foreword

The gross imbalance which exists between the volume of toilet goods consumed in the South and the amount produced there -- with only one ninth the total consumed being manufactured in the area -- points up one of the most obvious reasons for considering a central location in Georgia for the production of toilet goods.

As in the case of many other products analyzed in the more than 40 special industry studies completed over the past five years, the present large and growing markets are only one of several important economic reasons for considering a Georgia location for the type of plant under consideration.

This is the third in the current series of reports being prepared for the Georgia Department of Commerce. Questions or comments regarding the study will be welcomed. Where appropriate, further analyses can be prepared to meet the specific requirements of individual firms.

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Summary

Retail sales of toilet goods in 1961 were almost $2 billion and have been growing at an average annual rate of 7.8% since 1951. By 1967, sales of toiletries are expected to reach $3.2 billion -- a 65% increase over 1961 sales.

A manufacturer of toiletries in Georgia would have a freight advantage over present producers in Chicago and New York in serving an area represented by 11 southern states.[1/] The retail market for toiletries in the South was more than $380 million in 1961. Sales in the area should exceed $630 million by 1967.

Whereas the markets for toiletries are spread widely over the United States, almost 83% of the production is concentrated in the northern manufacturing belt. The South's consumption of toiletries is more than nine times greater than its production.

A plant in Georgia, formulating and packaging toiletries for the southern market, could capitalize on the advantages of low freight costs, locally available sources of containers, low production labor costs, favorable property taxes, low construction costs, economical sources of natural gas and electricity, and satisfactory availability of supplies and raw materials.

Considering only those major savings that can be readily quantified, a company presently producing in the New York area could increase earnings 30% on sales in the South by serving the southern region from a plant in Georgia. A Georgia plant with annual sales of $20 million would save more than $700,000 annually, resulting from:

1. $263,000 reduction in freight costs,
2. $420,000 reduction in labor costs, and
3. $36,000 reduction in property tax.

1/ Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Texas.

INTRODUCTION

The toiletries discussed in this report are the types of products that are formulated and packaged. These include hair products, cosmetics, shaving products, products used in oral hygiene, hand products, and related types of toilet goods. The U. S. Department of Commerce's Standard Industrial Classification (SIC) is 2844.

This study is concerned with the feasibility of establishing manufacturing operations in Georgia to serve the southern market. The present and future markets are considered. In pointing out the characteristics of the industry, the concentrated production centers and the dispersed regional markets are contrasted. The need for a broad base of low cost labor, due to the relatively low pay received by the production workers in the toiletries industry, is pointed out. By formulating and packaging these products in close proximity to large consumer markets, it is possible to effect considerable freight savings in distributing the finished packaged products. Savings result from reducing the distances that containers must be shipped. Ingredients can be shipped from a central source to a regional market area more cheaply in bulk form than in packaged form or, in many cases, can be procured on a delivered price basis. Additional shipping cost savings result when the formulation contains a large amount of water, which can be added at the point of packaging.

In considering the advantages of having a toiletries plant in Georgia, this report concentrates on the labor advantages, freight advantages and lower property taxes the Georgia plant would have. Georgia's many other attractions are also analyzed: construction costs, natural gas rates, electric rates, property taxes, and the availability of containers and other packaging materials.

THE MARKET FOR TOILETRIES

The National Market

Retail sales of toilet goods in 1961 were barely under $2 billion and have been growing at an average annual rate of 7.8% since 1951. (See Table 1.) This is a substantially higher rate than population growth, indicating a rapidly rising per capita consumption.

Table 1

U. S. RETAIL SALES OF TOILET GOODS
(1951-1961)

Year	Sales	Per Cent Increase Over Previous Year
1961	$1,933,500,000	8.4
1960	1,784,000,000	10.0
1959	1,622,000,000	6.5
1958	1,523,000,000	6.5
1957	1,430,000,000	8.3
1956	1,321,000,000	10.8
1955	1,192,000,000	9.8
1954	1,086,000,000	6.5
1953	1,020,000,000	1.6
1952	1,004,000,000	10.1
1951	912,000,000	

Source: "Toilet Goods Association 27th Annual Meeting," Chemical Week, July 14, 1962, p. 41.

Sales of toiletries reported in Table 1 include perfumes, cosmetics and other toilet preparations but do not include toilet soap.

According to Drug Topics, 1961 sales of toiletries by product categories were as follows: hair products, 25%; cosmetics, 22%; oral hygiene, 17%; shaving products, 6%; hand products 5%; and other toiletries, 24%.

The sales leader in 1961 was toilet soaps followed by tooth paste, shampoos, face creams and lipsticks. The 30 leading toilet goods items are listed in descending order of 1961 retail sales in Table 2. Historical sales records of these products are shown in Appendix 2.

The largest dollar increase in 1961 sales was made by lipsticks, with a gain of $21.3 million over 1960. Other products with more than $10 million sales increases in 1961 were aerosol colognes, mouth washes and gargles, and spray hair fixatives. Products that have excelled in their annual sales growth are given in Table 3 along with measurements of their growth.

Retail sales of toiletries are expected to reach $3.2 billion in 1967, a 65% increase over 1961 sales. This forecast is based on the extremely close correlation (0.997) between sales of toilet goods and the U. S. Department of Commerce figures on "Personal Expenditures for Services" (PES) for the years 1951 through 1961. Using the U. S. Department of Commerce statistics, the McGraw-Hill Department of Economics has made forecasts of PES. The PES forecast provided the base for forecasting toilet goods sales. (See Figure 1 and Appendix 1 for details.)

Regional Market

The market for a Georgia manufacturer of toiletries is considered to be that area to which it is cheaper to ship from Georgia than from Chicago or New York.

The Georgia freight advantage area is shown on Map 1. Atlanta was used to fix the shipping point in Georgia, and Chicago and New York were chosen as representative centers for the present producers.

Retail sales volume of toiletries in the Georgia freight advantage area was approximately $387 million in 1961. The freight advantage area contained 41.68 million people in 1960, or 23% of the U. S. population.

This area is estimated to have 20.0% of the national market for toiletries. Several sources of data are available with which to measure the area's share of the market. Since information is given by state, 11 states[1/] were

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1/ Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Texas.

chosen as representative of the freight advantage area, and adjustments made based on population.

In 1958 the 11 states accounted for 19.6% of the U. S. wholesale sales of drugs, drug proprietaries, druggists' sundries, and toiletries (SIC 5022). In retail drug store sales (SIC 591), the 11 states accounted for 20.4% of the U. S. sales. Retail grocery store sales (SIC 541) for the 11 states amounted to 21% of the U. S. sales. Topics Publishing Company reports that 1960 retail sales of non-prescription items in drug stores for the 11 states accounted for 20.2% of the U. S. sales.

In summary:

	11-State Percentage of U. S. Sales
1958 Wholesale drug sales	19.6
1958 Retail drug store sales	20.4
1958 Retail grocery store sales	21.0
1958 Retail drug store sales of non-prescription items	20.2
Average for 11-state area	20.3

It is estimated that retail sales in the 11-state freight advantage area will reach $636 million by 1967. Methods used in the forecast are given in Appendix 2. Sales in the freight advantage area are expected to remain 20% of national sales through 1967, since a population forecast indicates that the area's percentage of the national population will change little in the immediate future.

1/ United States Census of Business: 1958, U. S. Department of Commerce, Bureau of the Census.

Table 2

RETAIL SALES OF TOILETRIES IN DESCENDING ORDER
(1961)

Product	Sales
Toilet Soaps	$266,740,000
Tooth Paste	243,730,000
Shampoos	172,740,000
Face Creams	127,600,000
Lipsticks	121,680,000
Spray Hair Fixatives	91,490,000
Mouth Washes and Gargles	87,570,000
Hair Coloring Preparations	74,440,000
Men's Hair Tonics	74,360,000
Face Cleansing Creams	71,190,000
Home Permanent Kits and Refills	70,210,000
Aerosol Cologne	65,420,000
Aerosol Shaving Cream	54,790,000
After-Shave Lotion	49,440,000
Pressed Cake Face Powder	41,790,000
Nail Polish and Enamel	38,370,000
Roll-On Deodorants	38,070,000
Hand Lotions	37,860,000
Perfumes	37,440,000
Cream Deodorants	35,380,000
Colognes, Toilet Waters (non-aerosol)	35,310,000
Talcum and Body Powders	34,450,000
Liquid Facial Cleaners	29,640,000
Women's Hair Dressings and Conditioners	25,770,000
Loose Face Powder	24,680,000
Face Lotions and Astringents	24,630,000
Make-Up Lotion	23,790,000
False Teeth Adhesives	20,540,000
Face Lubricating Creams	19,580,000
Squeeze Container Sprays (External Personal Deodorants)	15,020,000

Table 3

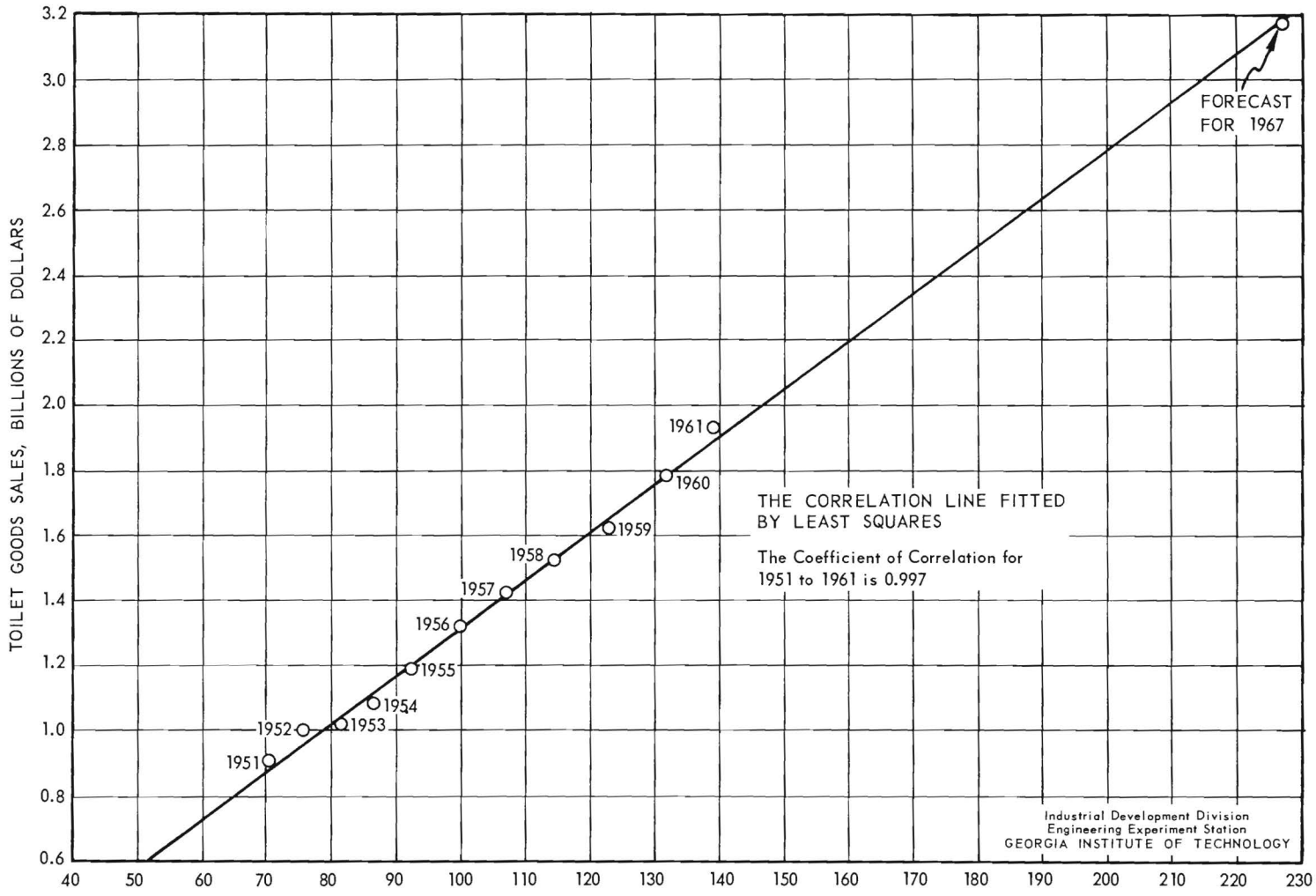
SALES PERFORMANCE OF TOILETRIES WITH LARGEST DOLLAR INCREASES IN 1961

Product	Dollar Volume 1961	Dollar Increase 1961 over 1960	Per Cent Increase 1961 over 1960	Average Annual Per Cent Increase	Number of Years Covered
Lipsticks	$121,680,000	$21,290,000	21.2	10.3	12
Aerosol Cologne	65,420,000	12,280,000	23.1	21.0	4
Mouth Washes and Gargles	87,570,000	11,750,000	15.5	11.1	12
Spray Hair Fixatives	91,490,000	10,240,000	12.6	17.3	7
Tooth Paste	243,730,000	8,920,000	3.8	8.3	12
Toilet Soaps	266,740,000	8,890,000	3.4	5.3	12
Hair Coloring Preparations	74,440,000	6,830,000	10.1	16.2	12
Shampoos	172,740,000	6,160,000	3.7	7.4	12
Roll-On Deodorants	38,070,000	6,100,000	19.1	40.0	5
Pressed Cake Face Powder	41,790,000	5,950,000	16.6	10.0	6
Home Permanent Kits and Refills	70,210,000	5,560,000	8.6	-4.0	5
Face Creams (all)	127,600,000	5,430,000	4.4	3.3	12
Nail Polish and Enamel	38,370,000	5,380,000	16.3	8.0	12
Men's Hair Tonics	74,360,000	4,440,000	6.4	6.4	12
Aerosol Shaving Cream	54,790,000	3,680,000	7.2	12.3	6
Make-Up Lotion	23,790,000	3,140,000	15.2	10.1	6
Cream Deodorants	35,380,000	2,340,000	7.1	3.8	9
Colognes, Toilet Waters (non-aerosol)	35,310,000	2,190,000	6.6		
After-Shave Lotion	49,440,000	2,170,000	4.6	6.9	12
Face Cleansing Creams	71,190,000	2,140,000	3.1	2.6	12

Source: Topics Publishing Company, New York, N. Y.

FIGURE 1

CORRELATION BETWEEN PERSONAL EXPENDITURES FOR SERVICES AND TOILET GOODS SALES

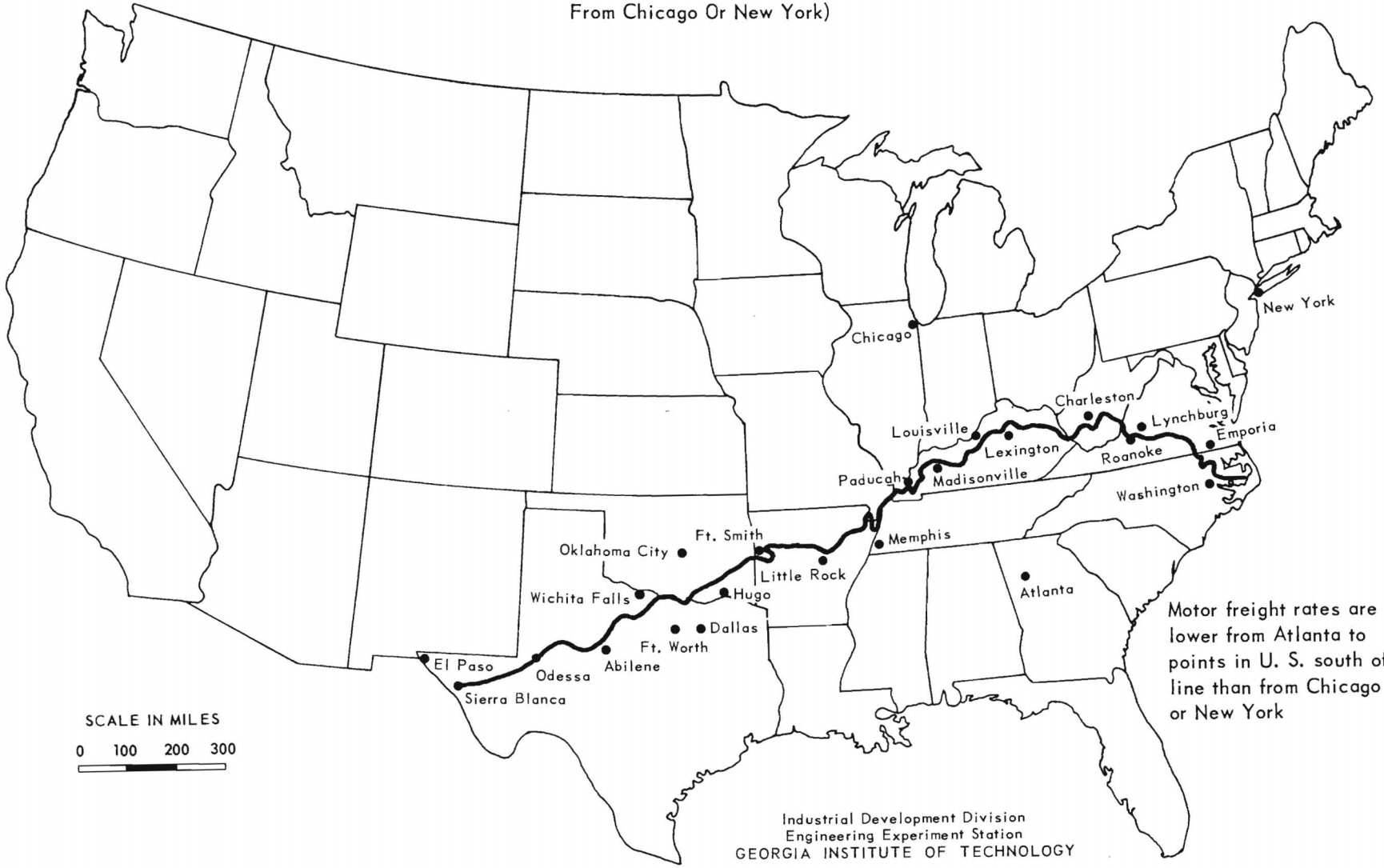


SOURCE: U. S. Department of Commerce
McGraw-Hill Department of Economics
Topics Publishing Company

MAP 1

GEORGIA FREIGHT ADVANTAGE AREA

(Area Where Freight Costs Will Be Less From Atlanta Than From Chicago Or New York)



Motor freight rates are lower from Atlanta to points in U. S. south of line than from Chicago or New York

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LOCATION OF THE INDUSTRY AND ITS MARKETS

Production Centers

Almost 83% of the production of toiletries in the United States is concentrated in the northern manufacturing belt (six New England states, three Middle Atlantic states, and five East North Central states). New Jersey and New York account for 49% of U. S. production. New Jersey ranks first with $330 million or 31%, and New York is second with $190 million or 18%. The concentration of production centers is shown on Map 2.

Regional Markets

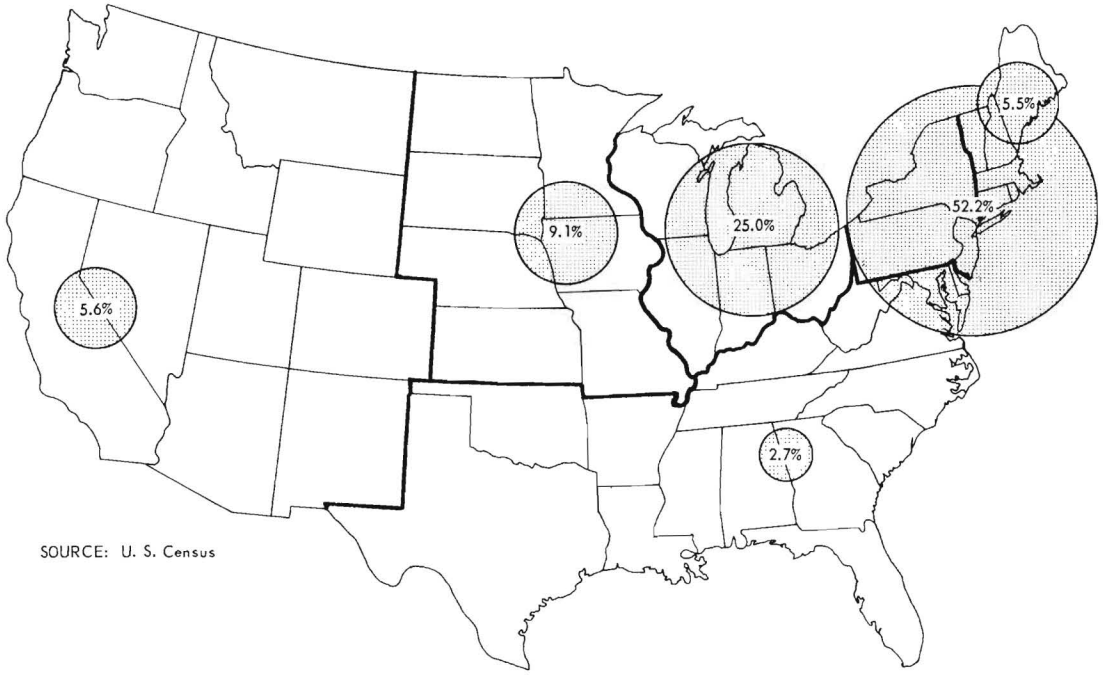
In contrast, the markets for toiletries are spread widely though unevenly over the entire country. Drug store sales provide a reliable indication of the market for toiletries, since over 30% of all toilet goods sales are made through drug stores. Regional markets, based on 1960 retail drug store sales, are shown below and on Map 3.

Approximate Region	Per Cent of U. S. Retail Sales
Upper Atlantic (11 states)	27.2
East North Central (5 states)	22.6
Southern (12 states)	18.6
Pacific (5 states)	12.3
West North Central (7 states)	8.5
Southwestern (3 states)	7.9
North Western Mountain (5 states)	2.6

When Map 2 and Map 3 are compared, the significant variation between production centers and regional markets is evident. The South's consumption of toiletries is more than nine times greater than its production. It is feasible, therefore, to consider Georgia as a production center for the southern market.

MAP 2

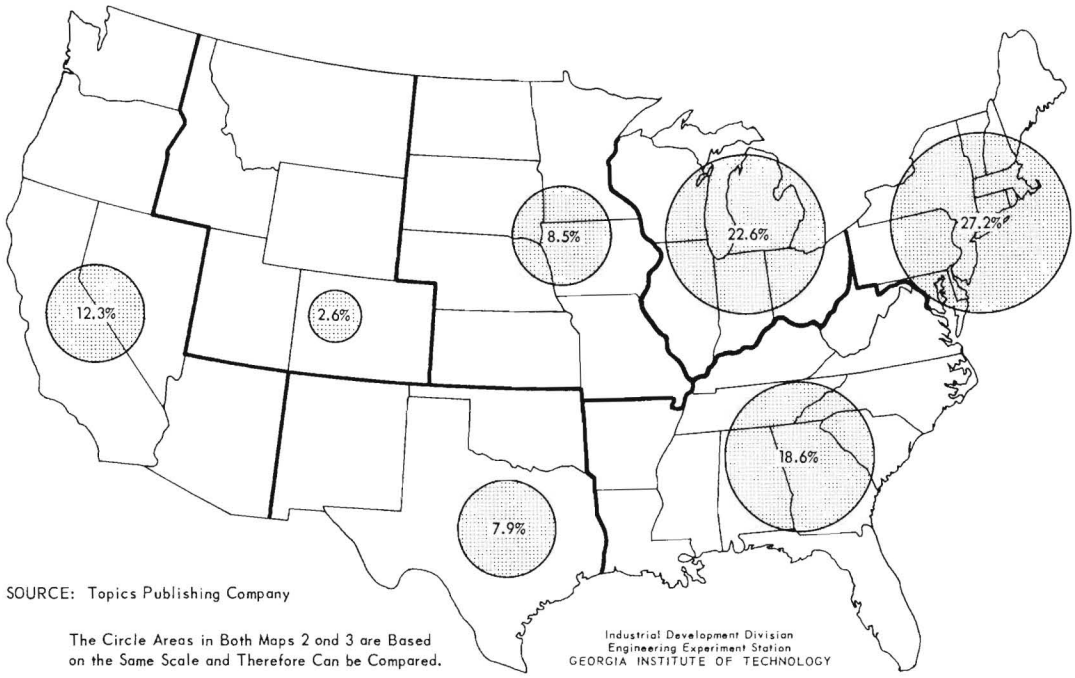
PRODUCTION CONCENTRATION SHOWN BY VALUE OF SHIPMENTS
FOR TOILET PREPARATIONS (SIC 2844)



SOURCE: U. S. Census

MAP 3

REGIONAL MARKETS FOR TOILETRIES
(Shown by 1960 Retail Drug Store Sales)



SOURCE: Topics Publishing Company

The Circle Areas in Both Maps 2 and 3 are Based on the Same Scale and Therefore Can be Compared.

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ADVANTAGES OF A GEORGIA LOCATION

Lower Freight Costs

A plant in Georgia, formulating and packaging toiletries for the southern market, would enjoy a considerable freight advantage over a similar plant in the Northeast. Table 4 demonstrates possible freight savings. It shows a comparison of motor freight rates from New York and from Atlanta to major markets in the South.

Table 4

MOTOR FREIGHT CLASS RATES
FOR TOILET PREPARATIONS, MEDICINES AND DRUGS FROM
NEW YORK AND FROM ATLANTA TO SOUTHERN CITIES
(Truckload Shipment of 30,000 Pounds)

To	From New York City Area ($/cwt.)	From Atlanta (Estimated New Rates)* ($/cwt.)	Savings Atlanta vs. New York City Area ($/cwt.)
New Orleans	2.66	0.80	1.86
Dallas	2.64	1.24	1.40
Memphis	1.75	0.73	1.02
Jacksonville	1.59	0.66	0.93
Charlotte	1.30	0.60	0.70

* The estimated new rates are 27% of the Class 100 rates applicable to truckload shipments. They are on the same relative basis as the present rate of $1.20 on 30,000 pounds from New York to Atlanta. Present rates from Atlanta are: $1.18 on 22,000 pounds to New Orleans; $1.61 on 30,000 pounds to Dallas; $1.08 on 22,000 pounds to Memphis; $0.98 on 22,000 pounds to Jacksonville, and $0.89 on 22,000 pounds to Charlotte.

A hypothetical case study for a New York area company with annual U. S. sales of $100 million in toiletries and related items illustrates that an Atlanta regional plant would save the company $263,000 annually in freight

costs.[1/] This would provide an increased profit on southern regional sales of more than 10%.

The case study company was assumed to be located in the New York-northeastern New Jersey area and to distribute products nationally from this location. Other pertinent facts concerning the company:

Annual sales	$100,000,000
Earnings before taxes[2/]	$12,000,000
Annual freight bill	$2,314,600

It was assumed that 20% -- or $20 million -- of the company's output would be sold in the Atlanta freight advantage area. If a manufacturer were serving this regional market from Atlanta, the following freight savings would result:

Freight cost from New York plant	$462,941
Freight cost from an Atlanta plant	199,832
Estimated annual freight savings	$263,109

Profit on southern regional sales from the New York plant would be $2,400,000. This would be increased by $263,109, or 10.9%, if the market were served by a plant located in Georgia.

Availability of Containers in Georgia

Container and box manufacturers in the area are a primary advantage to a toiletries manufacturer. Located in Georgia are plants manufacturing metal, plastic and glass containers. These plants are listed in Table 5.

1/ McKoy, Wade, Packaging Opportunities in Atlanta, Industrial Development Division, Engineering Experiment Station, Georgia Institute of Technology, September, 1962, p. 24.

2/ Average earnings before taxes for the Chemicals and Allied Products industry averaged 12% of sales in 1961, according to Quarterly Financial Report for Manufacturing Corporations, Federal Trade Commission.

Table 5

MANUFACTURERS OF METAL, PLASTIC AND GLASS CONTAINERS IN GEORGIA

Plant	Location	Products
American Can Company	Atlanta (Forest Park)	Oblong cans, beer cans, carbonated beverage cans, paper tubes with metal ends, lithographing facilities.
American Can Company	Savannah	Coffee cans and other cans.
Crown Cork & Seal Company	Atlanta	General open top cans, aerosol cans, aluminum cans, beer cans, bottle crowns, oblong cans, lithographing facilities.
Knox Glass Company	Atlanta (Forest Park)	Glass containers.
Owens-Illinois Glass Company, Glass Container Division	Atlanta	Glass containers.
Plastic Products Division	Atlanta	High density polyethylene bottles.
Polyco, Inc.	Atlanta (Smyrna)	High and low density polyethylene bottles.

In addition there are many manufacturers of paper, fiber and wood containers located in Georgia. The number of plants are listed by Standard Industrial Classification (SIC) in Table 6.

Table 6

PLANTS MANUFACTURING PAPER, FIBER AND WOOD CONTAINERS IN GEORGIA

SIC	Number of Plants	Products
2651	6	Folding paperboard boxes
2652	7	Set-up paperboard boxes
2653	14	Corrugated and solid fiber boxes
2654	10	Sanitary food containers
2655	8	Fiber cans, tubes, drums, and similar products
2441	14	Nailed and lock corner wooden boxes and shook
2442	20	Wirebound boxes and crates
2443	6	Veneer and plywood containers, except boxes and crates

Nearby sources of containers are critical to a manufacturer of toilet goods since packaging materials are a major part of the shipping weight of some toiletries. Examples are:

Aerosol Shaving Cream - 30 to 70% of shipping weight
Cream Deodorants - 85% of shipping weight
Hair Shampoo - 50 to 70% of shipping weight
Hair Spray Fixatives - 35% of shipping weight
Tooth Paste - 15 to 60% of shipping weight

Lower Production Labor Costs

In the toilet preparations industry production workers receive relatively low pay. Nationally the production wage in 1958 averaged $1.85 per hour.[1/] Production workers comprised 63% of all the employees and received 50% of the wages paid. Production wages amounted to 6.3% of the value of shipments.

1/ United States Census of Manufactures: 1958, U. S. Department of Commerce, Bureau of the Census.

Location of a plant in a low wage area, therefore, would provide a significant competitive advantage.

Not only are labor costs per man hour lower in Georgia than in the northern manufacturing belt, but production per man hour is often higher.[1/]

The following tabulation from the U. S. Bureau of the Census compares incomes of operatives in Georgia with incomes of similar workers in other locations in the country:

Region of State	Median Incomes of Male Operatives and Kindred Workers
Georgia	$2,771
South	3,196
North East	4,414
New York	4,450
North Central	4,759
West	4,839
Illinois	4,970
California	5,062

The occupation group, male operatives and kindred workers, was selected from the census groups as being the most representative of the production employees in the toiletries industry. The median income of male operatives in Georgia is less than two-thirds of the median income outside the South. Based on these figures, profits can show an increase of approximately 17% due to a 34% saving in production wages for a plant located in Georgia rather than in the New York area. The illustration is worked out below:

New York plant production wages	=	6.3% of sales
Georgia plant production wages ($6.3 \times 0.66 = 4.2$)	=	4.2% of sales
Georgia plant savings in wages[2/]	=	2.1% of sales
Profit of New York plant[3/]	=	12.0% of sales
Profit of Georgia plant due to benefit of lower wages	=	14.1% of sales
Georgia plant profit greater by		17.5% due to labor savings

1/ Sewell, Charles, A Formula for Labor Productivity in Georgia, Industrial Development Division, Engineering Experiment Station, Georgia Institute of Technology, July, 1961.

2/ This amounts to $420,000 for the hypothetical example on page 11.

3/ See footnote 2, page 12.

Lower Property Taxes

The following comparison shows a saving of $35,938 for a Georgia plant over a New York area plant due to lower property taxes. The specific areas being compared are Clayton County on the fringe of Atlanta and Caldwell Township in Essex County, New Jersey. Caldwell Township has the lowest tax rate in Essex County. The property tax in Newark, also located in Essex County, is about 2.5 times greater than in Caldwell Township.[1/] Property taxes in the City of Atlanta are lower than the lowest Essex County rate.[2/] A description of the property follows, with a tabulation of comparable tax charges in the two locations.

Property	Investment[3/]	Tax in Georgia[4/]	Tax in New York Area[5/]
Land and building	$1,900,000	$24,344	$38,000
Equipment	2,350,000	30,109	47,000
Inventory	750,000	9,609	15,000
Total	$5,000,000	$64,062	$100,000

Based on these data, a plant located in Georgia would save $35,938 in property taxes over a similar plant in the New York area. Assuming a profit of $2,400,000 on sales in the southern region (see illustration on page 12), the property tax advantage in Georgia would represent a savings of 1.5% of profits.

Other Factors

The cost advantages of a Georgia plant over a plant in the Northeast are increased by the following factors:

1. Lower capital investment is required for a given production capacity in Georgia than in the Northeast. This lowers the amount spent on property

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1/ Property tax in Newark on a $5 million investment would be $245,100. If Newark were used in the illustration, the tax savings of a Georgia plant would be more than $181,000 -- or 7.5% of profits.

2/ Property tax in Atlanta, Georgia, on a $5 million investment would be $92,235.

3/ It is estimated that a capital investment of $5 million would be required for $20 million in annual sales (see illustration on page 14).

4/ Tax is for Clayton County, Georgia, unincorporated area. Source: Tax Guide, Atlanta Metropolitan Area, Atlanta Chamber of Commerce.

5/ Tax is for Caldwell Township, Essex County, New Jersey. Source: 1960-1961 New Jersey Industrial Directory.

taxes even more and increases the per cent return on the investment as well as increasing the actual earnings.

Construction costs are proven to be low in Georgia. Leading contractors are building plants in the Atlanta area at costs that are 15 to 40% less than construction costs in many other areas. A specific example is two buildings built for the same company and to the same plans. The bid in Atlanta was $60,000, and on a site in New Jersey the bid was $95,000. Another comparison under the same conditions found Atlanta costs 20% lower than costs in a central Illinois town.

Contractors say the main reasons that construction costs are lower in Georgia are climate and worker productivity. There are more working days under favorable conditions. The attitudes of the workers -- both union and non-union -- are superior and permit effective use of new labor-saving tools.

2. Natural gas rates in Georgia are 30 to 50% of the rates in the New York area. Additional savings are realized because of the milder and shorter winters in Georgia.

3. Electric rates in Georgia are 60 to 80% of the rates in the New York area.

4. In general the availability of supplies and raw materials are as satisfactory in Georgia as in the present manufacturing locations. For many products water is an ingredient that forms a major part of the net weight. The use of concentrates and the increasing number of suppliers have created a competitive situation where freight is now either equalized or allowed on many raw materials and supplies. This reduces the freight cost factor for the formulator's raw materials.

Increase in Earnings

Earnings of a Georgia plant that formulates and packages toiletries for the southern market are estimated to be 30% greater than those of a similar plant in the New York area. As illustrated earlier, the earnings of a hypothetical New York plant on sales to the Georgia freight advantage area are assumed to be $2.4 million. The increase in earnings of a Georgia plant over a plant in the New York area are:

From freight savings	$263,109
From labor savings	420,000
From property taxes	35,938
Increase in earnings	$719,047

Calculation: $\frac{\$\ 719,047}{\$2,400,000} \times 100 = 30.0\%$ increase in earnings.

Conclusion

In serving the southern market, greater earnings are possible from a Georgia plant than from a northern plant. However, the actual increase in earnings that a company would realize can only be determined from a case study for that company. As mentioned in the Foreword, studies can be made for interested companies.

APPENDICES

Appendix 1

MARKET FORECAST CALCULATIONS

The toilet goods sales forecast was made by relating toilet goods sales to personal expenditures for services (PES)[1/] and then using an authoritative forecast for PES. Toilet goods sales versus personal expenditures for services for the years 1951 through 1961 are shown in graphic form in Figure 1 of the text.

The coefficient of correlation for the data is 0.997, and the calculations are shown in Appendix Table 1-A.

Personal expenditures for services are graphed in Appendix Figure 1-A on semilogarithmic paper with expenditures on the log scale. McGraw-Hill's Department of Economics figures and forecasts for personal expenditures for services are:

Year	PES in 1960 Dollars
1950	85.4
1960	131.8
1965	168
1970	209
1975	260

Interpolating for 1967 and changing from 1960 to 1967 dollars puts the PES estimate at $227 billion for 1967. Toilet goods sales for 1967 are calculated to be $3.18 billion by correlating to PES, using the least squares equation.

Using national sales estimates and a regional market share of 20.0%, the following regional sales forecasts for 1967 were derived:

	1967 U. S. Sales	Atlanta Regional Market (20.0% of U. S. Sales)
Toilet Goods	$3,180,000,000	$636,000,000

Regional forecasts are rounded off to the nearest $10 million in the text.

1/ Survey of Current Business, July issue, U. S. Department of Commerce.

Appendix Table 1-A

CALCULATIONS FOR COEFFICIENT OF CORRELATION BETWEEN PERSONAL EXPENDITURES FOR SERVICES (X) AND TOILET GOODS SALES (Y) AND FOR THE CORRELATION LINE FITTED BY LEAST SQUARES

Year	Toilet Goods Sales (Billions of Dollars) Y	Services (Billions of Dollars) X	Functions Used in the Calculations				
			y	x	xy	y^2	x^2
1961	1.934	139.1	+.586	+37.1	21.740	.343	1,376.4
1960	1.784	131.9	+.436	+29.9	13.036	.190	894.0
1959	1.622	122.8	+.274	+20.8	5.699	.075	432.6
1958	1.523	114.3	+.175	+12.3	2.153	.031	151.3
1957	1.430	107.1	+.082	+ 5.1	0.418	.007	26.0
1956	1.321	100.0	-.027	- 2.0	0.054	.001	4.0
1955	1.192	92.5	-.156	- 9.5	1.482	.024	90.3
1954	1.086	86.3	-.262	-15.7	4.113	.067	246.5
1953	1.020	81.8	-.328	-20.2	6.626	.108	408.0
1952	1.004	75.6	-.344	-26.4	9.082	.118	697.0
1951	0.912	70.2	-.436	-31.8	13.865	.190	1.011.2
Sum (S)	14.828	1,121.6	.000	- 0.4	78.268	1.154	5,337.3
Mean	1.348	102.0	N = 11				

$$G_y = \sqrt{\frac{Sy^2}{N}} = \sqrt{\frac{1.154}{11}} = .32389$$

$$G_x = \sqrt{\frac{Sx^2}{N}} = \sqrt{\frac{5,337.3}{11}} = 22.0273$$

$$\text{Coefficient: } r = \frac{Sxy}{NG_yG_x} = \frac{78.268}{(11)(.32389)(22.0273)} = 0.9973$$

Appendix Table 1-A (Cont'd)

The correlation line fitted by least squares: General Equation $Yc = a + bx$

$$b = \frac{Sxy}{Sx^2} = \frac{78.268}{5,337.3} = 0.01466$$

$$a = \overline{Y} - b\,\overline{X} = 1.348 - (.01466)(102) = -0.147$$

Formula for Correlation Line: $Yc = 0.01466X - 0.147$

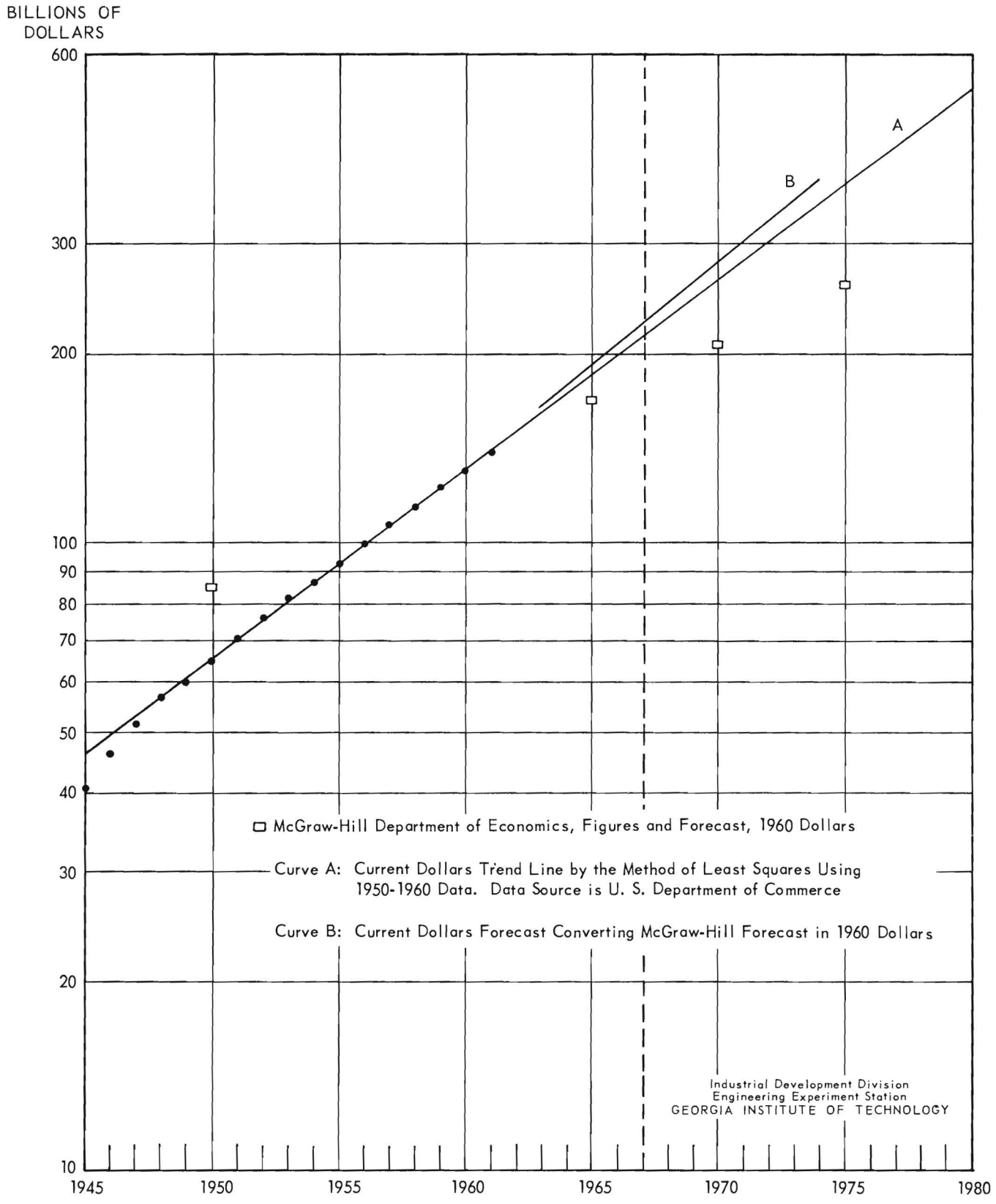
Points on the Correlation Line

Yc	X
1	78.2
2	146.4
3	214.7
3.18	227

Percent increase from 1961 to 1967: $\frac{3.18}{1.93} = 1.65$ or 65%

APPENDIX FIGURE 1-A

TREND AND FORECAST OF PERSONAL EXPENDITURES FOR SERVICES



Appendix 2

Appendix Table 2-A

U. S. RETAIL SALES OF 30 TOILETRIES

Year	Toilet Soaps		Tooth Paste		Shampoos		Face Creams		Lipsticks		Spray Hair Fixatives	
	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change
1961	266.74	3.4	243.73	3.8	172.74	3.7	127.60	4.4	121.68	21.2	91.49	12.6
1960	257.85	4.4	234.81	3.1	166.58	4.5	122.17	4.6	100.39	9.2	81.25	6.7
1959	246.95	5.8	227.65	2.3	159.44	2.3	116.79	4.7	91.93	11.6	76.15	-6.6
1958	233.39	6.6	222.59	10.0	155.9	6.3	111.52	4.4	82.36	7.6	81.50	-1.3
1957	218.96	15.5	202.34	13.5	146.68	10.3	106.8	2.7	76.54	7.3	82.54	10.0
1956	189.58	6.6	178.27	13.4	133.00	8.4	103.96	4.1	71.33	10.1	75.05	51.6
1955	177.82	6.1	157.25	4.4	122.65	4.9	99.84	2.7	64.77	13.7	49.49	65.4
1954	167.58	7.1	150.62	0.6	116.92	1.0	97.23	1.3	56.94	5.4	29.92	41.8
1953	156.51	3.3	149.72	6.7	115.74	7.7	96.00	2.7	54.02	13.2	21.10	201.3
1952	151.57	-1.2	140.32	24.8	107.45	13.2	93.52	0.1	47.72	9.5	7.0	170.0
1951	153.5	8.0	112.44	9.5	94.92	17.7	93.41	2.6	42.58	5.9	2.6	
1950	142.09	-0.7	102.68	9.6	80.68	9.4	91.01	5.1	41.15	9.6		
1949	143.12		93.69		73.77		86.59		37.55			

Year	Mouth Washes and Gargles		Hair Coloring Preparations		Men's Hair Tonics		Face Cleansing Creams		Home Permanent Kits and Refils		Aerosol Cologne	
	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change
1961	87.57	15.5	74.44	10.1	74.36	6.4	71.19	3.1	70.21	8.6	65.42	23.1
1960	75.82	9.8	67.61	46.9	69.92	0.1	69.05	3.1	64.65	-4.8	53.14	15.4
1959	69.05	8.0	46.01	23.4	69.85	5.0	66.98	3.7	67.91	-8.6	46.05	22.4
1958	63.94	17.0	37.30	15.2	66.52	2.7	64.62	3.9	74.27	-6.7	37.62	22.9
1957	54.65	39.0	32.37	14.9	64.74	7.9	62.18	2.5	79.64	-7.9	30.62	24.3
1956	39.32	14.0	28.17	15.0	60.00	11.6	60.65	2.6	85.51	7.8	24.63	41.3
1955	34.49	4.5	24.50	9.7	53.75	9.6	59.12	-0.6	80.29	9.1	17.43	
1954	33.00	4.4	22.33	6.7	49.06	3.8	59.49	0.8	73.61	6.3		
1953	31.62	11.5	20.93	10.1	47.27	10.6	59.00	2.7	69.23	6.3		
1952	28.36	4.6	19.01	7.5	42.74	4.5	57.45	0.8	65.12	17.7		
1951	27.10	5.0	17.68	17.5	40.91	13.6	57.01	3.3	55.32	4.3		
1950	25.82	4.2	15.05	23.2	36.02	1.6	55.18	5.0	53.06	7.6		
1949	24.78		12.22		35.46		52.57		49.32			

Year	Aerosol Shaving Cream		After-Shave Lotion		Pressed Cake Powder		Nail Polish and Enamel		Roll-On Deodorants		Hand Lotions	
	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change
1961	54.79	7.2	49.44	4.6	41.79	16.6	38.37	16.3	38.07	19.1	37.86	4.6
1960	51.11	14.8	47.27	5.8	35.84	6.1	32.99	6.0	31.97	22.1	36.20	3.8
1959	44.52	12.6	44.68	7.2	33.78	10.3	31.12	9.7	26.18	28.2	34.87	3.7
1958	39.54	9.8	41.68	7.3	30.63	11.8	28.36	-2.7	20.42	48.8	33.63	3.3
1957	36.00	16.9	38.84	11.0	27.41	7.4	29.16	11.4	13.73	93.4	32.54	4.8
1956	30.80	12.6	35.00	7.6	25.53	13.2	26.17	6.1	7.10		31.04	5.3
1955	27.35	31.7	32.52	7.2	22.56		24.66	8.7			29.48	6.3
1954	20.76	39.3	30.32	5.9			22.69	11.6			27.74	2.0
1953	14.90	245.2	28.64	4.3			20.32	7.4			27.19	4.2
1952	4.32	332.0	27.47	4.6			18.92	8.5			26.10	5.3
1951	1.00		26.26	8.4			17.44	6.3			24.79	5.3
1950			24.22	9.2			16.41	3.7			23.55	15.4
1949			22.18				15.82				20.40	

Year	Perfumes		Cream Deodorants		Colognes, Toilet Waters (other)		Talcum and Body Powders		Liquid Facial Cleaners		Women's Hair Dressings and Conditioners	
	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change
1961	37.44	1.4	35.38	7.1	35.31	6.6	34.45	2.8	29.64	2.1	25.77	4.5
1960	36.92	4.1	33.04	8.2	33.12	8.0	33.51	0.9	29.03	7.9	24.66	14.4
1959	35.47	7.2	30.53	-0.7	30.67	6.4	33.21	3.5	26.90	1.1	21.56	2.4
1958	33.07	5.6	30.75	-3.6	28.82	6.9	32.09	5.7	26.61	1.9	21.06	9.3
1957	31.33	5.6	31.91	1.6	26.96	4.0	30.38	3.8	26.12	4.2	19.27	13.3
1956	29.68	6.6	31.39	9.5	25.92	-6.7	29.26	9.3	25.06	15.8	17.01	7.5
1955	27.85	6.0	28.67	5.6	27.78		26.76	6.8	21.64	154.6	15.82	8.5
1954	26.26	3.4	27.14	1.2			25.07	6.0	8.5	77.1	14.59	12.4
1953	25.40	1.2	26.81	6.3			23.64	3.3	4.8		12.98	
1952	25.10	1.7	25.22				22.89	2.8				
1951	24.69	3.3					22.28	2.6				
1950	23.89	-3.0					21.72	5.2				
1949	24.62						20.64					

Year	Loose Face Powder		Face Lotions and Astringents		Make-Up Lotion		False Teeth Adhesives		Face Lubricating Creams		Squeeze Container Spray Deodorant	
	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change	Millions of Dollars	% Change
1961	24.68	-1.1	24.63	0.9	23.79	15.2	20.54	8.9	19.58	3.9	15.02	3.7
1960	24.96	-2.1	24.41	4.1	20.65	9.7	18.86	6.1	18.85	4.4	14.48	-2.5
1959	25.49	1.8	23.45	5.1	18.82	5.4	17.78	10.0	18.05	6.3	14.85	-3.5
1958	25.03	-0.4	22.31	4.8	17.87	13.4	16.16	10.0	16.98	4.9	15.39	-7.8
1957	25.13	-0.7	21.3	4.0	15.75	5.6	14.69	8.3	16.19	1.5	16.70	0.3
1956	25.31	1.8	20.49	4.8	14.91	11.9	13.56	10.1	15.95	6.5	16.65	9.3
1955	24.86	1.9	19.56	2.0	13.33		12.32	11.5	14.97	4.0	15.24	4.4
1954	24.39	-1.7	19.17	2.9			11.05	2.5	14.40	1.4	14.59	0.2
1953	24.82	-1.0	18.62	3.4			10.78	4.9	14.20	3.4	14.56	22.5
1952	25.06	-0.5	18.02	2.5			10.28	6.1	13.74	-2.1	11.89	
1951	25.19	0.7	17.58	4.8			9.69	2.9	14.04	0.1		
1950	25.03	0.5	16.78	5.3			9.42	9.4	14.02	7.5		
1949	24.90		15.93				8.61		13.05			