> of office space in good repair and with modern wiring. We tend towards a short term lease as a precaution because we may not want to lock ourselves into an unknown facility and area from the start. Of course we would prefer a desirable location, but we don't know what the financial trade-offs are. We hope your analysis will allow us to play with scenarios and to judge the asking rent of new properties that come on the market. We would like to know a bargain when we see one.

Using the data contained in the file `leasing.xls`, build a regression model and convey what the vice-president needs to know in concise language and provide pertinent advice. Some additional questions to cover are below.

Additional Questions

- Are there big differences in rent per square foot between city center, new and old suburb?
- How does the length of the lease affect the rent? Is the relationship linear, or are there "diminishing returns?"
- What is the cost of an executive parking space?

7. Case Study: Locating New Pam and Susan's Stores[7]

Pam and Susan's is a chain of discount department stores. There are currently 250 stores, mostly located throughout the South. Expansion has been incremental, growing from its Southern base into the Border States and increasingly into the Southwest. Identification of the most appropriate sites for new stores is becoming an issue of increasing strategic importance.

Store location decisions are based upon estimates of sales potential. The traditional process leading to estimates of sales potential starts with demographic analyses, site visits and studies by the company's real estate experts (augmented by input from local experts). The demographic data judged relevant for a given store location is for people within a store's estimated

[7]This case was created by Professors Paul Berger and Michael Shwartz of Boston University School of Management.

"trading zone," usually defined as consisting of those census tracts within a 15 minute drive of the store. Planners in the real estate department consider current and expected future competition, ease of highway access, costs of the site, planned square footage of the store and estimates of average sales per square foot based on data from all existing stores. They Use their judgment to combine demographic information, site information and overall sales rates to come up with an estimate of sales for a new store. Pam and Susan stores have primarily targeted lower middle class to poorer neighborhoods/trading zones.

Increasingly, actual store sales at new locations have deviated from estimates provided by the real estate department. There is therefore interest in developing better methods for estimating sales potential. A group within the planning department had previously developed a subjective approach in which potential sites are classified according to an assessment of the "competitive type" of the trading zone. Below in Table A, the seven "competitive types" are defined. Each of the existing stores was assigned to one of the competitive type categories based on visits by members of the planning department and an assessment of store sales. There is concern about the subjectivity of the "competitive type" classifications and the difficulties that might be faced using this approach to predict sales at new sites. You have therefore been hired as a consultant to explore the possibility of using the wealth of census data in stores' trading zones, along with data on individual stores, to predict sales potential.

To explore this option, variables derived from the most recent census were compiled for the trading zone of each of the 250 stores (there is no overlap in the trading zones of the 250 stores). For each store there is data gathered on demographics and economics of the trading zones, as well as size, composition and sales of the store. This data is in the file `pamsue.xls` (an excerpt is in Table 12.13).

Questions

1. As a possible alternative to the subjective "competitive type" classifications, how well can you forecast sales using the demographic variables (along with the store size and the percentage of hard goods)? What does your model reveal about the nature of location sites that are likely to have higher sales?

2. How good is the "competitive type" classification method (along with using the store size and the percentage of hard goods) at predicting sales?

Table 12.13. An excerpt from the file `pamsue.xls`.

store #	%black	%spanishsp	%inc0-10	%inc10-14
1	9.6	0.9	7.1	6.6
2	0.7	0.6	8.7	5.2
3	1.8	1.1	6.5	4
4	1.7	1.1	11.2	9.3
5	18.5	7.3	25.3	8.8
6	4.5	0.2	6.1	3.8
7	10.9	0.4	8.4	7.9
8	17.7	2.2	18.9	8.7
9	4.6	1.5	12.3	6.9
10	5.8	0.4	6.7	4.2

What recommendations do you have for simplifying the competitive type categories?

3. Two sites, A and B, are currently under consideration for the next new store opening. Characteristics of the two sites are provided below in Table B. Which site would you recommend? What sales forecasting approach would you recommend?

4. Two of the variables in the data base are under managerial control: the size of the store (square feet of selling area) and the percentage hard goods stocked in the store. Margins on hard goods (house wares, appliances, stationery, drugs) are different from margins on soft goods (clothing, for example). What impact do these variables have on sales?

5. TECHNICAL: For your recommended model, check to make sure the technical assumptions are satisfied. Comment on any points that would concern you based on the diagnostics.

Table A: Competitive Types

Type 1: Densely populated areas with relatively little direct competition

Type 2: High income areas with little direct competition

Type 3: Locations near major shopping centers

Type 4: Stores in downtown areas of suburbs

Type 5: Stores with competition from discounters, but not from department

stores

Type 6: Stores in shopping centers

Type 7: Stores located along the sides of major roads