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Observers have often noted that public marketplaces are the nearest thing in reality to the Economic model of pure competition (Belshaw 1965, Geertz 1979).[1] Here I will discuss the implications of this similarity for the economic decision making of vendors in such markets. The discussion will be grounded in ethnographic and statistical data from Soulard Market, St. Louis, Missouri.[2] Soulard Market is an urban, municipal marketplace similar in many ways to urban marketplaces in developing nations. However it is a functional part of an advanced and heavily capitalized industrial produce system. I will ask whether a "purely competitive" marketplace facilitates economically efficient, profit-maximizing behavior. My principal conclusion will be that vendors do not extract the highest possible profit in the short run, even though the marketplace makes this relatively easy for them. They seem more concerned to maintain a long run niche on the marketplace. Many others have shown that economic actors in agrarian systems often trade off profit for security (Cancian 1979, Johnson 1977, Lipton 1968). This study is significant because it uses quantitative data to reveal the strength of custom in an economic structure designed for high efficiency, within modern United States society.

Economic Decision Making in a Purely Competitive Market

A market in which buyers and sellers can enter without bias, no one of whom acts on so large a scale that his activities can determine prices; where participants act on economic rather than on kinship, political, or other grounds; and where knowledge about supply, demand, price, and quality is feely available is said to be purely competitive (Mansfield 1970). In such a market, actors

compete on the basis of price and value alone. If one vendor (including producers who sell their products) makes extraordinary profits other vendors know it and are free to shift their activities to take advantage of the causes of those profits. If one seller offers better terms, service, or a better "product" in any significant way, buyers know it and are free to shift their purchases to take advantage of that offer. Over time less efficient vendors will find themselves without customers and will drop out of the market. Thus, this theory predicts that a purely competitive market will tend to be composed of relatively efficient firms, due to the actions of free competition (Winter 1971).

Public marketplaces approximate these conditions. Firms tend to be atomistic, products as standardized as a wide assortment of mass-produced fresh produce can be, and the flow of knowledge between vendors and buyers is maximally free and efficient. The main difference concerns entry to the market. In theory stalls could be let every year to the highest bidder with no consideration of history on the market. In fact some sorts of vendors are usually preferred and others forbidden (at Soulard, farmers are preferred and non-food sellers cannot rent on an annual basis); the rent is usually fixed at a low rate; and factors like traditional tenure on the market and political influence count for much in the allocation of scarce, valuably-located stalls. Thus the marketplace studied here is much like, but not identical to, a purely competitive market.

The theoretical tendency towards efficiency in urban public marketplaces is reinforced where vendors are merchants, not primary producers. Such merchants buy on a wholesale market what they resell at the retail market. A retail produce marketplace is like a real-world learning machine for teaching efficient economic decision making. A merchant[3] in such a market selects a produce profile, meaning an assortment of different items in various quantities, and offers it for sale. At the end of the market day the merchant is left with cash

and produce. Some of the produce will hold up until the next market day and some will not. Were too many plums bought? They didn't hold up in the summer heat and lie rotting on the ground. Were not enough potatoes on hand? Customers had to be refused. The decision maker compares his gross sales revenues with his costs (including the whole sale cost of the produce, wages paid to helpers, rent, selling materials such as bags, etc). What is left is the family income for that week. When contemplating plums and potatoes in the wholesale market, the previous week's experience is fresh in the decision maker's memory, including the rotting fruit and the additions or withdrawals from the family savings. In principle, such a rapid, frequent, and concrete response to decisions should guide one towards maximally efficient decision making, given reasonably steady boundary conditions and constraints.

Thus I can state the "economic" hypothesis of this paper: A public marketplace, insofar as it allows free atomistic competition between a regular set of firms, should tend to be composed of firms that are Maximally Efficient in the Short Run (MESR).

On the other hand, making decisions is not easy. It requires energy and discipline, items which are not always in plentiful supply. The long-run strategy of many learning systems is to internalize decisions, or to habitualize them, so that the organism or system can free its energy for other concerns (Bateson 1963). Thus systems theory predicts that decision-makers will tend to traditionalize their decisions.

There are also economic rewards for less-variable or traditionalized behavior. One's occupation should produce a long-run, not just a short-run income. Workers in an informal economy, without the benefits of insurance, sick-leave, etc., have to be concerned about the effects of losses on their life-style. If saving is difficult, it is reasonable to sacrifice some proportion of

one's long-run average income for some stability in one's short-run cash income. In a market the way to do this is through economic custom. Customers tie themselves to a firm because they know they will find their customary goods there. This solves the consumer's decision-making problem and gives the vendor an expectation of stability.

And finally, the real marketplace is not as simple as the model of pure competition. Firms are related to each other through kinship and friendship, which ameliorates competition. This can help maintain a less efficient firm on the marketplace. Thus the alternative, "cultural-economic" hypothesis can be stated:

The realities of life on a marketplace will let customary, or traditionalized decision makers endure.

Soulard Market

These hypotheses will be tested against data from a study of Soulard Farmers Market, St. Louis, Missouri. The marketplace has existed since the early nineteenth century. It is located in a mixed industrial, decayed-and-renewing-housing neighborhood of St. Louis City comparable to Detroit's Eastern market (DeWeese 1975). During the summer about ninety firms, who rent most of the 272 stalls on an annual basis, fill the market on Fridays and Saturdays selling fresh produce and other foods. An additional twenty or so firms rent stalls on a daily basis and sell non-food items. During the winter most of the farmers drop out and a small number of merchants continue to sell shipped-in produce to the hardy regular patrons of the market.

The history of Soulard Farmers Market has been dealt with in other publications (Eckstein and Plattner 1978; Byrne and Plattner 1980). The important fact to keep in mind is that the typical vendor is from a family that has been on the market 50 years or three generations or more. Most merchants have relatives in

other Soulard Market firms, and many have relatives in the St. Louis wholesale produce market. Selling at the market is a way of life, or, as vendors are fond of saying, "You grow up in it and it gets in your blood".

An institutional analysis of the market has also been published (Plattner 1978). In brief, public marketplaces such as Soulard allow wholesale produce distributors to finesse their business by providing a disposition for lots of produce too small to be used by chain stores. They also allow wholesale produce jobbers to dispose of mistakes, fallouts, and below-grade produce. Merchants at Soulard specialize in using their low-paid, usually family labor to process and sell produce that supermarkets, with union-scale produce clerks, simply cannot afford to deal in. Thus, public urban marketplaces function as "shock-absorbers" for the modern vertically-integrated, mass-distribution produce economy.

Soulard is also an anachronistic, picturesque reminder of pleasant days gone by, when shoppers had the skills to distinguish good produce from bad, knew how to make use of both types, and if ever offered a processed plastic-wrapped chicken would have asked suspiciously, "What did this bird die of?"

A typical Soulard merchant starts his week on Wednesday evening at the wholesale market, located in St Louis City about three miles from Soulard. This market, called Produce Row, contains about thirty-five jobbing firms who dispose of bulk shipments in relatively small lots; and a smaller number of brokers, who handle large-scale orders and do not physically possess the goods. Not too many years ago most of the fresh produce consumed in the United States passed through produce markets such as Produce Row (Kohls and Uhl 1980 ch. 1, Breimyer 1976). The major trend of the past quarter century, however, has been towards vertical integration of ever larger supermarket companies with huge corporate farms in the main growing areas of California, Florida, and the Southwest. Chain-Supermarkets operate their own distribution and warehousing networks and shop

the wholesale markets as little as possible, usually for specialty items and emergency situations. However St. Louis is "behind" the rest of the country in having stronger local small chains and many independent supermarkets who patronize the wholesale market. After these firms have placed their orders for hundreds or thousands of cases of produce with the jobber's salesmen, the latter bargain with Soulard merchants over a price for their tens of cases. Since this takes place at the end of the wholesale selling week, the impact of Soulard's total volume can be significant. If Soulard's merchants did not clean out by purchase the coldstorage lockers of the jobbing firms, the wholesalers would have to clean out the lockers at a loss, increasing the cost of doing business for everyone concerned.

Thus the Soulard merchants check the supply (wholesale availability and prices) of the week's produce relatively early in the week. They return to Produce Row late Thursday evening and shop the wholesale market until early Friday morning. This is the time when their important weekly decisions are made: what, and how much, to stock. By 6:00 A.M. Friday the merchants try to arrive at Soulard to begin setting up neat displays of produce. Friday is a slow selling day, whose main function is to allow a leisurely set-up and a preliminary appreciation of the market week's business. Early Saturday morning, after dashing to the wholesale market for extra cases of items that were unexpected good sellers, the main selling day begins. By 8:00 A.M. vendors have fully set up, made a first round of the market to check upon their competitors' prices, and set their standard prices for the bulk of their sales. Until 2:00 P.M. Soulard is the familiar exciting bedlam of a successful retail marketplace. Most of the shoppers are drawn from the local metropolitan area, more than half are Black, and very few are middle-or upper-class in appearance. Thus fourth generation German-American farmers who speak English with a Germanic intonation sell

collard, mustard and turnip greens to Black homemakers who have shopped at their families' stand for years. After 2:00 P.M. a first round of price decreases is made as vendors take stock and plan the end of the day. By 5:00 P.M. market stragglers can find incredible bargains, as Soulard merchants try to clean up their stock in the same way that Produce Row jobbers cleaned up the same produce at wholesale. By 7:00 P.M. the day is over.

A merchant thus faces a well-defined decision problem: He must select a profile of produce that will yield a healthy income. In principle, the niche (the customary set of items offered for sale, independent of quantity) of a profit-maximizing merchant could vary with slight changes in the weekly economic climate to take advantage of variations in costs. If the cost-price ratio of tangerines or collard greens becomes more profitable, any vendor should be able to stock them. All produce is basically similar, being a live organism which began dying the moment it was harvested. One who has "grown up" in the marketplace should have enough general knowledge to handle any type of fresh produce. Yet niches vary only gradually, in adjustment to seasonal changes and in long-run interaction with a number of crucial constraints. These constraints include the specific attributes of various types of produce, the quality and quantity of labor a merchant can count upon, the competition offered by neighboring firms, and the number of stalls one can use regularly. Like most major occupational choices decisions to change one's niche are made gradually, over the long run, and are simply not examined each week. The weekly decision problem focuses on the quantities of regular items one customarily sells.[4]

The relevant concepts are "slots" and "items", which can be "top-of-the-stand", "shelf", and "staple" items.A "slot" refers to an area of stall that ordinarily contains one item. Most vendors stack produce upon 24-inch square plastic trays (originally used by bakery deliverymen to carry breads and

pastries). These trays fit neatly four across the surface of a market stall, and define the normal minimal display area for a "top-of-the-stand" item. These items normally provide the fundamental part of the week's income.

Most stalls also have a waist-high shelf in front, along the customer aisle, upon which non-bruising "shelf" items such as carrots, celery, cucumber, green peppers, and radishes, are placed for customers to select.

"Staples" refer to regularly stocked items. Thus a slot is normally filled with a staple, both on top of the stand and on the shelf. Slots and staples define one's niche. The staple produce which accounts for the main part of the merchant's income normally passes from the storage truck, parked behind the stand, to the slots on top of the stand where it is stacked for display, and across the stand into the customers shopping bag.

Each item of produce has a unique set of labor requirements. Citrus fruits, melons, pre-packaged carrots and radishes and similar items require none but the simple ability to count correctly, bag items rapidly, and make change rapidly.[5] Produce sold by weight requires an ability to rapidly and accurately select the correct number of items for a desired weight. If high weight is given, the merchant's income is being dissipated; if low weight, the merchant risks a heated complaint from the customer, backed up with evidence from the official scale in the market master's office. If a worker spends too much time fiddling around to get the weight exactly right, the merchant loses sales from other customers who get tired of waiting when other stands near by offer the same products.

Trimming is an important constraint for some produce. Wrapper leaves on lettuce and cabbage must be trimmed so that the head looks clean, yet is not reduced into a smaller price category. Corn, if sold husked and trimmed, is extremely labor intensive. A box of 54 ears can take 30 minutes to trim. Soft tomatoes, hard potatoes, all must be weighed and bagged, total bills calculated,

change made, all without error at top speed with a pleasant smile. Hence the quantity and quality of labor available is a primary constraint upon a merchant's niche. One can hire non-relatives, and many do, but the probability is high that the worker will pocket some of the cash flowing constantly through his or her fingers. Some non-related workers circle the market during the year, hired for a few weeks by firms with desperate needs for workers, and fired for stealing after a while. If one does not have teenaged children or other close relatives, it is difficult to specialize in items which require much labor to trim and sell. The minimal niche in terms of labor requirements consists of citrus fruits and seasonal fruits such as peaches, nectarines and cherries.

The competition offered by neighboring firms also determines a firm's niche. A merchant cannot compete directly with a farmer in locally grown items, because of the general consumer preference for "home-grown" items. Thus merchants with stalls next to successful farmers cannot hope to specialize in greens, squash, beans, or other local produce. If a neighboring firm specializes, as a few do,in selling very low-grade produce ("real junk" or "slop") then one's sales of those same items at "normal" prices will suffer. In general, people inherit their niches as many have inherited their stalls, from fathers and uncles. Vendors grew up dealing in well-defined sets of produce, and have awesome amounts of knowledge about qualities of items in different seasons from various shipping points. This ranges from general guidelines ("Arizona lettuce ain't worth a damn") to more particular rules of thumb ("this time of year, peaches out of Georgia have this shriveled-up pit with a kind of mold that looks bad. It's a good-tasting peach but people don't like the way that looks and they don't buy it again"), to specific brand names ("King-of-the-West ships the best damn honeydews you can get"). It is possible that the dangers of selecting unsaleable produce at the wholesale market (in the middle of the night when one

is tired, with pressure from the wholesale jobber salesmen to make a quick decision), increase dramatically as one deals in unfamiliar produce. For all these reasons the economic niche occupied by each merchant does not vary in the short run. The essential income-producing decisions made by each vendor have to do with the quantity of each item in their regular inventory.

A Descriptive Decision Model

With these constraints in mind, the descriptive model of decision making by Soulard market merchants in Figure 1 can be examined. This model should be thought of as my hypothesis, based on intensive interviews and participant observation at Produce Row and at Soulard Market, of how merchants make their stock decisions. It will be the subject of a later paper, and is given here as a brief comparison to the economic regression model that will follow.

The model in Figure 1 should be read as a standard flowchart, from top to bottom and left to right following the arrows. Merchants begin each week by searching the wholesale market for information on supply. The most critical information concerns special deals, where produce is available for a fraction of its normal price. One vendor summed up the importance of investigating the wholesale market:

> It's like my father used to say, 'you make your money downtown, you make it at Produce Row, not at Soulard.

This means that the demand at the retail market is strong and steady, so that any reasonably priced produce will sell. The critical issue, then, is the availability and cost of the produce at wholesale. Special deals usually derive from a breakdown or mistake in the system, as the example shows (this vendor works at the wholesale market during the week):

> Now, last week I would never in a blue moon thought that we would sell strawberries. In the beginning of the week strawberries were real strong going for $7.00. At $6.85 to $7.00 (a box) they were real strong. Where I work at we were rationing strawberries out. We didn't put them on display because we'd have none to sell. United is trying to buy off us. Everybody is trying to buy them. We aint got none to sell. I figured that maybe this weekend I would buy maybe six or eight strawberries, just for steady trade who ask for strawberries. Sell them just to get my money back or make a dime or a quarter, I would be happy. Then I walk up to work one day, and I get a strong strawberry smell, and boy, 'who in the hell dropped this pallet of strawberries?', and I walked over and these guys were unloading a whole load of strawberries. They got smashed, some of the boxes. So then I said, 'Halleluja We're going to sell strawberries this week ' Right off the start I knew I was going to sell strawberries, as soon as I saw that truck.

The importance of knowing what neighboring vendors will sell is illustrated in the following statement. This merchant was at Produce Row and saw a pallet load of tomatoes tagged with the name of a neighboring Soulard merchant who has the reputation of selling distressed produce:

> O.K., I got trouble with tomatoes this week. If he got a whole pallet, he got them cheap. I was thinking of selling tomatoes big this week, but it looks like I'm going to have trouble with them instead.

Each vendor goes over his mental list of seasonally "regular" items, passing each item through the considerations in the flow chart. The first concern is

whether the item is available at all. If it is, the regular quantity is adjusted upward or downward in response to special considerations of demand and supply. These adjustments are summarized in the Demand-Supply Algorithm. Basically, vendors seem to estimate the current week's sales by combining information about this week's supply and prices with information about last week's sales.

Then, depending on the strategy usually followed (of specializing in first-quality or distressed-quality produce), the normal quantity of cases is adjusted by considering the state of competition in special deals. After that, special considerations of demand are dealt with, such as whether families will consume more than usual amounts of food for holidays. The simple rule followed for this is "Whether the kids are home from school."

After all regular seasonal items have been considered, the test of completion is whether the stand's slots are filled. If not, items most similar to regular items are considered (sweet potatoes can be added to white potatoes, white onions to yellow, varieties or sizes of citrus fruits added to basic oranges and grapefruits, etc.). Each item must pass all four of the criteria in this section of the flow chart in order to be put on the stand. If this does not fill the stand, a worker must be left at home or a regular item spread thin. Vendors rarely use this part of the decision plan, as they do not often have trouble filling their stands with regular items. Problems occur between seasons, when a new producing area has not yet shipped enough volume to cover the decline in shipments from an area going out of season.

This model may seem too complex to represent the decision process of plain folks at the marketplace. It is complex, yet still omits consideration of an enormous amount of knowledge pertaining to qualities of produce at various seasons from various shipping areas. The ability to assess the quality of an entire shipment of produce by opening no more than two or three boxes is impres-

sive, and possessed by most (but not all) merchants. The criteria used in the model in Figure 1 are simple and obvious to those familiar with produce markets. The sales of produce last week were directly experienced, as well as discussed with friends and neighbors. Likewise information about the the state of the wholesale market in the present week is freely available. As Soulard merchants "shop the street" at Produce Row they meet other Soulard vendors and talk shop, and receive news from wholesale salespeople. As one merchant put it:

> On Wednesday night I hear, from the people's mouths, 'Hey, I got a deal on grapefruit . . . I bought 30 or 40 boxes. Another guy says, 'Hey, I bought them too, I got them a little bit cheaper'. Maybe he got them fifty cents (a box) cheaper. We just do the talking, and, you figure into your brain, 'Hey, you guys got them, and I got to be with them' (in selling price).

Many merchants use the wholesale market as a men's club, a place to "hang around" where the predominantly male participants have known each other for their entire lives. The comradeship between Soulard merchants and their friends and relatives at Produce Row is, in fact, very warm and pleasant.[6] As one vendor put it: "When I wake up in the middle of the night, where else can I go to bum around?"

The important attributes of this model of decision making are that decisions are simplified and routinized. This explains the common reply of vendors when I told them I wanted to study their economic decision making:

> "It's all supply and demand, there's no decisions in it."
>
> "There's nothing to decide, I just buy my regular items."

Or, more succinctly,

> "I can't tell you how I do it, I just do it."

Vendors were not evading a difficult issue, as I thought at the time. They were truthfully telling me that, so far as they were concerned, there were no significant decisions to be made every week. The important decisions were made in the long run, concerned one's niche, and were "grown into" more than "decided." In the short run the minor adjustments to the number of cases regularly stocked were simply too routine to merit discussion in their minds. This is consistent with the work of N. Quinn (1971), C. Gladwin (1976, 1979) and H. Gladwin (1975), who have stressed for years the importance of simplifying procedures in natural decision making. Thus the most important lesson to be drawn from this descriptive model is that the important decisions are not made each week, even though the market structure provides all the necessary information. I will return to this point after a somewhat different model of economic decision making at Soulard Market is examined.

A Normative Economic Decision Model

The descriptive model showed that firms tinkered with their traditional pattern of choices each week, but the analysis did not evaluate their decisions. The normative model which follows will ask whether firms are allocating their resources efficiently.

Merchant firms are in business to make a living, which is represented here by their net or disposable income. This income derives from their Gross Sales, meaning the quantity of produce sold times its price.[7] In the most abstract sense a vendor's sales are determined by the state of demand, the price of the goods, and the quantity of capital possessed by the firm. In the marketplace the demand for produce can be analyzed as an aggregate total market demand, and as a proportion of this total capturable by any one firm. The aggregate demand varies by season, yet is strongly regular in the short run. The demand for the produce sold by any particular firm is thus affected by factors controllable by the firm

(the quantity of selling space or market stalls used and the location of these stalls within the market wings; the number and quality of workers used to attend to the sales; the profile of produce on the stalls; and the price level of the produce), and by factors not controlled by each firm (the season, the existence of holidays which stimulate demand; the wholesale cost of the produce). Given the total demand for market produce in any one week, each firm can capture more or less of this demand through a productive allocation of the resources it controls. Thus in the short run of each market week, and from the perspective of each individual firm, Gross Sales are determined by the allocation of controllable resources, the technical relation between outputs (sales) and inputs, and by other "exogenous" forces such as the season of the year.

Merchants use their resources to hire workers and stalls, who in turn create sales. These are economic variables since they can be hired and have costs which can be related to their productivity. Firms also control other factors which determine sales but are not hired or purchased. The number of items selected to be sold from the stand, Nitems (as distinct from the quantity of produce bought for resale) affects sales, as does the average standardized price score for the firm's selling prices, Price, to be explained below. Another factor affecting sales is the firm's location in the market, Wing, refering to which of the four market wings the firm is located in. Wing is fixed in the long run of the market year, while the other variables can change each market week. Nitems, Price, and Wing are strategic variables, which are controlled by the merchants but without cost, and therefore with economically meaningless marginal products.

A third category of independent variable contains "background" or exogenous variables which affect sales but are not influenced by vendors. These include the season of the year and the temperature during market day, Temp, and the existence of holidays such as Christmas.

Note that capital, one of the main conventional determinants of a firm's sales, is not represented here other than as Stalls and Workers. Firms buy their produce on credit and this is simply not lacking within the boundaries of normal volume. Thus access to capital or credit is not a limiting factor for market firms, given the size of their operations.

This seems like a lot of variables. Systemic analysis requires enough variables so that the effects of each may be controlled for in order to accurately estimate the effects of the economic and strategic variables. If variables that are significantly related to Gross Sales are omitted from the analysis, the estimates of the independent effects of variations in Workers, Stalls, and other explanatory variables on Gross Sales will be erroneous. if the omitted variables are positively related, our estimates will be high; if negatively related, our estimates will be too low.

The data to be analyzed consist of 256 "firm-weeks," or observations of the activities of a market firm in one week during 1978-79. These observations are of twelve different market firms, which are defined as one or more locations (contiguous sets of stalls) under the management of a boss. Most firms have only one location, but some have two or more.

My economic model of how firms create an income is as follows: A firm creates gross sales by using labor and capital in the form of Workers and Stalls to sell merchandise bought at wholesale. These are economic variables under the control of the decision maker. An additional worker will sell more goods, holding the number of stalls constant; and more goods can be sold from an additional stall, holding workers constant, within reasonable boundaries. These variables cost money and create income. In theory an efficient firm will use more Workers and Stalls until the increment to net income produced by each falls to zero. If the fourth worker adds $50 to your net income and earns $25 in wages,

it pays you $25 to hire him. If he adds $20 and earns $25 you lose $5 by hiring him. You may still have a valid reason to do so--he may be a family member whom you wish to keep off the streets--but your reason will not be economic in the short run. Thus an economically efficient firm adds factors until the last unit of each factor adds an amount to gross sales that is no smaller than the total costs of adding that unit of the factor.[9] On the average, firms use three to four workers and the same number of stalls. Means and standard deviations (SD's) for all variables are given in Table 1.

The strategic variables Nitems (number of distinct items sold) and Price (a complex measure of the average price level of a firm relative to all other firms) and Wing (the firm's location in the market) also affect Gross Sales. The number of items on the stand is a variable controllable by each decision maker in the short run of every market week. If the regression variable Nitems has a positive sign it means that additional items on one's stand, holding other factors constant, add to gross sales. Customers buy more from stands with larger assortments. Many vendors in fact reported that large assortments stimulated sales. Other vendors said that large displays of the same item (which implies small assortments) stimulated sales. The regression coefficient will show which market truism--size of assortment or size of display stimulates sales--is true for this sample of data.

The price of an item of produce is its basic attribute in a public market place composed of competing firms. This is because shoppers in such markets can compare prices with great ease. The selling price set for each item is thus a strategic variable, adjustable but of course not purchased. In principle, the total demand for fresh foods sold at Soulard Market should be relatively inelastic (people should buy relatively fixed amounts, meaning that total sales revenues should increase if prices are raised), since Soulard deals in basic

foodstuffs. Families presumably buy the same quantities of vegetables and fruits in the face of small changes in prices, especially since the total price level at Soulard Market is significantly below the supermarket price level.[10] However, because shopping from competing firms at Soulard is so easy, the demand for the food sold by any particular firm should be elastic (people should but less if prices are increased and more if prices decrease, so that total sales revenues should decrease as prices are increased). Thus the regression coefficient for Price should be negative if this last point is true.

These issues are complicated by the fact that I could not measure quality when recording prices of the more than one hundred items of fresh produce offered for sale. Thus a higher price may reflect a higher quality item, or it may reflect a strategic decision for average-quality produce. I coded all "peaches" with the same code, lumping extra large, picture-perfect California peaches together with second-quality local peaches. A vendor could charge a "low" price for shipped-in peaches that is higher than an "expensive" price for local peaches, or he may just charge a low price relative to others for the same item. Both strategies may operate for different firms in the same day or for the same firm on different days. These complications are serious. Yet, even given the problems in interpreting this variable, the potential effects of differences in price levels across market firms are too interesting to ignore.

The average price of every item of produce sold on the market was calculated across all firms for each market day. Each firm's price for each item was converted into a standard deviation unit away from that day's mean market price. Say the mean price of tomatoes was fifty cents, with a standard deviation of ten cents. Firm A, selling tomatoes for forty cents, got a score of -1.0; firm B, selling tomatoes for fifty-five cents, got a score of .5, and so on. These units are known as "z-scores". The z-scores for all items sold by each firm were

averaged to create an average standardized price score (Price) for each firm-week. The intuitive meaning of this score is as follows: a score of 0 means that, on the average, a firm's prices are no different that the average market prices for those items of produce; a score of -1 means than, on the average, the firm's prices were a full standard deviation cheaper than the mean market prices for those items of produce that week; and so on.

A negative regression sign for this variable would mean that demand for the individual firm's produce was price- or quality-elastic. Higher prices would be associated with lower gross sales and lower prices with higher sales, either because of pure price concerns or because customers were responding to differences in quality, or both. A positive sign could indicate price--or quality inelasticity, meaning that shoppers tended to buy their customary quantities in the face of moderate increases and decreases in prices.

The location of a firm on the market is another strategic variable, controllable on an annual basis. There are four wings, each differing somewhat in level of economic activity. Peak season sales are highest in wings 2 and 4, medium in wing 3, and lowest in wing 1. However during the winter months wing 3 is the most active because it, like wing 1, is enclosed. Rent in wings 1 and 3 is trivially cheaper than rent in wings 2 and 4 ($219 per stall-year and $273 per stall-year, a difference of a dollar per week).[11]

The season of the year has a large affect on sales, since people buy more produce in the summertime and during holidays. Thus variables for time and for Christmas (the most significant holiday week) are necessary. After trying numerous different ways of specifying the season in regressions, a simple measure of the temperature at noon on market days (Temp) proved to work best. This measure combines the effects of seasonal variations in demand with the effects of temperature changes within seasons. A positive sign for Temp will mean that

people buy more produce in warmer seasons, and on warmer days within seasons. The presence of rain on market days, independent of seasons, was found not to affect gross sales. I was never able to get a significant coefficient for a variable coded "1" for market days when precipitation was reported and "0" for all other days.

An economic model of short-run economic decision making at a public market place can be formally specified as follows (the symbol "f" means that the dependent variable is a function of (determined by) the variables in the parenthesis):

Gross Sales = f (economic variables (labor, capital), strategic variables (price, number of items, location on the market), background variables (season, holidays)) + error in the model and data.

This model can be specified in a regression equation as follows:

Gross Sales = a + b1 (Workers) +b2(Stalls) +c1(Price) +c2(Nitems) + c3(Wings*) + d1(Temp) + d2(Christmas*).

Starred variables are binary, or "dummy" variables whose values are zero or one. There are actually four dummy wing variables corresponding to the four market wings. A firm located on wing 2 would be coded "1" on variable Wing2 and "0" on the other wing variables. Likewise the set of measurements corresponding to Christmas week has "1" coded for Christmas, otherwise this variable is coded "0".

The means and SD's of all variables are given in Table 1. The average merchant earns about $1350 in gross sales per week, of which about $800 represents the wholesale cost of the produce. He must pay a total of $150 each week for his rent, electricity, bags, City sales taxes and helpers, which leaves

roughly $400 as his disposable income. Note that the SD's are very large, in particular the SD for income is almost the size of the mean. Conclusions about any individual merchant's income made from these figures would be fraught with error.

The results of the regression of the 256 firm-week observation on this model are given in Table 2. Before these results are discussed the quality of the data must be evaluated.

Any analysis of people's income must deal with the problem of data quality. To many persons, the size of their income is as sensitive a topic as the details of their sexual life. I have no doubt that our measures are reliable, since they were refined and used over a sixty-week period a year after the first field work on the market began. It is unlikely that validity is an issue, since the concepts used are elementary and totally familiar to both informants and field workers. However the question of accuracy is more complex.

Vendors at a public market such as Soulard keep no cash register receipts. Their incomes are private, known only to themselves and their families. For purposes of informant rapport neither I nor my field assistants ever asked about taxes. We were massively disinterested in taxes. When we solicited the help of vendors we clearly stated that we would keep the information securely confidential. We asked vendors to tell us how much produce they bought, sold, and dumped each week. Selling prices were clearly marked, and buying costs were independently estimated since we found that few vendors would discuss costs. About one in four vendors cooperated with this phase of the project and gave us data about quantities of produce bought and sold. We made it clear to each informant that erroneous data was worse than useless, that we preferred no information over incorrect information, and therefore they had the responsibility of giving accurate information if they gave any at all. One merchant gave this data for a

few months and then dropped out of the project; a close relative continued; others never began. Thus everyone who gave data was comfortable about it, and I am confident that the data as given was basically honestly reported.

The main factor which could increase my estimate of income over the true value is that I calculated gross sales as if all produce were sold for the "standard" selling price set for the heart of the selling day, between 9:00 A.M. and 2:00 P.M., unless I had specific information to the contrary. When data was available about quantities sold for lowered late afternoon prices, this was coded. Otherwise all quantities were coded as sold for the standard price. Since merchants commonly lowered their prices in the afternoon it is likely that some portion of the produce was sold for less than it is coded as being sold for, thereby raising the estimated gross sales over the true figure.

Other reasons exist for thinking that my estimate of income may be too low. I coded the wholesale cost of the produce using three streams of data: the weekly U.S.D.A. wholesale produce market report; intensive weekly interviews about costs with two key merchants, one of whom worked full-time at the wholesale produce market; and ad hoc information each week from merchants. The coders put this information together to make a best estimate of the true wholesale cost each week for each item of produce sold at Soulard. My estimates are as accurate as a field worker could get in this situation, but each wholesaler-retailer transaction is unique. One merchant may pay more than the fair market cost, in ignorance. Another may pay far less than the going cost because he happened to be the right person in the right place at the right time. The latter is far more likely, since special deals are the life-blood of Soulard Market merchants. These deals were often missed by my data collection procedures.

Thus reasons for thinking that my estimates of income are too high and reasons for thinking they are too low exist. In all, I am confident that the

regular procedures we used produced figures that, on the average and in the long run are fundamentally accurate.

The regression equations in Table 2 are significant and account for about two-thirds of the variance in Gross Sales, leaving one-third unaccounted for by the variables in the model. The first regression (Linear-1) shows that it is difficult to estimate the independent effects of variations in workers, stalls, and the number of items (Nitems) on Gross Sale because of multi-collinearity. Essentially these variables are more highly correlated with each other than they are with the dependent variable, so that each cannot be held constant, while the others vary, to assess their independent effects. (The relevant correlation coefficients are given at the bottom of Table 2). Workers is not significant in this regression, which is bad since the number of workers is one of the most crucial economic variables decided upon each week by merchants. Stalls, Nitems, and Temperature are related nonlinearly to Gross Sales, since the square of each is significant. The negative signs for the squared variables in conjunction with positive signs for the corresponding untransformed variables shows decreasing marginal returns, as is expected. Wing is not really significant, since only Wing 2 has an F-ratio significant at the .01 level. This means that sales are higher in Wing two but not consistently different in the other wings. Price is not significant, which is a surprise. The equation as a whole accounts for 68% of the variance in gross sales, which is a relatively good (and statistically significant as shown by the F-ratio) fit for this sort of unaggregated, cross-sectional as well as time-series data. But this is not a satisfactory model since Workers and Price are not significant.

The second equation (Linear-2) drops Nitems, which allows Workers and $Workers^2$ to enter the equation as significant explainers of Gross Sales. This equation explains about two-thirds of the variance and is statistically

significant at the .001 level. Price is still not in the equation, and it would be better to allow Nitems into the equation since many vendors mentioned that it is an important strategic variable.

The fact that the squared variables are significant suggests that a logarithmic transformation may be more suitable. Table 3 presents data from regressions where Gross Sales as well as the nonlinear variables Workers, Stalls, Nitems and Temp are transformed into natural logarithms. This equation (Log-1) fits the data well and, is statistically significant, explaining three-quarters of the variance (R^2=.73), a meaningful improvement over linear equations. No evidence was found of heteroscedasticity or of nonlinearity when plots of the residuals and the independent variable (Ln-Gross Sales) were examined. Workers, Stalls, and Nitems are significant and positive, which is what we expect on general principles. Price is significant and positive in this equation, which is interesting. Wing is not significant, which means that Wing location is not a reliable determinant of gross sales once other factors are controlled for. The second logarithmic equation (Log-2) drops Nitems to see if the fit improves as it did in the linear equations. The decrease of R^2 to .67 shows this is not the case. As expected, when Nitems drops out, its high correlation with Workers causes the latter variable to change drastically in size and significance. The other variables remain roughly the same. Christmas increases strongly, since on holidays, firms stock their stands very fully. Part of Gross Sales that is actually caused by the number of items must now be accounted for by Christmas, since Nitems is not in the equation.

All in all Log-1 represents the most satisfactory economic model of reality discussed so far and fits the data best. The best way to interpret this sort of regression equation is as a predictor of Gross Sales. If we wish to know the best estimate of Gross Sales obtainable from this sample of data for any particular

sort of firm or set of variable values, we begin with 2.3 (the constant), add .21 times the logarithm of the number of workers, add .52 times the logarithm of the number of stalls, add .17 if the firm is in Wing2, subtract .39 if Wing3, or add .28 if Wing4 (nothing is added if the firm is in Wing1 since the constant contains that value), add .24 times the Price of the firm's produce on that day, add .47 times the logarithm of the temperature at noon on that market day, and, if it is Christmas week, add .68. Converting the resulting number from its logarithmic form into a natural number we have the best linear unbiased estimate of the gross sales on that day for that firm. The corresponding estimate for the entire sample of data would be made with the mean variable values instead of individual values. This model will be taken provisionally as a good statistical estimate of the firms' economic decision making. Let us see what this means.

Marginal products for workers and stalls can be estimated by summing the value of Gross Sales at the mean of all the other variables and then calculating Gross Sales for varying numbers of Workers and Stalls, in turn. The resulting marginal products are graphed in Figure 2. The best estimate of the addition to gross sales attributable to workers, at the mean values of all other variables, is about $75 (at a value of 3.3 workers, the geometric mean value of this variable). The marginal product of a third worker is about $85, and of a fourth about $65 in gross sales. The average markup over all products is about 40% of selling price. Thus the addition to gross income (gross sales minus cost of produce) of a third worker is about $35 and of a fourth worker about $25. Most vendors preferred not to say what they paid their workers. Based on interviews I estimate the average cost of hiring a worker at roughly $30. This includes wages (which actually vary between $10 and $40) and the value of the box of produce that workers non-resident in the boss's household take home. So the addition to the entrepreneur's net or disposable income (gross sales minus all attributable

costs) of additional workers is about zero at the mean sample values. This means that if this model is valid, and on the average, Soulard vendors hire workers in an economically efficient way, as predicted by the Economic theory of the MESR profit maximizing firm. This is significant since Workers is really the only finely adjustable variable under the control of the vendors. The analysis shows that the vendors are adjusting their use of this variable to yield the maximum disposable income. In this respect the marketplace seems to facilitate, or at least does not impede, efficient economic decision making by vendors.[12] However note that most workers are relatives, if not household coresidents of bosses. Thus the worker's income supports the firm's household in the majority of the cases (see note 14 for data on this point). The pressure to economize on workers is less in this instance than it would be if workers were unrelated to bosses. Seemingly excessive labor payments in the kinship situation could easily be rationalized as the cost of training new managers, or as "insurance" to minimize the chance that the family's children will get into trouble on the streets.

The marginal product of stalls, at the mean of all variables, is $180 which roughly corresponds to $70 in gross income. The cost of a stall in weekly rent is about $5, which means that extra stalls are incredibly valuable to vendors. The potential flaw in this conclusion is that the real price of stalls is not merely the market rent, but the illegal side payment often made to the old holder of the stall to "help him decide" to give it up. (See note 11). However the turnover of stalls is slow and sporadic, most stalls having been in the same hands for years if not generations. Additional stalls are very valuable, cheap to rent, and limited in supply in the two wings of the marketplace closest to the municipal parking lot (wings two and four on the North side of the marketplace). There are vacancies in the South side wings. This difference in value is implied by the regression coefficients for Wing, since the coefficients for Wing2 and Wing4 are

positive, while that Wing3 is negative, and Wing1 is contained in constant. Even though these coefficients are not statistically significant they are in the direction that ethnographic information suggests they should be.

Adding to the number of items on a stand, while holding the other independent variables in the model constant, increases gross sales by about $6.50 per item (at the means of all variables). Consumers come to the marketplace with a shopping list, seeking a number of items, and not just one or two products. If those other items are on the same stand, they will buy them there. It may also be true that large displays of particular items stimulate larger sales of those items, but the one firm of the marketplace who follows that strategy, and who seems to achieve large gross sales, did not supply quantitative sales data and is not represented in this sample. For the firms in this sample assortment outweighs display in stimulating gross sales.

Price is significant and positive, which means that a higher price level correlates with higher gross sales when other factors are held constant. Whether (or how much) this effect is due to differences in quality as represented by differences in price, or whether it is merely an association of higher prices with higher dollar sales is not given in this data. The behavior of this variable means that vendors in a public marketplace can charge more than market price and still have higher gross sales, even though surrounded by competitors offering similar produce. If consumers were as price conscious as vendors accuse them of being this would not be the case. This variable's coefficient is perfectly consistant with a marketplace where many customers do not price-shop but rather shop on the basis of custom. A consideration and statistical test of this proposition will be considered below, after the remaining independent variables are examined.

Christmas is highly significant. The average firm sells over a thousand dollars of produce more than usual during Christmas week.

The effects of temperature are strong since this variable includes seasonal effects on sales. The coefficient shows that an increase in the temperature from 57 (the mean temperature for the period of data) to 67 is associated with an increase of gross sales of $86; at 77 the sales increase by $79 and so on. The reason for this is that more fresh produce is available in warmer seasons and people demand more. In summertime children are not in school and so eat more meals at home, which further increases the household's demand for produce.

In summary the statistical analysis of the economic model as previously specified shows that vendors hire workers in an economically efficient, profit-maximizing way; that they enjoy cheap rent; that large assortments rather than large displays of small assortment sell more produce; and that higher than average marketplace prices do not injure a firm's gross sales. This latter point has interesting implications, which will be considered now.

Economic Custom

The analysis so far has assumed that shoppers at Soulard Market are price searchers without custom. That implies they are callous toward the possibility of becoming the regular customer of certain firms, with the trade-off of freedom for regularity that this means. They search only for the lowest price. This may be a reasonable simplification of shopper behavior, and is certainly supported by vendors' complaints about many customers who discriminate on the basis of price alone. That such shoppers exist is obvious to any observer after a short while on the market. But it is also obvious that other shoppers have custom, and return to the same vendors every week. How important is this latter type of shopper? What if a significant number of shoppers trusted to their personal relationships with specific vendors and bought items regardless of minor price

variations as suggested by the Price variable's behavior? In that case the vendors' fine adjustments of factors of production would not be more important than their maintenance of good relationships with regular customers. That would mean the theory of efficient economic decision making was part of a story whose other part was a theory of custom. This hypothesis, that custom is a potent explainer of marketplace sales, will now be considered.

Many vendors talk about the importance of regular customers. For example, one vendor expressed this strategy:

> I just try to deal in everything cause I try to get a whole customer. I try to get a customer exclusive. I want to sell him so that when he gets done with me he's going to have everything he needs and walk away. Then, when he comes back next week, he'll come to me.

Or, another vendor, discussing scarce items:

> If bananas are high, like they were Saturday, we had four or five boxes. We didn't even have them on the stand, we just bought them to take care of our customers. Like Saturday morning we had two of them and G.S. wanted one. And we said, 'I can't give it to you', and he said, 'I need one for an order', and I said to his son , 'J., you are crazy if you give it to him, we only have two bananas and we need them for our customers.' Sure, they were scarce!

Another vendor expressed both shopper strategies:

> My mother has a customer who will buy everything on that stand that they need, but most of your sales are a couple of items. Because of

the structure of the market, competitive. People don't want to feel like they are cheating themselves, buying everything from one stand, and not taking advantage of the market.

Thus, competitive price comparison is only one shopper strategy, while the other is to develop customary relationships, habitual patterns of behavior, and to maintain person-to-person relationships to complement the person-to-thing relationships of the marketplace.

If the considerations just discussed had merit they would be reflected in the quantitative data on market sales. A significant part of a firm's sales would be due to a past history of personal attention to developing customary relations with shoppers. All vendors have been on the market for many years, have grown up in market families, and most have taken over a parent's stand. I have no direct measures of the quality or quantity of vendor-customer relations, so a variable reflecting vendor uniqueness will have to serve. Such a variable can be defined as a set of binary, "dummy" variables coded "1" for one unique firm's weekly data and "0" for the data from all other firms. The total number of "firm-dummy" variables is one less than the number of firms in the sample (the missing firm's data are contained in the constant term of the regression). In this case eleven firm-dummy variables were defined and regressed against gross sales. The regression equation is as follows:

Gross Sales = f (D-Firm1, D-Firm2, D-Firm3, . . . D-Firm11) + errors.

(D-denotes a dummy or binary, variable coded, "1" for that firm, and "0" for all others).

Any factors unique to each firm which determine gross sales will contribute to a good fit of this equation to the data. Custom, meaning sales to regular

customers, is assumed to be the largest of this set of unique factors. To the extent that such factors are important the regression will be significant. The results are given in Table 4, equation Dummy-1. The equation explains 68% of the variance in the data, and nine out of the eleven firm-dummy variables are significant (including the significance of the omitted firm-dummy means 10/12 are significant) at the .001 level or better. This means that merely knowing the name of each of the 256 firm-week observations, knowing which of the twelve firms that set of data pertains to, is sufficient to account for 68% of the variance in the data. Remember that the full set of variables in the economic model explained 73% of the variance. A difference of five percent of the variance explained is certainly significant, but the fact that the firm-dummy variables account for so much is striking. Certainly the purpose of the analysis is to explain behavior. Insofar as the Dummy-1 regression merely labels ignorance, Log-1 is clearly preferable. But the results in Dummy-1 tell us more: That sheer custom, meaning historical presence on the marketplace, enables a firm to capture part of the stream of demand passing in front of the stand.[13] Further, Dummy-1 tells us that the sales by each firm each week simply do not vary very much from week to week. This does not mean that firms do not vary their allocative decisions each week. We have seen that they do. It means that the variations do not kick each firm out of its relatively stable position in the marketplace, with respect to the positions of all the other firms.

Both sets of variables, the economic model and the firm-dummies, are combined in regression Dummy-2 in Table 4. This last model combines MESR economic calculation, through the economic and strategic variables, with economic custom as represented by the firm-dummy variables. It fits the data extremely well since an R^2 of .86 is more usually found in analyses of aggregate, not individual data.

Only one firm-dummy variable and Stalls are not significant. Stalls is insignificant because stalls are rented by each firm on an annual basis, and, although stall usage varies from week to week (as shown by the significance of this variable in the previous regressions), once the firms themselves are in the regression most of the effects of variations in stalls are taken up by the firm-dummies. The other variables remain generally the same as before. In particular Price is still positive, significant, and about the same magnitude as in Log-1. The marginal product of workers, as calculated in this regression, drops below its level as calculated in Log-1. A third and fourth worker here would add $22 and $16 to gross income, which is less than their estimated cost. Thus when firm-unique factors are held constant, the vendors seem to be using too many workers to maximize profits.

Thus the firm-dummy variables account for a significant part of the variation in Gross Sales. When the firm-unique factors are combined with the economic variables, the resulting model fits the data extraordinarily well. The new model reveals the importance of customary economic behavior. The picture of reality given by the preceding, purely economic model is shown to be essentially valid, except that the lesson of the Workers variable is discounted. This final equation says that firms do not hire workers in a MESR calculating way, instead they use more workers than a normative profit maximizing model would predict. If all workers were unrelated to firm bosses, this would mean that firms allocate their workers inefficiently. Since most workers are members of boss' families, it suggests that income is being shared within the families that work in market firms.[14]

Summary Discussion

Few studies exist which analyze economic decision making behavior in sufficient detail to compare with this work. Gladwin and Gladwin (1977), C. Gladwin (1975), and Quinn (1978) have made descriptive models of Ghanaian fish sellers' decisions. These models are impressive for their ethnographic sophistication and accuracy and influenced the parallel effort in this work. C. Gladwin, for example, was able to account for 85% of 100 market choices in a flowchart which considered supply, demand, scale of activity and level of capital investment in smoking ovens. A full discussion of these descriptive decision models is deferred to a later paper; comparability with the main focus of the present study is limited because these authors did not assess productivity or economic efficiency.

McGee's (1975) study of hawkers in Southeast Asia is full of descriptive insights and valuable policy recommendations. Similarly Geertz (1979) presents an analysis of a Moroccan market town which is rich in cultural generalizations and insights. Neither of these studies are based on precise measurements of observed individual behavior, which would allow comparison with the work. Such studies often assume a level of efficiency among marketplace firms which this work has tried to measure through quantitative analysis.

Swetnam (1973) discusses the effects of very stable prices of durables such as blankets, rope and pottery in the Antiqua, Guatemala marketplace. He claims these prices reflect an oligopolistic, or monopolistically competitive market structure which equalizes "marginal income", meaning net or disposable income, among firms. This is achieved through natural adjustments in the number of vendors instead of through natural adjustments in the market price. Thus the market in Swetnam's model reacts to increases in individual firms' incomes caused by greater sales (in turn due to shifts in demand interacting with stable prices)

by increases in the number of vendors who share in the total sales. When the pie shrinks because of decreasing demand, income equality among firms is maintained by shrinking the number of vendors.

This model of an agrarian marketplace with a free flow of vendors in and out of trade is reminiscent of Mintz's seminal (1964) study of Haitian salt vendors, who decided between market retailing and begging each day depending upon the price ratio. Yet Swetnam's model is based on a static analysis of the inventories of only three firms. The essential relation between total sales and total number of vendors is not observed. Thus the empirical relevance of the model is unclear. Cook (1970), for example, has demonstrated dramatic variation in the price of stone metates over a year in a Mexican marketplace, so Swetnam's claim of extreme price stability cannot be accepted on the basis of the durability of the goods alone. Dannhaeuser (1980) uses a similar model of monopolistic competition, but shows price variations among neighborhood stores in a Philippine town. He accounts for his price variation and Swetnam's price stability as due to the economic difference between dispersed (store) and clustered (marketplace) location. However Cook's work, as well as the present study, shows that clustering is not necessarily associated with price stability. Metate prices varied over time, and produce prices at Soulard varied in the cross section as well as over time. It must be noted, in defense of Swetnam's model, that market entry of Oaxacan metateros and Soulard produce merchants is not totally free, as presumed in the model. It seems that the relation between freedom of market entry, price stability, and distribution of income among market firms needs to be examined further.

The significance of the firm-dummy variables, implying that firms at Soulard cultivate unique relationships with shoppers, suggests that monopolistic competition exists at Soulard Market. The textbook definition of this is where

firms offer somewhat unique products in a market full of similar, but not identical sellers. The U. S. market for cars or toothpaste is an example. Some theorists believe prices in such markets will be slow to change, because increases will result in lost sales while decreases will be immediately met by competitors, resulting in no change in market shares but losses in revenue for all. The stable situation is found where each firm sells at a higher price and a lower volume than would be found in perfect competition. Yet this situation does not affect the profit-maximizing conditions for any firm, of equating marginal cost to marginal revenue. And insofar as consumers show brand loyalty or economic custom, small price increases will not cause firms to lose customers.

The Price variable did become more significant when firm-unique factors were controlled for in this analysis, meaning that higher prices did produce higher dollar sales (if, and only if, one asumes totally homogenous goods; insofar as higher prices reflect higher quality goods, then the Price variable implies that consumers discriminate and value quality. In fact, I think both things operate on the market.)

Monopolistic competition at Soulard Market is associated with relatively limited entry and highly variable prices. Shifts in supply and demand are common and dramatic at Soulard, and are translated into significant variations in income, in contrast with Swetnam's model. For example, my rough estimates of net incomes among market firms range from $5,000 to $35,000 for the year. Yet I note that monopolistic competition at Soulard Market is not associated with an absolutely high level of prices, as demonstrated by the supermarket price comparisons (see note 10). No doubt Soulard's prices would be cheaper if custom did not exist on the market, and certainly supermarket prices reflect a vastly larger, more complex bundle of of goods and services than is available at Soulard. Yet the fact remains that monopolistic competition at Soulard Market is

associated with highly variable, relatively cheap prices and highly stable firms.

Whether "monopolistically competitive" or "purely competitive," marketplace firms should be economically efficient. Marketplaces give produce merchants immediate, frequent, and concrete responses to their economic decisions. This represents a clear opportunity for maximally efficient short run economic behavior. Such a MESR firm would vary its niche by varying its staples to take advantage of the most profitable portfolio each week. In fact, the descriptive model I hypothesized for their weekly economic behavior (the flowchart model) shows that merchants avoid major decisions like the plague. Soulard merchants solve their weekly decision problem through custom and habit. They do not act like natural micro-economists using market information to solve a profit-maximizing problem.

Regression Log-1 implies that firms economize on the only allocative decision they have real control over, which is the number of workers hired each week. This seems to ignore the kinship relations between workers and bosses. Since most (four out of five) workers on the marketplace are household coresidents of the firms' bosses, the firm's correlation of workers' marginal products and marginal costs may be irrelevant. For if a worker who is also a boss' child would receive, as allowance, the wage received on the market, then any positive marginal product created by that worker would add to net income and merit employment by the profit maximizing family firm. If the worker is employed basically in order to keep out of trouble, or is a future boss in training, then even a negative marginal product may be economically rational in the long run. A few dollars "lost" on the marginal-product-wage balance sheet may be far less than the real costs to a parent of a child's behavioral or criminal problems. And if the child is in training to take over the firm then some small costs in the present may be lessons to avoid large costs in the future.

In additional research the Workers variable should be decomposed into economically dependent and independent household residents, and non-residents. Insofar as workers may not receive allowances equivalent to their marketplace wages, or would not get into trouble off the market, or have no intention of becoming bosses, then the normal profit maximizing equations are relevant no matter what the kinship relations may be. In the present case I think that few-at most a third-of the workers would receive a payment, smaller than their weekly wage, even if they did not work on the market. Otherwise, based on this sample of data and ignoring the effects of firm-unique factors, regression Log-1 tells us that workers seem to be hired in a profit maximizing way.

When the possibility is admitted that unique attributes of each firm may determine part of their sales (in regression Dummy-1 and Dummy-2) these factors turn out to be highly significant. The most likely explanation for this significance is that a good part of each firm's sales are to regular customers who ignore small variations in price and buy steady amounts each week. In most cases such customers are known to bosses, but these regular customers may be unfamiliar to many bosses. The shopper may not converse with salespeople, or the boss may prefer, as many do, to trim and stock produce instead of sell to consumers. Thus, while most vendors stressed the importance of regular customers, even those who did not could have such relations.

This understanding of the importance of custom on the market clarifies the behavior of the Price variable. A positive value for this variable means that each firm's sales are price-inelastic, meaning that increases in price create higher gross sales. This should not occur in a competitive marketplace of similar firms, unless customers choose to ignore the benefits of comparison shopping. Thus the evidence suggests that both vendors and shoppers choose not to use the available market information to solve a profit maximizing problem.

Instead buyers as well as sellers mix economic custom with their short run calculations to achieve an acceptable deal on the market.

The ethnographic decision model and the econometric decision model provide consistent results. The most important decisions determine a firm's niche and are rarely examined explicitly. Whether merchants could act like MESR firms if they had the ability to deal in the whole range of produce; or whether they have this ability but lack the daring to risk; or how knowledge of produce attributes and willingness to risk interrelate in various classes of firms; and the development of a fully behavioral model of firms in marketplaces are all questions for future research. At present I conclude that a formal analysis of quantitative marketplace sales data has revealed the strength of economic custom.

NOTES

1. I use the term public marketplace to denote a well-defined geographic space, either enclosed or open-air, in which numerous, relatively small independent firms offer products for sale. Such marketplaces may be rural, urban, municipal (owned by a municipality); farmers' (involving firms who nominally grow what they sell); terminal (associated with a railroad terminal); and, of course, may specialize in wholesale or retail sales.

2. This study has been supported by the National Science Foundation (NSF BNS 780804). The Office of Research, Graduate School, and the Center for International Studies, all of the University of Missouri-St. Louis, also contributed material help. Qualitative data collection was begun in the summer 1977 by Ms. Lorraine Eckstein. The author and Mr. Daniel Byrne joined Ms. Eckstein from summer 1978 through summer 1979. Qualitative data collection continued by the author through 1980. Quantitative data was collected by all three fieldworkers during a period of sixty weeks from July 1978 through August 1979. The author expresses a deep sense of gratitude to Eckstein and Byrne for help in data collection, and to Byrne for assistance in the computer analysis of data. Basic issues in this research were also discussed with Hugh Gladwin and Kenneth Shapiro, whose help is gratefully acknowledged. Unfortunately the faults of analysis are mine alone.

3. The term "merchant" will be used to denote a vendor who sells shipped-in produce. A "farmer" is a vendor who sells home-grown produce, presumably but not always grown by the vendor. A few "merchant-farmers" specialize mainly, but not totally in home-grown produce during summer months and shift to wholesaled vegetables in the winter.

4. The distinction between niche-choices and quantity-choices parallels that between "preattentive" and "attentive" decisions (H. Gladwin & M. Murtaugh 1980) and "Stage 1" and "Stage 2" decisions (C. Gladwin 1980).

5. This is not as simple as it sounds: If the oranges are priced eight for a dollar and a quarter can you quickly figure how many you would sell for two dollars? Those interested in a natural science of mathematics would do well to study market vendors.

6. The fact that economically valuable information is being exchanged does not dilute the real and significant pleasure those vendors who spend much time on the market get from each other's company. Neither does the fact that the pleasure is real dilute the competitive-market, "buyer beware" attitude that they claim defines the rules of the game at Produce Row. In theory a merchant who buys produce that he believes to be better in quality than it actually is, should have no recourse since he could have examined every case before he bought it. In practice jobbers often give credit for such produce.

7. Names of variables used in the regressions are italicized to indicate that they represent precisely defined quantitative measures.

8. The relation of costs to productivity determines a firms "allocative" efficiency, while the relation of the input variable to the output variable determinies "technical" efficiency. Thus the fact that one worker may be able to sell fifty boxes of corn per day relates to technical efficiency, while the fact that the worker may earn in wages more or less than the markup on the corn relates to allocative efficiency. Jones 1977 discusses these concepts with respect to peasant farming.

9. It seems unlikely that most average decision makers would be able to assess these magnitudes without professional help. Most analysts resolve this issue by positing an unconscious knowledge based on complete familiarity with one's business, and by a natural selection in the market (broadly defined) for efficient firms. The underlying issues are very significant (Plattner 1974; Samuelson 1965). Here I will pass over them by positing the former "unconscious

knowledge" position. The firms are small enough in scale, and each boss works directly in his location and has total knowledge of all economic activities in his firm. Thus the sensitivity to the marginal productivity implied here is not so far-fetched.

10. Prices were compared for a market basket of twenty four items of fresh produce sold in Soulard Market and in six local supermarkets. The comparison was done in June 1978 and again in June 1979. Soulard's cost was 65% of of the chain-store's cost in the two years. Details are given in the Market Memo (Plattner, 1979).

11. The true costs of additional stalls should include the illegal side payments made to "purchase" the stall from its present owner. These are rumored to approach $1,000 per stall. No stalls have changed hands recently, and no attempt is made here to estimate the annual cost of such payments.

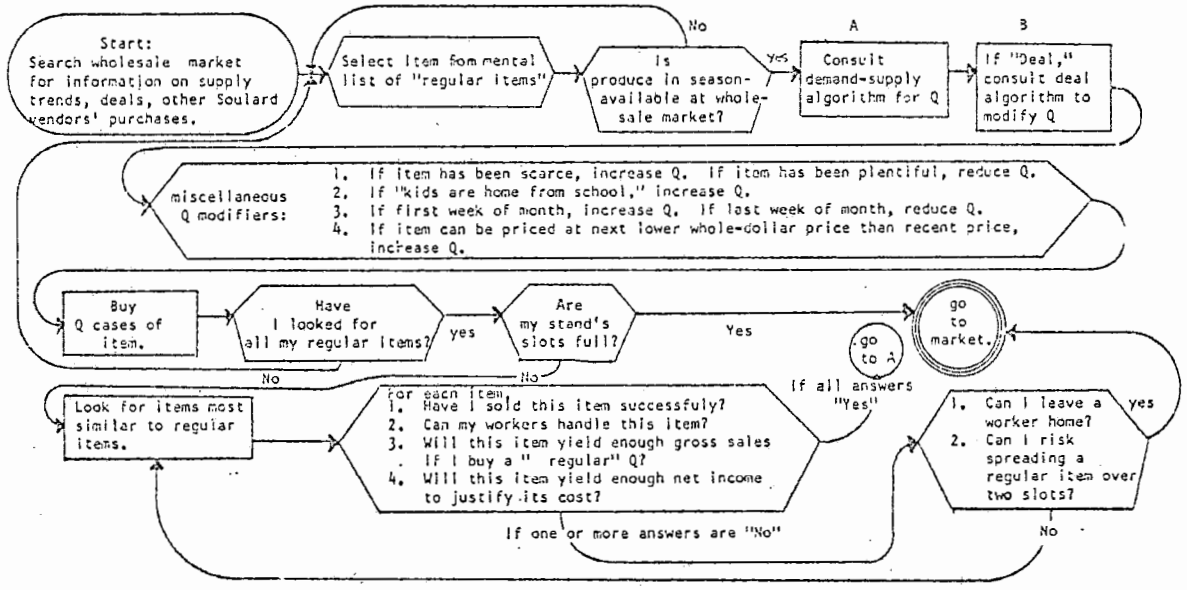
12. Note that the large variations around the mean values indicates that any conclusion with respect to the average of the sample does not hold for all the individuals. It merely means that vendors who use too many workers are balanced, in the aggregate, by vendors who use too few.

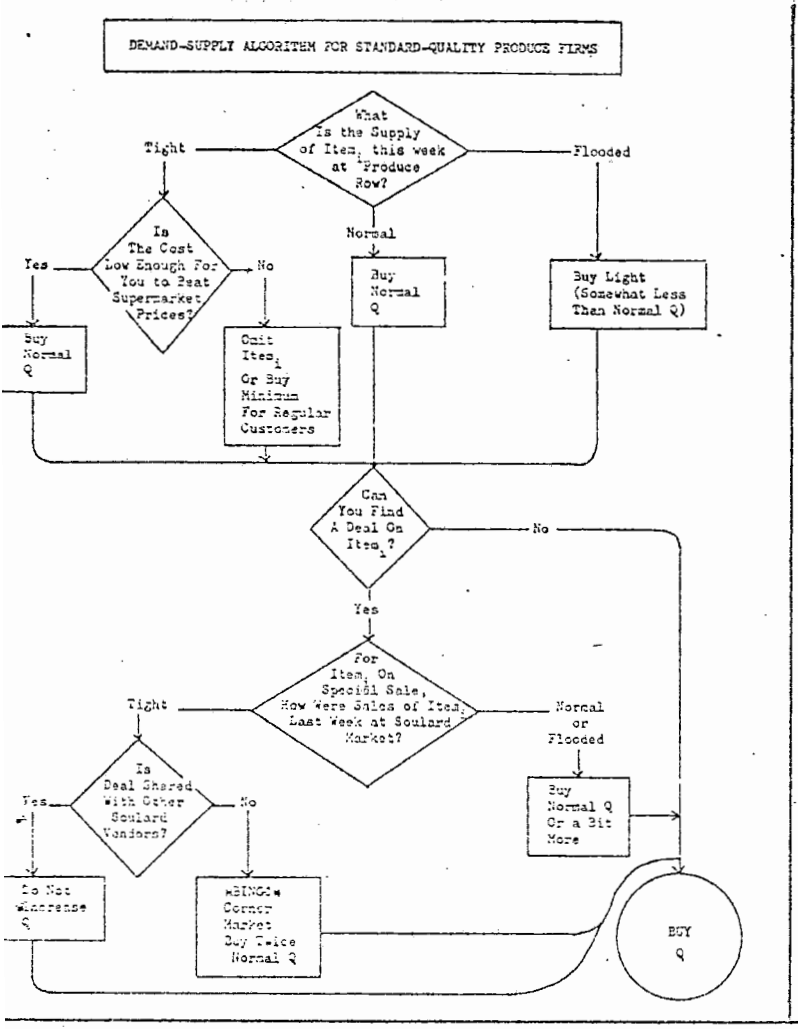
13. It can also be interpreted as showing that scale is everything, and that the market was in equilibrium during the period of the study. Each firm occupied a unique economic niche in the scale of marketplace niches. But this seems merely another way of saying that custom, as well as economic calculation, explains the market.

14. The precise distribution of market personnel is as follows:

	Male	Female	Total	(Percent)
Boss	67	5	72	40
Spouse	0	30	30	17
Boss' Nuclear Family	31	25	56	31
Other Relative of Boss	8	2	10	06
Unrelated	9	3	12	07
Total	115	65	180	101

Thus eighty-eight percent of the people working on the market are bosses or members of the boss' nuclear family.





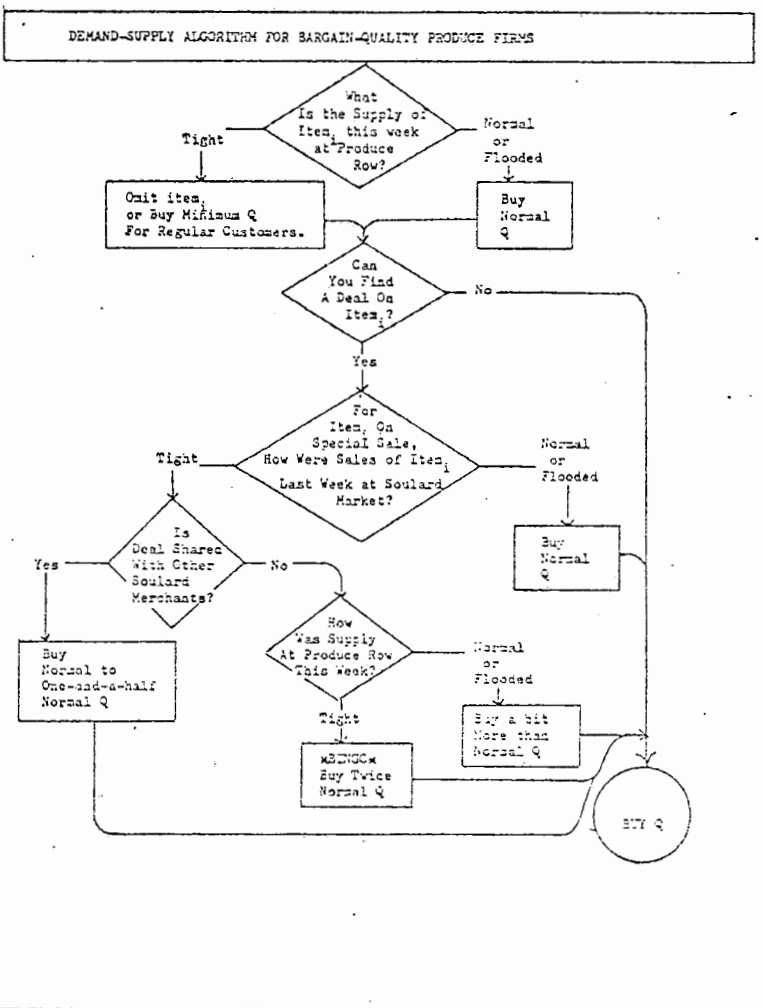


Figure 1. Descriptive Model of Decision Making of Soulard Market Merchants.

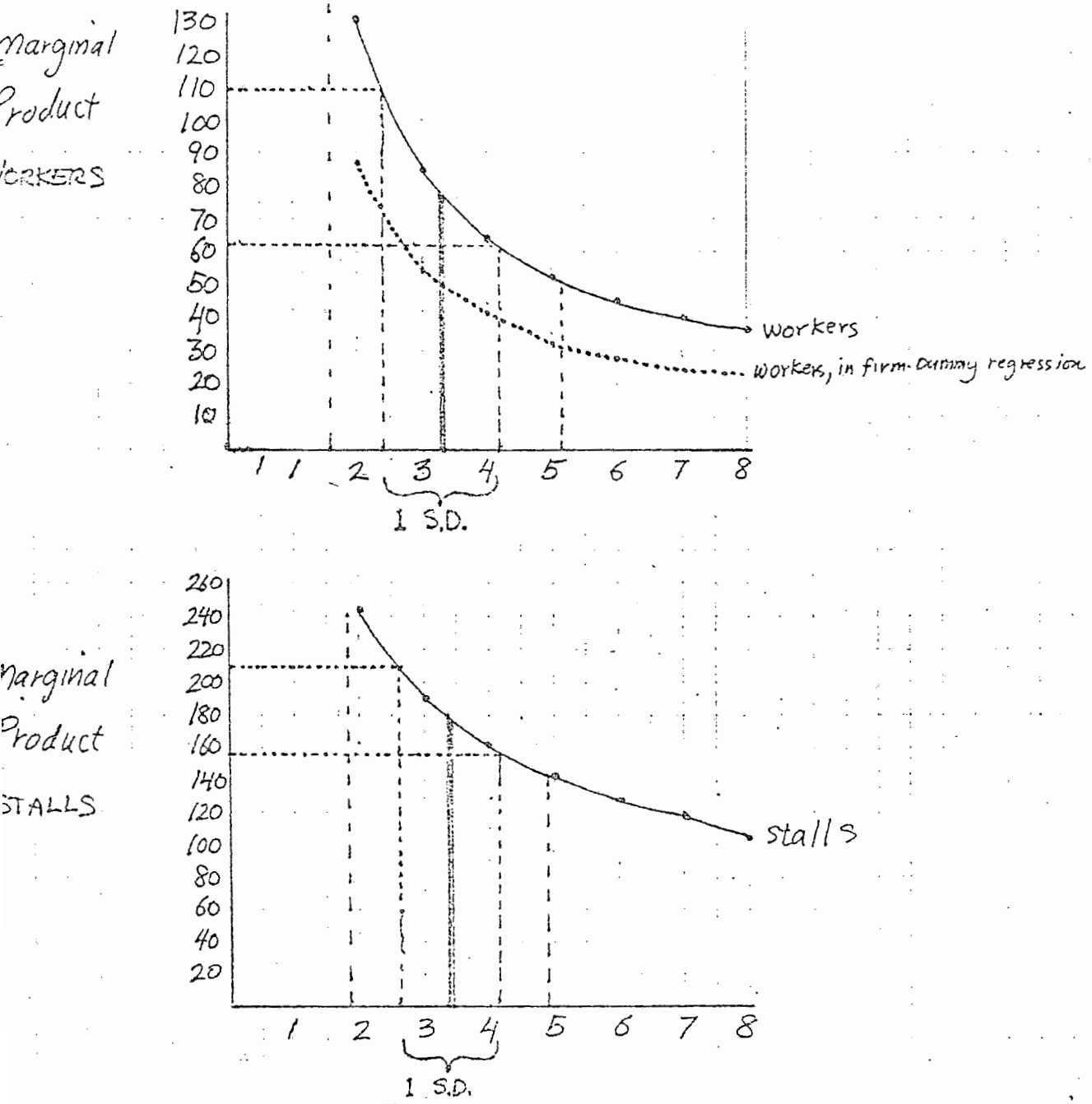


Figure 2. Marginal Products of Workers and Stalls From Regression Log-1.

Table 1: MEAN VALUES FOR ALL VARIABLES (N=256)

Variable Name	Variable	Unit	Arithmetic mean	Standard Deviation	Geometric mean[b]
Gross Sales	Produce sold x price.	dollars	1354	856	1065
Gross Income	Gross Sales minus cost of produce bought that week.	dollars	542	404	358
Net or Disposable	Gross Income minus workers' wages, rent, costs of bags, electricity, taxes.	dollars	389	338	189
Workers	All workers behind stand	people	3.9	2.1	3.3
Stalls	market stalls	stalls	3.7	1.8	3.4
Nitems	Number of different commodities sold.	items of produce	19	11.3	16
Temp	Temperature at noon on market day.	degrees	61.3	19.8	57
Price	Average z-scores of item prices.	numerical price ratio	.11	.43	
D-Wing 1	Locations in SW wing.	binary[a]	.01	.09	
D-Wing 2	Locations in NW wing.	binary	.47	.50	
D-Wing 3	Locations in SE wing.	binary	.34	.48	
D-Wing 4	Locations in NE wing.	binary	.18	.39	
D-Christmas	Christmas week	binary	.02	.15	

a. The mean of a dummy or binary variable is that variable's proportion of the whole sample.
b. Geometric means are used with logarithmic variables to calculate marginal products.

Table 2: Regressions of untransformed variables (n=256)

Dependent variable: Gross Sales

Variable[b]	Regression Coefficient	Linear-1 F	Regression Coefficient	Linear-2 F
$Workers_2$	3*[a]	0	271	12.5
$Workers^2$	---	---	-21	8.2
$Stalls_2$	880	51	866	43
$Stalls^2$	-66	36	-64	29
$Nitems_2$	51	25	---	---
$Nitems^2$	-68	12	---	---
Price	---	---	---	---
D-Wing 2	626	4.5	777	6.5
D-Wing 3	-54*	0	192*	.4
D-Wing 4	309*	1	296*	.9
$Temp^2$	.14	103	.14	91
D-Christmas	1348	41	1371	40
constant	-2407		-2507	
R^2	.68[c]		.65[c]	
F	54		54	

a. *Starred coefficients are not significant at the .01 level.
b. $D_=$ denotes a binary or dummy variable.
c. R^2 corrected for number of regressors.

Correlation Coefficients of Selected Variables

	Nitems	Stalls	Workers
Gross Sales	.47	.50	.57
Workers	.74	.72	
Stalls	.67		

Table 3: Regressions of Logarithmically transformed variables (N=256)

Dependent Variable: Ln Gross Sales[a]

Variable[b,c]	Regression Coefficient	Log-1 F	Regression Coefficient	Log-2 F
Ln Workers	.21	6.5	.61	64
Ln Stalls	.52	29	.68	40
Ln Nitems	.67	74	---	---
Price	.24	14	.19	7.2
D-Wing 2	.17*	.5	.56	4.2
D-Wing 3	-.39*	2.5	.13*	.2
D-Wing 4	.28*	1.3	.44*	2.5
Ln Temp	.47	50	.43	34
D-Christmas	.68	16	.82	19
constant	2.30		3.24	
R^2	.73[d]		.67[d]	
F	79		61	

a. Ln denotes the natural logarithm of the variable.
b. *Starred coefficients are not significant at the .01 level
c. D denotes a binary or dummy variable.
d. R^2 corrected for number of regressors.

Correlation Coefficients of Selected Variables

	Ln Nitems	Ln Stalls	Ln Workers
Ln Gross Sales	.63	.62	.69
Ln Workers	.75	.76	
Ln Stalls	.68		

Table 4: Regressions with Firm-Dummy variables (N=256)

Dependent Variable: Ln Gross Sales[a]

Variable[b,c]	Regression Coefficient	Dummy-1 F	Regression Coefficient	Dummy-2 F
D-Firm 1	1.7	153	1.6	248
D-Firm 2	.5*	1.5	1.3	17
D-Firm 3	.6*	2	.3*	.7
D-Firm 4	1.9	177	1.5	112
D-Firm 5	.7	24	.8	75
D-Firm 6	1.4	112	1.0	83
D-Firm 7	1.6	133	1.5	194
D-Firm 8	2	212	1.0	46
D-Firm 9	1.7	14	.8	6.6
D-Firm 10	2.4	312	1.7	107
D-Firm 11	2.1	253	.9	20
Ln Workers	---	---	.13	3.6
Ln Stalls	---	---	-.01*	.01
Ln Nitems	---	---	.82	91
Price	---	---	.55	122
Ln Temp	---	---	.63	23
constant	5.37		1.16	
R^2	.68[d]		.86	
F	49		92	

a. Ln denotes the natural logarithm of a variable.
b. D- denotes a binary or dummy variable.
c. Starred variables are not significant at the .01 level.
d. R^2 corrected for number of regressors.

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