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Long-distance itinerant peddlers with their back-packs, mules, or wagons are figures from the romantic past of most modern nations. Peddlers commonly took manufactured goods out from towns to distant frontier settlements and returned with farm goods. They integrated the production of cities and their hinterlands and played vitally important roles in the expansion of modern industrial society. Although they are disappearing fast some long-distance itinerant peddlers can still be observed in the developing countries. Since 1967 I have studied a community of such peddlers in a developing area of southern Mexico. The peddlers sold cloth, clothing, and notions to Mayan Indian peasants in hinterland areas of the region. By 1976 a federal program of economic development that included extensive road construction had made long-distance itinerant peddling nearly extinct.

During my research I interviewed peddlers in their homes in the city of San Cristobal de Las Casas, Chiapas and accompanied them on peddling trips occasionally through the pine and oak forests of the Chiapas highlands to scattered tiny settlements of Mayan Indian peasant farmers. In total I studied their economic behavior during a period of 30 months spread over nine years. Between field trips I developed a general model of itinerant peddling in a developing region, and wrote a computer program which allows a student to simulate the behavior of a rural Mexican peddler.

I developed a healthy personal respect for the peddlers I knew. Most were responsible family men as well as tough risk-taking entrepreneurs. They worked hard and often suffered from poor food, water, and housing. In the rainy seasons they frequently battled mud as deep as their horses' bellies. The income they earned from their efforts was meager even by local standards.

Analysts of agrarian economic systems have often accused urban-based peddlers of exploiting their rural customers. From my experience the itinerant peddlers were not too different than fixed or market-based retailers in agrarian societies. Certainly the itinerant peddlers I studied enjoyed many advantages over their customers, but they did not seem to reap excessive profits. Their life-style was comparable or slightly below the level of their non-peddler urban peers. I will return to the general question of economic exploitation after describing how itinerant peddlers function in developing societies, reporting on a typical peddling trip I observed, and summarizing the computer game on peddling that I created.

Peddlers are mobile retailers. The basic elements affecting mobility in selling are the maximum range of the merchandise and the minimum range of a firm offering the goods for sale. The maximum range of a good is the distance from where it is offered for sale at which the increasing cost of transport causes the demand for it to drop to zero. For example, if it costs a dollar a mile to transport myself on a shopping trip, then I will not travel very far just to buy a couple of pounds of tomatoes at fifty cents a pound. Tomatoes are said to have a small maximum range. I would travel far to buy a \$5,000 automobile, since the cost of transport is

trivial compared with the cost of the good. Automobiles have a large maximum range.

The minimum range of a good, or of a firm selling that good is derived from the number of consumers necessary to keep the firm in business. If we assume that population is spread across the landscape in a measurable fashion then demand can be represented spatially. For example, if each family buys \$1 a week of tomatoes, the density of families is 100 per square mile, and I need to sell \$1,000 per week of tomatoes to remain in business, then the minimum range of my tomato-selling firm is ten square miles (see Figure 1). Ranges may conventionally be expressed as radii of circles surrounding the point of sale. The minimum range of my hypothetical tomato firm is then about one and four-fifths miles. These abstract concepts are basic building blocks in a classic model of economic location. Recently Carol A. Smith of Duke University has developed a model of agrarian market systems based on her research in rural Guatemala and on G. W. Skinner's work in pre-revolutionary China (see "Rural Market Networks" by Stuart Plattner; *Scientific American*, May, 1975).

James H. Stine of Oklahoma State University first described the necessary conditions for itineracy in terms of maximum and minimum ranges. If the maximum demand range is smaller than the minimum threshold range then the firm cannot be fixed, full-time, and survive. Itinerantism can be understood as the firm's attempt to increase the maximum range of the goods it sells by relocating when local demand is exhausted. This allows the firm to tap new areas of demand and to "add up" a series of local demands until its minimum threshold is satisfied (see Figure 2). Thus peddlers are itinerant because there are not enough sales in any one place to enable them to earn enough for the year. They are periodic, or follow a regular schedule,

because regularity in economic relations is highly adaptive. When customers have regular relations with a peddler they await his arrival, entrust him with special orders, and in general give preference to him over his competitors.

This explains why long distance itinerant peddlers are itinerant but does not account for where they will choose to peddle. The essential role of cities in the economic life of agrarian, or peasant societies provides an answer. Long distance itinerant peddlers trade with customers who live close enough to the city to be involved in its economic system, yet not so close that the farmers can travel to town themselves. In more primitive tribal societies economic exchange is channeled through gifts between relatives or ritualized, quasi-kin trading partners. In more developed, industrialized societies transportation is so cheap that very few are too far from a retail center to visit it; and for those that are, catalog selling has replaced peddling.

Agrarian societies contain towns in which long distance itinerant peddlers live. They obtain a competitive advantage over rural traders because urban wholesalers will tend to give preferential treatment to fellow townsmen, especially if the rural-urban contrast includes an ethnic difference as well. In Chiapas, for example, a rural Mayan trader would not obtain credit or personalized service as easily as an urban Ladino (meaning non-Indian, or Spanish-speaking Mexican). Towns offer multiple economic, political, and religious services. The many sellers and producers located there offer a wide range of goods and services, so that a buyer can spread out the cost of his trip to town across the many tasks accomplished there. For example, a Mayan Indian visiting the town of San Cristobal can light a candle to his favorite saint in the enormous central cathedral; consult a local bureaucrat specializing in Indian affairs; have his portable radio fixed; buy fruits and vegetables trucked into

the enormous city market from distant regions; buy locally made sandals, plastic boots from Mexico City, or medicine imported from Germany; and see friends and acquaintances from other settlements who have come to town for similar purposes. The attractive multiple services of the town "stretch" the maximum range of each individual good offered there and allow the fixed stores of the town to easily out-compete any itinerant peddler selling goods more valuable than candy or notions. Thus peddling close to towns is not generally viable.

Peddling very far from towns is not viable either. Population densities in agrarian societies are typically highest near towns and fall off with increasing distance from central places. Often the hinterland of another town may interrupt this steady decrease in population density. In Chiapas the periphery of San Cristobal's market area shades off to the East into dense tropical forest (see map). The forest is sparsely inhabited by the primitive Lacandon Indians who for all practical purposes are not integrated into the regional economy. Peddlers sometimes travel to the Lacandon area out of curiosity and bravado. Once there they exchange a few trinkets for wild animal pelts and leave, since the Lacandon Indians do not have cash to exchange for the peddlers' goods. Their population has been declining over the past few generations and they exist today more or less as wards of the government. Their territory is gradually being taken over by peasant Indian farmers.

Peddlers of goods such as clothing and hardware are thus prevented from operating close to towns because of the competition from the towns' fixed stores. They are precluded from peddling very far from the towns because of the decrease in demand or the increase in competition from other centers. These relationships can be represented in an abstract model

of the viability of peddling at different distances from a town (see Figure 3). The demand for commercial goods per unit of area decreases with distance from the town because population density as well as commercialization -- or the need to purchase goods from the market -- decrease with distance from the town in developing areas. The peddlers' monopoly of supply is primarily determined by the farmers' cost of transportation to the town. When the trip to town is very costly rural farmers are unlikely to take up retailing themselves, and they will be more dependent on itinerant peddlers. These variables interact to produce a potential income per day from peddling which varies with distance from the central town. The zone of viable peddling is simply defined as that area where the potential income from peddling is higher than the threshold income of peddlers. This area is determined by the variables previously mentioned interacting with the threshold income of peddling. When alternative employments to peddling give higher incomes, then fewer individuals will work as peddlers and the zone of peddling will decrease.

For example in Chiapas, the Ladino city of San Cristobal de Las Casas is surrounded by relatively densely populated Maya Indian communities. The average density of the environs of the city, where peddling is not generally viable, is about 85 persons per square kilometer. In the more distant zone of viable peddling the population decreases to approximately 17 people per square kilometer, while in the forest area densities of less than 2 people per square kilometer are common.

These regular differences in population density coincide with differences in commercialization. The nearby Indian communities produce liquor, wooden furniture, firewood, charcoal, wool and woolen cloth, corn, flowers, pottery, poultry and eggs, beans, chili peppers, and other vegetables. Most

communities specialize in the production of one or two items, which they sell for cash in the San Cristobal market. The money is then exchanged for the products of other Indian communities as well as for the manufactured and imported goods and the services produced by Ladino city people.

Some peddlers earn meager incomes specializing in the purchase of eggs and poultry in a few nearby communities. These peddlers do not carry durable merchandise with them for sale, and if they take anything to sell at all it tends to be cheap impulse-purchase items such as freshly-baked sweet rolls.

In the more distant zone of viable peddling the economic strategy of the Indian farmers combines a strong subsistence orientation with some production of cash crops. Each farmer attempts to grow enough corn to feed his family since corn is basic to Mayan life and no markets exist where it is regularly offered for sale in the hinterlands. Once this basic responsibility is accomplished the farmers produce sugar cane, tobacco, coffee, bananas, and pigs.

Economic development affects this model by expanding the central zones across the landscape. As new roads are built the decrease in transportation costs causes rural commercialization to increase. The area of the central town's hegemony then increases as more and more rural people find it possible to shop in town. This is now happening in Chiapas as Indians come to San Cristobal, shop, and return home in one day instead of the many days the trip took previously. In consequence those peddlers remaining in trade must travel farther into the hinterlands to areas not yet served by roads. But the expansion of fixed stores in hinterland towns enlarges the range of services these secondary centers offer, and makes them more competitive with

peddlers. As the last few major rivers are bridged peddling will survive only in the form of a few highly specialized individuals selling to a restricted, well-defined clientele. Some peddlers may survive by monopolizing the distribution of specialized goods. For example a peddler in Chiapas continues on his old route, while all his competitors have left. His survival is based on his control of the sale of a very fine traditional cloth woven only in San Cristobal, and preferred by his relatively well-off traditional Indian customers. Other peddlers may become credit brokers, using their extensive personal knowledge of rural clients to facilitate credit purchases in town. This latter sort of "peddler" still exists in cities in industrialized areas, as sociologist David Caplovitz, of the City University of New York, pointed out in his work on purchasing habits of urban poor in New York City.

I accompanied a Mexican peddler on a typical trip in March, 1968. The peddler (whose privacy I will protect by calling him "Don Fulano") had been working independently since the age of fifteen. In 1968 he was twenty-eight years old and had been peddling in his rural selling area (see map) for the past eight years. His customary schedule was to travel for thirty to forty days selling merchandise and buying pigs. He would then return to town to butcher the pigs, restock merchandise, take care of local affairs and rest for fifteen to twenty days. The area he peddled in was a three-day walk from San Cristobal. It brought him from the temperate 7000 foot altitude, pine and oak forests, and sheep grazing lands surrounding the city to the semi-tropical, 3000 to 4000 foot altitude hardwood forests, sugar cane, banana, and coffee plots of the hinterland. The main road was a broad, fairly level "camino real" (royal road) which has been in use since the sixteenth

century, although it is not suitable for wheeled transportation. Don Fulano rode a horse and drove five mules loaded with merchandise and gear. His normal full load of merchandise was worth, in 1968 wholesale prices, about \$1,000 (U.S.). He was accompanied by his hired helper, a twenty-year old man who earned forty-eight cents a day at that time, and by his dogs. The dogs guarded the merchandise at night and were trained as pig herders for the return trip.

Don Fulano prepared for his trip by visiting retail and wholesale stores in the city, buying relatively small amounts of a wide range of merchandise (see Figure 4) at each place. Since he preferred to buy as much as possible on credit he wanted to spread his debt among various storekeepers. In that way, he explained, even after an unproductive trip he would be able to pay off some storeowners and take out more merchandise for the next trip. He bought cloth, ready-made clothing, had clothing made to order in local shops, bought hardware, trinkets, notions, packaged food, dry goods, medicines, shoes, sandals, and many other items ranging from powdered dye to heavy stone metates (morters). In the few days before his departure he sorted the merchandise into packs of equal weight and size so that each mule could carry a balanced load. Early on the morning of his departure his wife made a large stack of tortillas smeared with bean paste to eat on the road. She also prepared a large ball of finely ground, moistened corn meal known locally as pozol. Indians and poor Ladinos in the area consider pozol to be the staff of life for a working man -- it is eaten mixed to a heavy, mealy suspension in cold water. The peddlers jokingly told me that pozol was their "vitamina Po", and seriously believed that it was necessary during any day of hard work.

Don Fulano left his home at sunrise and walked or rode all day to a nearby center. The day of travelling had a pleasant, monotonous quality

about it since the weather was warm and dry. The sun shone brightly, the forest shadows were cool, and the trail was not muddy. He made constant stops to adjust mule-loads before each incline as the ropes stretched and the packs settled. We met other travellers and exchanged gossip and conversation. The peddlers, of course, disseminate news as much as goods. Don Fulano was an expert muleteer. He fed his animals corn during days of work to provide them with additional energy, and was careful to correct pack and shoeing problems early before they became serious. I collected many sad case histories from peddlers who had suffered the death of an animal during a trip because of carelessness, inexperience, or plain bad luck.

After three such days Don Fulano arrived at a rural center of population. This was a frontier-like town with about eight Ladino and forty Indian families settled in it. The Ladinos had been the lords of the land since the sixteenth and seventeenth centuries, and still retained effective power, wealth and authority. But the influence of the central Mexican government and of liberalizing Catholic and Protestant missions was tempering their behavior towards the Indian farmers. The Indians had risen up in arms to expell the Ladinos in previous centuries and this possibility was still present. As I watched one man strap on his pistol and his spurs, call for his horse and ride away, the similarity between these hinterland Ladinos and frontiersmen in the American West during the nineteenth century was striking.

Don Fulano began to sell his wares immediately in a room he customarily borrowed from a Ladino family. The room was in a solid white-plastered adobe house on the grassy village green. There was one water fountain in front of this house, the result of a Catholic mission who had visited the

village a few years before. The green was laid out in a rectangle with an imposing white adobe church on one side in the sixteenth Century Spanish style. Tropical trees laden with red and purple blossoms lined the square in front of white, tile-roofed Ladino houses and earth colored, thatch-roofed Indian houses. There was nothing in the scene that could not have existed during the sixteenth century.

Each purchase made from Don Fulano was extensively bargained over. He was an expert actor and there was no way to tell from observing the interaction whether the price arrived at was to the advantage of the peddler or the buyer. Every morning he would make rounds of local Indian homes at sunrise. He and his helper carried heavy packs, for it was too much trouble to load and unload pack animals for so many brief stops. He had to catch the Indian men before they left for their day's work in the field, since housewives in this community did not have the authority to buy goods. As the peddler went from house to house selling merchandise, he inquired about poultry, eggs and pigs for sale. There were no stores in the area and he had to buy his own food from farm families, while the pigs would be resold or slaughtered in the city. By the middle of the morning sales had slackened off and he returned to his room for a leisurely breakfast. The day was spent in caring for the animals, sorting and arranging the merchandise and preparing food. The few local Ladinos did their buying during this time. These sales were bargained over just as extensively as the Indian sales.

In the early afternoon the Indian men returned from their field work and another round of home visits was made. I was impressed with the patience and care the peddler displayed. He did not hesitate to open his pack, which required time to untie its heavy canvas wrappings, for

the smallest sale. All discussions were in the local Mayan Indian language, since very few Indians knew as much Spanish as the peddler knew Mayan.

After a week or so of selling in the center the peddler left to visit a series of tiny hamlets in the area. He stayed one or two nights in each place, depending upon the number of people and the volume of sales. In these hamlets he slept on the dirt floor of the family's sleeping hut, just as they did. Frequently there were six or seven adults sleeping on their straw mats on the floor in a closed hut no larger than ten by fifteen feet. As he travelled he bought pigs, some chickens, and eggs. The pigs were bargained and paid for but not delivered until the end of the trip. Each local area had its customary place, often a privately-owned corral, where stock was delivered to outside purchasers.

Don Fulano spent a couple of weeks visiting rural hamlets. In each place he would sell goods and buy pigs. Cash frequently did not change hands at all. He gave credit to many customers, while some farmers sold pigs on credit to him, allowing him to delay payment until he could amass enough cash to pay. Since he had been selling in this area for so many years he knew which families were good and bad credit risks. In the same way some Indians felt confident enough in their relationship to trust him with a credit sale. Don Fulano kept complete records in a notebook. Some of the peddlers in his community could not read and write at all, and claimed that they remembered hundreds of credit accounts without error. Don Fulano was skeptical of this, but admitted that his own wife kept amazingly accurate accounts of pork sales in her memory.

After a while his sales declined because his stock had been depleted to the point where he did not have an adequate selection of merchandise. His customers would lose interest in making purchases when they saw that the stock was not complete, as they felt that they were being offered only the picked-over, rejected remnants. When he felt that this point had been reached he normally retraced his steps from hamlet to hamlet. In each one he collected payments that had been left pending upon his first visit, and advised pig owners precisely when to deliver the pigs to the staging area. If all worked out, he would arrive there just before his pigs did, and would be able to leave with the herd soon after.

The trip home could take twice as long as the trip out. The pigs were not accustomed to travelling and the first few days were difficult. Sometimes the peddlers had to tie ropes to the legs of stubborn pigs in order to drag them down the road. Other times local helpers had to be hired for the first few days. After that the pigs became accustomed to travelling in the herd and less care was necessary. But the pigs still could not travel during the hottest part of the day, and so pig buyers scheduled their travel during the early morning and late afternoon.

Upon his arrival home Don Fulano put the pigs in his corral and begin to slaughter between two and four per day. His wife sold part of the meat in her retail pork stall in the daily city market, but most of the pork was sold wholesale to other neighborhood women who had similar stalls.

Don Fulano visited the six or seven stores with which he had debts and paid his account. It was customary to leave a small portion of the debt unpaid. Storeowners and peddlers were constantly involved in a power-game with respect to this: the peddlers tried to increase the

size of their unpaid debt, yet retain credit for new merchandise; the storeowners tried to reduce the unpaid balance, yet retain their level of sales. The practice had its parallel in the hinterlands where the farm families also preferred to keep "open accounts" with the peddlers. In these circumstances of scarce capital the strategy is explainable simply as each actor's attempt to increase his control over a scarce resource. After a couple of weeks in town, he left again for another trip to his selling area.

I wrote a computer program which models a long distance peddling trip such as I just described. The program is an interactive game, meaning that a player and the computer communicate with each other in an evolving process. Parts of the process are randomly set by algorithms in the computer program, parts specifically written in, some are set by the player's previous behavior, and some are stochastic, meaning that they are determined by what went before in interaction with a random process. A flowchart showing the structure of the program is given in Figures 5 and 6. The player communicates with the computer through the keyboard of a remote terminal essentially similar to an electric typewriter.

When the game begins the player receives some mules, cash operating capital, and a line of credit for merchandise. He then buys some goods and begins to travel and to sell. The player makes decisions at all stages of the game about the quantity of merchandise to take on a trip, the number of mules to own, the price at which the merchandise is sold, and so on. The computer keeps accounts for him and at periodic intervals

tells the player how he is doing as an economic actor. A sample of the printout that a player would see as he plays is given in Figure 7.

The program is designed to mirror the ethnographic realities I observed in Mexico. For example in the program a player possesses mules before he obtains his merchandise. The number of mules owned thus constrains his ability to buy goods since a penalty is extracted for overloading. It is easy to assume that one can purchase goods first and obtain transportation services second. The real peddlers do adjust the number of mules they own to the quantity of merchandise they can sell in the long run, so that the causality is reversed. In the short run of the individual trip the mules constrain the merchandise, however, and this empirically observed causality is structured into the program.

The game begins by assigning a number of mules to the player. This number varies from one to three (the empirical average is three) and each player can buy more mules if he wishes. A credit ceiling varying around the average of \$150 per mule is then assigned, and the player-peddler can then buy merchandise and set out on his trip. The first decision is to set that day's markup on his goods (see the selling day subroutine in Figure 6). The computer prints out the sales and asks if the player wants to remain another day in that place, go on to another place, or return home.

The game limits the daily sales in each hamlet to an average of about \$18 with a markup of about 35%, which are the average figures I recorded in Chiapas in 1968 and 1970. The limit of sales per hamlet was set from ethnographic data at about \$115.

I had to estimate the mathematical functions which would produce realistic daily rates of sales. A rural family's demand for purchased

goods will increase steadily as time passes since the peddler's last trip, assuming that no other peddler passes by. If the peddler stays away for too long, however, the demand for his goods will decline as the family makes other arrangements--either reverting to a more subsistence dominated strategy or seeking to attract another peddler to include them on his route. The peddler who is interested in maximum income would time his visits so that he arrived at the peak demand point in each hamlet (see Figure 8).

But the peddlers cannot sell at a maximum rate on the very first day they arrive at a hamlet. They may be tired from their travels, and always have to first care for their animals and set themselves up in their living quarters. The rural families are not always prepared to buy merchandise. They must collect debts, initiate exchanges to obtain cash, and finalize their consumption decisions now that the opportunity is actually at hand.

These considerations are reflected in the relation between price and sales, which determines the rate of sales on any day in the program. This relation changes as the player-peddler remains more days in each place. The best sales are achieved on the second day and decline slowly (at each markup) after that.

It would be unrealistic to allow players to sell an identical quantity of goods at the same price at each place. The relation between price and sales is variable in the real world because many factors influence a person's decision to buy goods at each price. Festivals increase sales, and prospective decreases in family income such as sickness may decrease them. The assortment of merchandise that the peddler

presents affects sales because the total attractiveness of the peddler's bundle of goods decreases as the range of choice offered shrinks. The program mirrors this and increases sales by a random factor at each stage of the trip. The increase varies between 0 and 60% during the first ten days, 0 and 40% during the second ten days, and 0 and 20% for the rest. The average sales resulting from these complex algorithms are about the same as the average daily sales I recorded in Chiapas.

The game is simple in its present form, yet students enjoy the challenge of learning how to be a successful peddler. It could be made more realistic by introducing variations in the type of goods sold, by including a difference between cash and credit purchases, or by introducing the possibility of buying farm goods for resale in town. Each empirical refinement would make the game more realistic, yet inexorably longer to play. At present it takes about 20 minutes to play through one "trip," and I am experimenting with empirical refinements which would add the maximum interest for the smallest penalty in playing time.

I mentioned above that long-distance itinerant peddlers are not too different from urban retailers in agrarian societies. Similarities include the fact that sales are intensively bargained, capital is scarce, and both sellers and buyers are poor. All these factors stress techniques which substitute labor for capital. In developing societies seemingly enormous amounts of time and care are lavished upon small amounts and values of goods. Peddlers will set down their bundles, unpack their merchandise, display various goods for fifteen minutes, and sell only pennies worth of ribbon, all with unfailing good nature.

The peddlers frequently discussed the need for great patience in their trade. This sort of behavior does not mean that peddlers and similar retailers are social rather than economic actors, as some observers of agrarian marketing have suggested. It implies that the level of income worth working for in poor societies is often a trivial fraction of the income considered minimal in wealthier societies.

When agrarian tradespeople spend much time socializing with their customers their behavior has the economic effect of stabilizing and regularizing their commercial relationship. Anthropologist Sidney Mintz saw this clearly in his study of Haitian markets (see Peasant Markets, Scientific American, August 1960). The peddler who opens his pack to sell one needle does so in hopes of being invited back to sell clothing for the entire family. His interest is in long-term income rather than immediate profits.

Differences between peddlers and fixed retailers include the fact that the peddlers' variable costs--the expenses directly related to selling--are much larger in proportion to total costs than is the case for fixed retailers. The peddlers' variable costs include transportation (in Chiapas, food and grazing fees for their animals), labor (the wages of hired helpers), and such subsistence costs of the peddler that are in excess of what he would spend at home. Fixed stores must pay rent, which the peddlers avoid. The families who put peddlers up charge basically for their food, since rural families allow visitors to sleep on the floor of their homes for free. Since variable costs are so salient the peddlers keep them as closely tied to income as is possible. In concrete terms the peddlers terminate their trips as soon as sales

begin to slack off, even with relatively large amounts of merchandise left over, in order to return home to restock.

The most important difference between itinerant and fixed (or market-place) retailers lies in the social conditions which govern sales. Peddlers are outsiders. On the one hand they are socially superior to their customers, possessing information about process and products that their customers would have no way of getting. Peddlers are wealthier and better connected to the regional, town-based political system. On the other hand, itinerant peddlers are at the mercy of their customers in many ways. They depend on their customers for food, lodging, and often for protection. In frontier areas without markets or stores, as in Chiapas, this dependence is complete. The peddlers often have to go from door to door asking people to sell them eggs or coffee for their meals. In case of disputes, where violence may be threatened, the peddlers are at the disadvantage. The customers are surrounded by their kith and kin while the peddlers are outsiders.

The immediate conditions of sale for itinerant peddlers are extremely different from those of market-place or fixed-store sellers. When itinerants sell in the homes of their customers in contrast to street selling, the customers cannot witness other similar sales. This places them in a weak position in bargaining, since they cannot rely on the experience of similar sales to help them establish prices. Customers of itinerants discuss prices with friends and relatives, but their knowledge of current prices is always imperfect in comparison with the knowledge available to a market place consumer. The convenience of being able to buy goods in one's own home thus brings with it a potential disadvantage in bargaining. This places a great premium upon the

introduction of new innovative goods. Knowledge of a new good's price will spread slowly in the hinterlands, and peddlers will have a relatively extended period during which they can claim an expensive price for new articles. Peddlers have often been called "cultural brokers" in the anthropological literature, and this "price-of-ignorance" is the economic justification for their innovations.

Can it be said, in general, that long distance itinerant peddlers exploit their customers? Do peddlers use their greater knowledge to extract undeserved profits from their naive rural customers? I believe it is significant that the exploitation I observed in Chiapas had more to do with the stratified, bi-ethnic nature of the society than it did with the economics of itinerant peddling.

My interest in the question of economic exploitation was sparked by other anthropologists in Chiapas who were studying Indian cultures. These anthropologists repeated the accusations of exploitation that they had read before, and that their Indian informants (who lived close to the town and did not deal with peddlers) reported. To these anthropologists the peddlers were parasites. Yet I knew the peddlers as individuals working hard to make a living, and providing a service that was valued by their customers. Some peddlers were cruel, some were kind, some rapacious, some altruistic -- I could see no clear way to accept the judgement of my anthropological colleagues.

Since then I have realized that three types of relationships must be distinguished and considered separately in evaluating the equity of an economic exchange. In the first place the terms of trade of an exchange determines its fairness. The general level of income of one party to an exchange may be much higher than that of the other, and this differential

may be supported by the exchange. This is possible even though the price charged is the fair, competitive market price, since the society may have set the market price to the disadvantage of one party. For example in Chiapas the peddlers, like all Ladinos, enjoy higher monetary incomes and more governmental services than Indians. Merely by virtue of their Ladino birth the peddlers possess higher social political, and economic standing, since the terms of trade in the region are set in favor of Ladinos to the disadvantage of Indians.

If a peddler were to charge less than the competitive price for his goods he would in effect be transferring income from his family to his customers. Can peddlers' families afford to lose this income? What is the relevant standard of comparison for the level of living of a peddler's family? This introduces the second relationship: The comparison of the peddlers' income with the income the peddlers could earn if they did not peddle and worked at their best alternative occupation -- the "opportunity cost" of peddling. If the peddlers earned less than other people essentially similar to them -- people of the same socioeconomic background, with the same level of training, possession of capital, and propensity to work -- then even though the peddlers were earning more than their customers they would not be doing well by their own standards. The most relevant comparison groups for peddlers are the petty artisans of San Cristobal. These carpenters, iron-workers, leather-workers, masons, and fire-works specialists all lived slightly above the general life-style of the peddlers. In 1970 there were few peddlers whose homes had piped water; about half lived in dirt-floored homes; not one street in their neighborhood was paved; and the average income of a sample of peddlers for whom I was able to calculate this figure was about 10,300 Pesos (\$824 U.S.) annually. For

comparison, the lowest level of elementary school teacher in the area, who had about the equivalent of a high school education, earned from 10,800 to 14,000 Pesos (\$864 to 1,120 U.S.). School teachers also received valuable social services, such as health insurance and special prices in government retail stores, which significantly increased their incomes.

Peddlers also relate themselves to other Ladinos who live in wealthy neighborhoods in the center of town, since they are all Ladino rather than Indian. There are Ladinos of enormous wealth in San Cristobal. Some own large ranches, drive expensive cars, and send their children to European schools. As far as the peddlers are concerned, they are on the bottom of their own social group.

Social distinctions exist in Indian society as well, but the range of difference is smaller. The richest Indian does not live in another realm entirely from the poorest Indian. I often felt that the economically poorer Indians were psychologically better off than the richer Ladino peddlers. The Indians were integrated into their immediate society and were socially rewarded by their peers for their Indianness. The peddlers, on the other hand, often felt left out of the larger Ladino world. I wish to be clear that I do not consider this psychological difference to justify the economic inequality. A better world would raise the Indians (and the poorer Ladinos) to a higher economic level, and would raise the Ladinos (and the marginal Indians) to a more integrated, emotionally healthy psychological level.

In Chiapas the terms of trade are against the Indians yet the peddlers live no better, and frequently worse than their relevant peers. Why don't the peddlers earn more profit? This brings up the third relationship, which is the comparison of the costs of productive factors with their yields.

If the peddlers faced competition their yields would be similar to their costs. For example the peddlers use capital in their business which they can borrow at set rates, or potentially loan out to others. If capital yields much more than it costs, this "excess income" would be the peddlers' profit. The average peddler used about 7376 Pesos of capital (\$590 U.S.) per trip in 1970 to buy merchandise mainly on credit and farm goods for resale, pay business expenses, etc. The average net income was about 1342 Pesos (\$107 U.S.) for trips of about thirty days travelling duration. Thus peddlers earned a net income of eighteen cents for every dollar they employed in their business. If their net income is expressed as a percent of their gross sales it comes out to about sixteen percent.

The economic exercise of disentangling the separate effects of various factors of production which interact to form a single total product is quite complex. It is founded on the statistical technique known as multiple regression. Based on the best evidence I have, which is fairly complete statistical data for about fifty itinerant peddling trips, I estimated the marginal product of capital on peddling trips to be about .25, while the opportunity cost of the peddlers' capital was about .36. Given the small sample size and the fact that the data is based on individual interviews rather than aggregate statistics, these two figures are not out of line. Peddling skills are not directly transferable to other occupations since a large part of the ability is specific knowledge of trails and people. Thus it was not possible to complete the economic exercise by comparing the product of the peddlers' ability with its cost.

We can not conclude from this evidence that the peddlers are earning excessive profits. The evidence suggests the contrary, that they face

sufficient competition to insure that their incomes are similar to those of their peers. The basic structure of the society favors Ladinos over Indians, but long-distance itinerant peddling as an occupation does not seem uniquely exploitative. My reading of the comparative literature supports this point of view. In agrarian societies in general, the standard of living of peddlers is low enough so that the relation between peddlers and their peasant customers may better be characterized as symbiosis than exploitation.

MAP 1

The zone of viable long-distance itinerant peddling as of about 1970. At present the area directly to the North of San Cristobal de Las Casas is exploited by few peddlers. About fifty years ago the zone was almost donut shaped, excluding only the direct hinterland of Tuxtla Gutierrez, the state capital. Since then the towns to the North, in the state of Tabasco, have expanded their importance due to their position on a major railway link between central Mexico and the Yucatan peninsula. The construction of the Pan American highway in the 1950's then made peddling unprofitable to the South, in the tropical hot country Grijalva River valley. Residents of this area obtained direct motor access to the state capital on feeder roads (the dam shown in this valley is still under construction). The peddling trip described in the text is shown on the map in red.

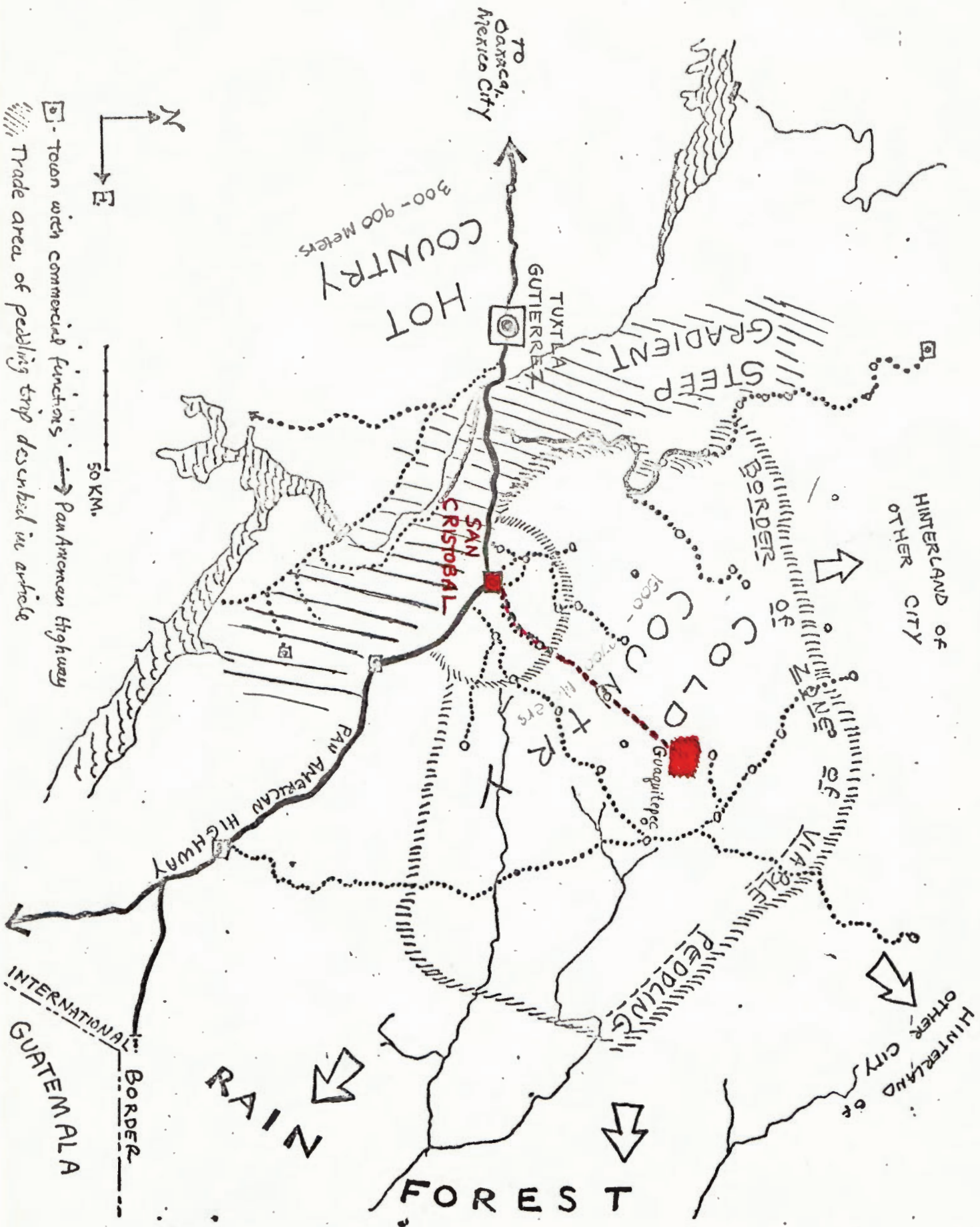


Figure 1.

The price of a good is defined here as its price (p) at a retail outlet plus its transport cost to the home of the consumer. If the consumer lives at distance (d) from the center and the cost of transport is (t) times the distance then the total cost to the consumer would be ($p + td$). If consumers buy less merchandise as the price increases then the effective demand for a good decreases as distance from the retail outlet increases. This is shown in B, above, where a "spatial demand cone" is drawn surrounding (o), a central point providing retail services. These figures are redrawn with permission from Brian Berry's book "Geography of Market Centers and Retail Distribution" (Prentice-Hall, 1967).

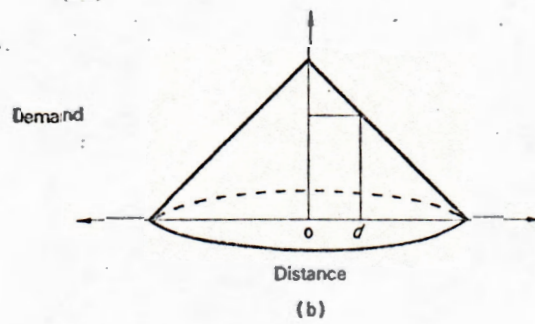
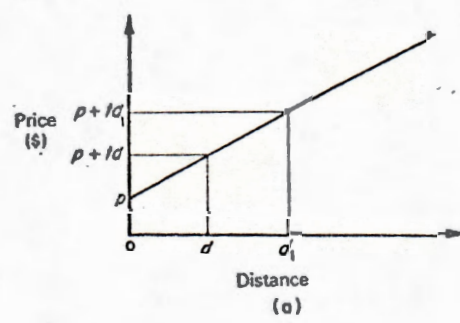


FIGURE 1

Figure 2.

The heavy circles represent the maximum distance a consumer will travel to purchase a good in the center (the "maximum range"). The dashed lines enclose an area containing the minimum number of consumers for the firm to survive in business (the "minimum range"). In the case shown at the top of the Figure the maximum range is smaller than the minimum range and the firm cannot survive. In condition A the firm is able to meet its threshold sales level by becoming mobile and visiting seven locations, each with a small maximum range. In condition B the minimum range has decreased--for example because of decreased costs, increased purchases per consumer or increased population density of consumers. The firm needs only to visit three areas to satisfy its threshold or minimum range. In condition C the minimum range has shrunk to less than the size of the maximum range and the firm is able to fix its location and stay in business. This figure is redrawn with permission from James A. Stine's article on "Temporal Aspects of Tertiary Production Elements in Korea" (Bobbs-Merrill Reprint G-217).

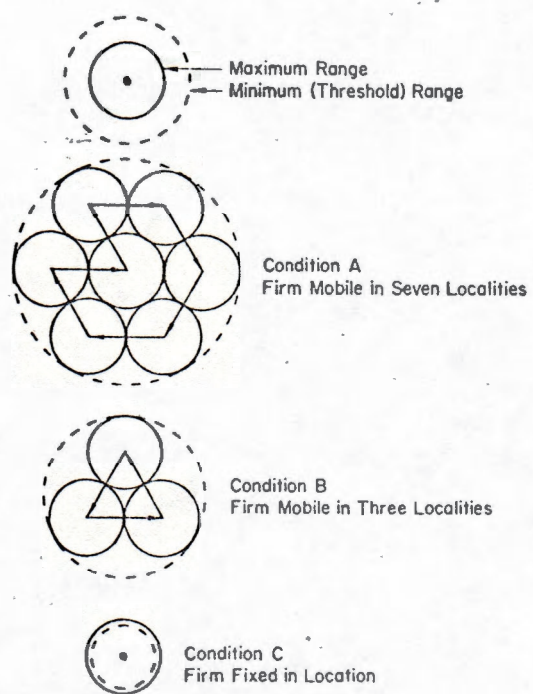


FIGURE 2

Figure 3.

The economic zones shown on the map are here schematized as concentric circles. In the town economic demand per unit area is high, the peddlers' monopoly over supply is nonexistent and their potential income is negligible. As distance from the town increases demand decreases but the peddlers' share of the market and sales increase. The potential income per day from peddling rises above the threshold at some distance from the town and defines the inner boundary of zone B, the area of viable peddling. With increasing distance the commercialization of the farm families and the cost of transport increase so that demand decreases. Even though peddlers may monopolize supply at these distant places, their potential sales remain below the threshold for peddling. Economic development moves the areal demand variable up and to the right while it shifts the monopoly variable down and to the right. The net effect is for zone B to shift further away from the city.

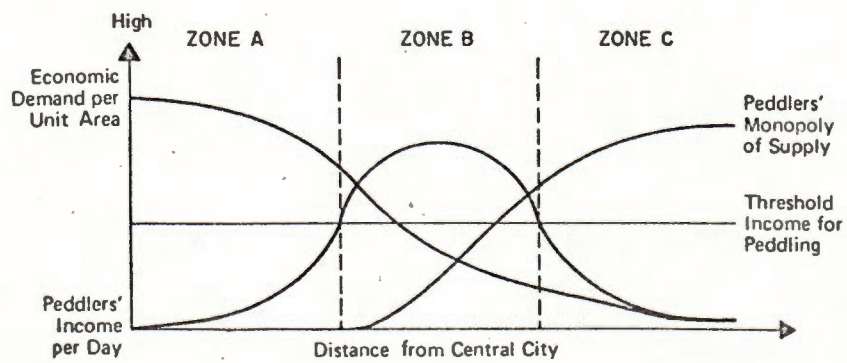
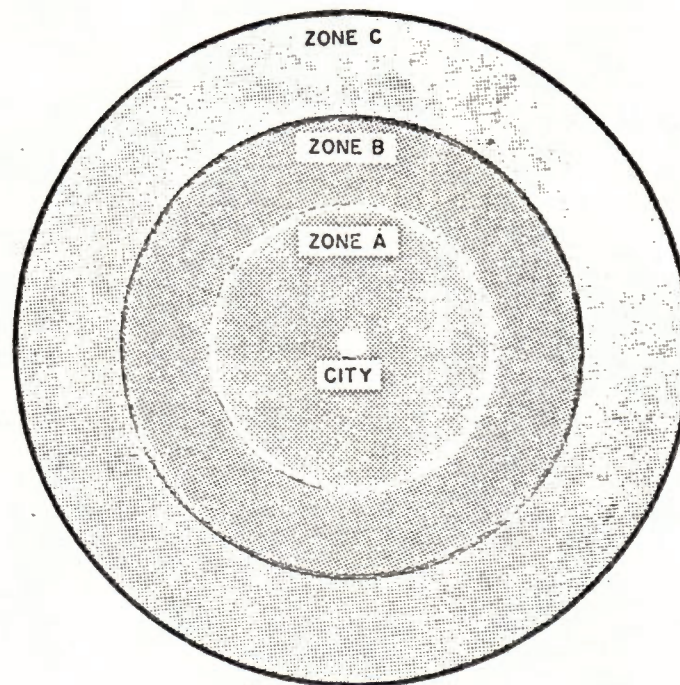


FIGURE 3

Figure 4.

The merchandise of one successful peddling trip of 31 days taken during February 1968. There are 3,730 individual items in 97 separate categories. A rural township center and seven satellite hamlets were visited. Eleven days were spent selling in the center and two or three days in each hamlet. Total sales were 7721 Pesos in 218 separate transactions--the average customer thus bought 35 Pesos worth of goods. About ten percent of the sales were on credit, to be paid in cash during the next trip. At the end of this trip about 1200 Pesos worth of goods (wholesale value, about 17% of the total) were unsold and stored in a safe house in the rural selling area. The peddler bought 28 pigs for an average price of 189 Pesos. The local breed of pig is small and rarely weighs more than 150 pounds at its largest. He drove the pigs back to the city where he and his wife slaughtered them and sold the meat, bones, skin, and lard wholesale to their neighbors who resold the products in the daily city market. The total cost of the pigs, including taxes, extra drivers, food, and feed came to 220 Pesos per pig. The products were sold in 12 days for a total gross income of 279 Pesos per pig. The net income was 1672 Pesos in all. When added to the net income from the sale of merchandise the peddler earned 3188 Pesos in net income over a productive cycle of about 45 days. This comes out to an average daily net income of about 70 Pesos (\$5.60 U.S.), which was approximately ten times the daily wage for an unskilled day laborer at that time. This income is caused by the peddler's investment of his labor time, entrepreneurial ability, capital, mules, and equipment; and by his wife's

investment of her labor time and skill for over two weeks; and by the hired labor of various helpers at different points in the process.

FIGURE 4
MERCHANDISE TAKEN ON ONE PEDDLING TRIP

COMPUTER CARD CODE	WHOLESALE COST	PER UNIT	TOTAL WHOLESALE	RETAIL COST	PER UNIT	TOTAL RETAIL	VALUE	GROSS PROFIT	PROFIT AS PERCENT	OF WHOLESALE COST	COMPUTER CARD CODE
221 4	18.000	72.00	23.00	92.00	20.00	27.78	43 1	COLD OINTMENT	431 25	0.200	5.00
311 10	18.000	180.00	24.00	240.00	60.00	33.33	43 2	OINTMENT	431 1	7.400	7.80
321 15	6.250	93.75	8.50	127.50	31.75	36.00	43 3	OINTMENT	431 10	1.100	1.00
331 5	21.000	105.00	25.00	125.00	20.00	19.00	43 4	BAR SOAP	411 12	1.200	14.40
221 21	10.500	220.50	12.75	267.75	47.25	21.43	43 5	BAR SOAP	411 12	0.700	6.40
221 7	14.500	94.50	18.00	126.00	31.50	33.33	43 6	OINTMENT	431 4	3.200	12.80
221 5	12.000	60.00	15.00	75.00	15.00	25.00	43 7	OINTMENT	431 10	1.000	10.00
221 1	13.500	13.50	18.00	19.00	4.50	33.33	43 8	INSECTICIDE	431 4	4.500	18.00
221 30	2.300	69.00	3.00	90.00	21.00	30.43	43 9	OINTMENT	431 6	2.345	14.07
221 122	2.770	337.94	3.18	387.96	50.02	14.80	43 10	SHIRTS	311 5	8.500	42.50
221 50	2.000	100.00	2.50	125.00	25.00	25.00	43 11	SHIRTS	312 14	8.140	113.96
221 60	2.400	120.00	3.00	150.00	30.00	25.00	43 12	SHIRTS	311 14	10.665	147.59
221 70	2.800	140.00	3.50	175.00	35.00	25.00	43 13	SHIRTS	311 12	5.250	63.00
221 80	3.200	80.00	4.00	100.00	20.00	25.00	43 14	SHIRTS	312 8	1.750	110.00
331 6	15.000	90.00	20.00	120.00	30.00	33.33	43 15	SHIRTS	311 2	14.250	28.50
331 4	50.000	200.00	62.50	250.00	50.00	25.00	43 16	PANTS	301 27	18.000	48.00
331 1	80.000	80.00	100.00	100.00	20.00	25.00	43 17	PANTS	301 12	7.580	90.96
331 2	11.000	22.00	14.00	28.00	6.00	27.27	43 18	PANTS	301 12	5.950	71.40
331 1	50.000	50.00	64.00	64.00	13.40	26.48	43 19	PANTS	301 1	9.800	9.80
331 24	1.833	43.99	2.50	60.00	16.01	36.34	43 20	PENCILS	522 12	0.900	10.80
331 12	0.750	9.00	1.50	18.00	9.00	100.00	43 21	STRAK MATS	772 12	8.333	100.00
431 24	0.625	15.00	0.87	20.88	5.88	39.20	43 22	NEEDLES	512 1	7.000	7.00
511 45	0.833	37.48	1.50	67.50	30.02	80.07	43 23	CON BELL	522 1	9.000	9.00
521 30	0.723	20.03	1.33	47.88	21.65	83.96	43 24	EMBROIDERY THREAD	512 8	4.000	32.00
521 30	3.033	92.49	4.50	135.00	42.51	25.96	43 25	THREAD	512 2	8.500	17.00
301 12	12.500	150.00	16.00	192.00	42.00	28.00	43 26	SATIN RIBBON	502 90	0.333	29.97
301 12	10.500	126.00	14.50	174.00	42.00	38.10	43 27	SATIN RIBBON	502 225	0.155	34.87
301 16	8.500	136.00	12.00	192.00	56.00	41.18	43 28	DETERGENT	411 118	0.814	87.91
301 12	16.000	192.00	20.00	240.00	49.00	25.00	43 29	COOKIES	401 54	0.629	33.97
301 12	6.000	72.00	8.50	102.00	30.00	41.67	43 30	COOKIES	401 2	9.750	12.00
301 12	23.000	276.00	25.50	306.00	30.00	17.87	43 31	MATCHES	411 100	0.194	19.40
221 20	3.500	70.00	5.50	110.00	40.50	37.14	43 32	CANNED SALMON	411 12	1.833	22.00
221 8	15.000	120.00	22.50	180.00	60.00	50.00	43 33	CANNED CHILE	411 12	0.916	10.99
331 6	6.000	36.00	10.00	60.00	20.40	31.52	43 34	HAIR PINS	521 1140	0.010	1.40
331 12	2.920	35.04	4.50	54.00	18.95	54.11	43 35	RAZOR BLADES	521 50	0.240	12.00
331 1	20.000	40.00	25.00	50.00	10.00	20.00	43 36	PINS	521 30	0.083	2.99
331 6	5.500	33.00	7.50	45.00	12.00	36.36	43 37	PINS	521 48	0.041	1.97
331 12	1.000	12.00	1.50	18.00	6.00	50.00	43 38	CANDIES	401 6	4.200	25.20
331 24	2.333	55.99	3.75	90.00	34.01	60.74	43 39	CANDIES	401 1	3.200	3.20
331 12	2.000	24.00	2.50	30.00	6.00	25.00	43 40	SATIN RIBBON	501 117	0.500	56.50
401 200	0.540	8.00	0.10	20.00	12.00	100.00	43 41	SATIN RIBBON	501 144	0.361	51.98
401 200	0.025	5.00	0.05	10.00	5.00	100.00	43 42	SATIN RIBBON	501 756	0.166	125.50
101 50	5.000	250.00	8.50	425.00	175.00	70.00	43 43	SCHOOL PADS	521 1	3.500	3.50
431 30	0.075	22.50	0.10	30.00	7.50	33.33	43 44	ENVELOPES	521 25	0.040	1.00
431 25	0.300	7.50	0.45	11.25	3.75	50.00	43 45	FLASHLIGHT BULBS	521 10	1.000	10.00
431 50	0.500	25.00	0.75	37.50	12.50	70.00	43 46	NOTEBOOKS	521 25	0.450	11.25
431 10	2.950	29.50	4.00	40.00	10.50	35.59	43 47	NOTEBOOKS	521 25	0.450	11.25
431 1	11.650	11.65	22.00	22.00	10.15	85.65	43 48	NOTEBOOKS	521 25	0.170	4.25
431 20	0.350	7.00	0.50	10.00	3.00	42.96	43 49	NOTEBOOKS	521 25	0.170	4.25
431 2	14.400	28.80	16.00	32.00	3.20	11.11	43 50	NOTEBOOKS	521 25	0.170	4.25

Figure 5.

The structure of the simulation game is illustrated in this flowchart. Rectangles indicate routines in the program which do not require direct input from the player; trapezoids are routines which ask the player for an economic decision. The flowchart represents the outline of one trip. Players usually simulate four or five trips in about twenty minutes.

Figure 6.

The selling day subroutine is the heart of the program. Here the player sets his markup and prices and discovers his gross sales. The two trapezoids in the middle of this flowchart do not represent direct input from the player as in Figure 5. Here they are branches where the action of the program may flow in either direction.

Figure 7.

A sample run of the simulation game program. This represents one trip of 17 days duration.

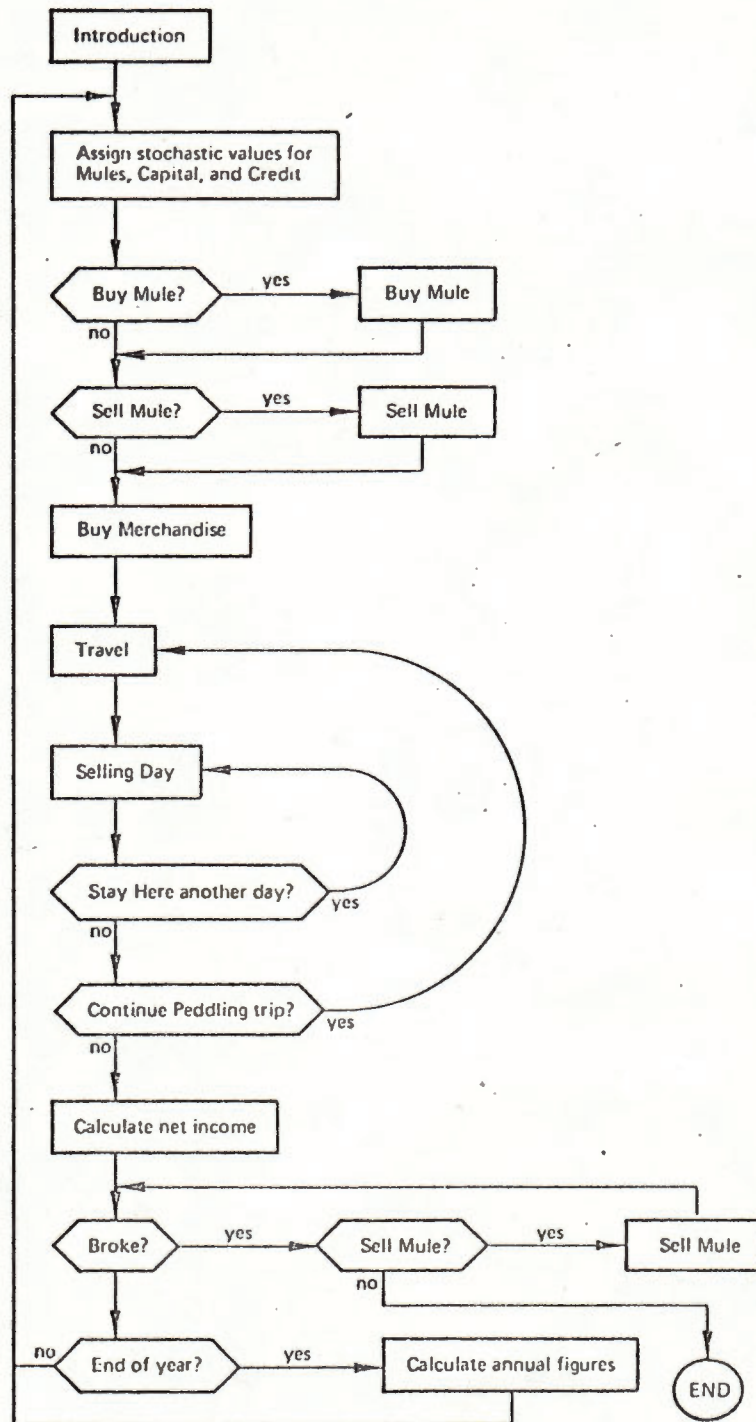


Figure 5. Flowchart of the program.

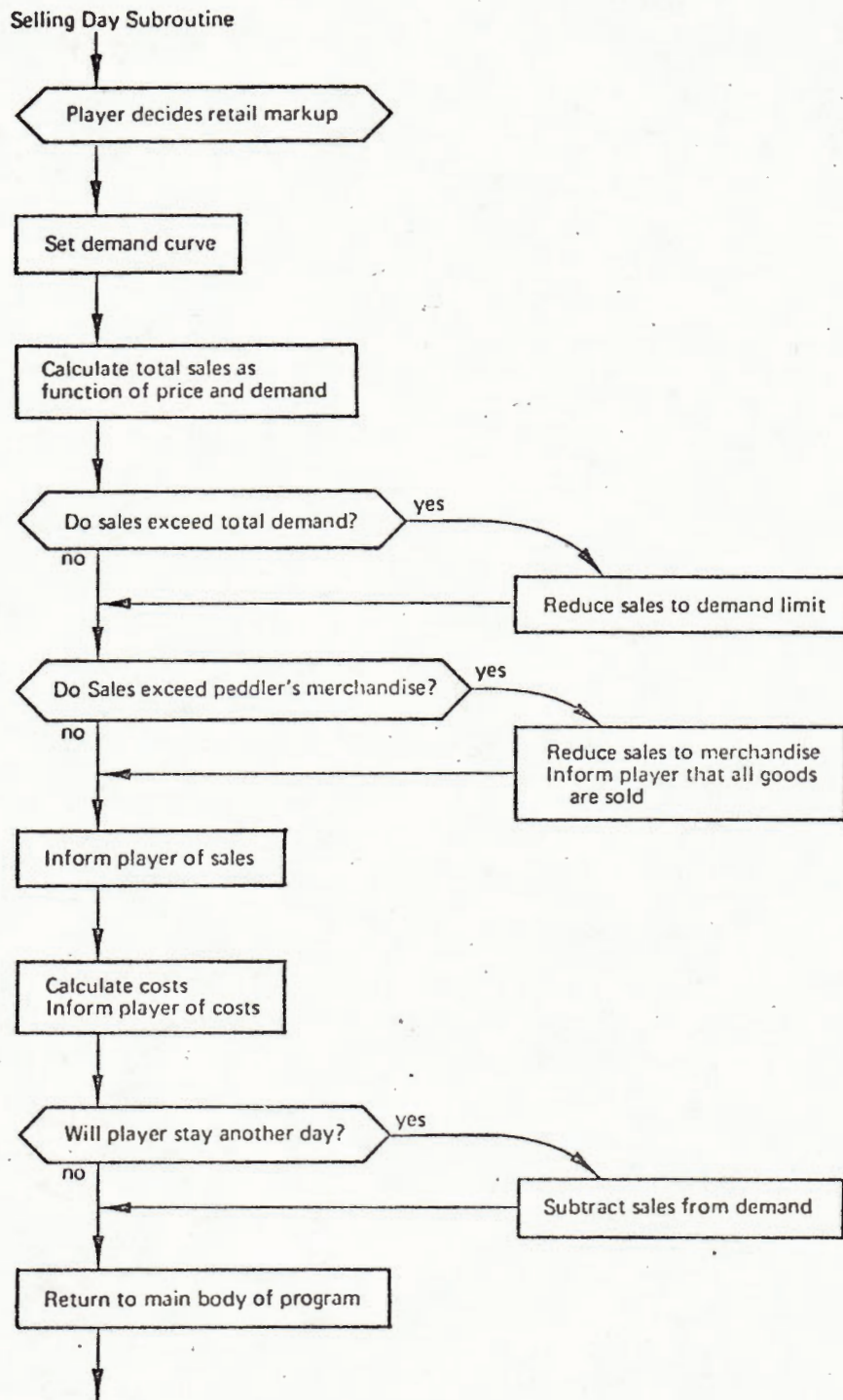


Figure 6 Flowchart of the selling day subroutine.

FIGURE 7

Printout From a Sample Run of the Program

run

HELLO NEW PEDDLER

TYPE 1 FOR GENERAL INFORMATION OR 0 TO BEGIN YOUR TRIP IMMEDIATELY
? 1

YOU EARN YOUR LIVING PEDDLING CLOTHING AND NOTIONS TO MEXICAN INDIAN SUBSISTENCE FARMERS
YOUR CUSTOMERS RAISE CORN, BEANS, CHICKENS, AND PIGS
THEY LIVE IN TINY RURAL HAMLETS WITHOUT PAVED ROADS, MARKETS OR STORES

YOU USE MULES TO TRANSPORT YOUR GOODS FROM YOUR HOME CITY TO YOUR SELLING AREA
ON YOUR TRIP YOU SELL YOUR GOODS FROM DOOR TO DOOR IN VARIOUS HAMLETS
THE ONLY OTHER OPPORTUNITY OPEN TO YOU IS WAGE LABOR AT 65 CENTS PER DAY

TO END YOUR TRIP HIT THE ATTN KEY OF A 2741 OR TYPE 0 WHEN ASKED TO BUY MERCHANDISE
IF YOU END YOUR TRIP WITH UNSOLD CREDIT MERCHANDISE YOU WILL BE CHARGED 10% INTEREST
IF YOU BUY SOMETHING FOR 10 AND SELL IT FOR 15, THE MARKUP IS DEFINED AS 50 PERCENT

REMEMBER PEOPLE BUY MORE WHEN YOU CHARGE LESS.
BUT YOUR MARKUP MUST COVER YOUR COSTS AND SUPPORT YOUR FAMILY
READY TO TRY YOUR LUCK AT PEDDLING?

YOU HAVE CREDIT FOR GOODS WORTH \$154 IN YOUR MERCHANDISE SUPPLY STORES
YOU HAVE \$50.00 OF CASH CAPITAL TO USE
YOU OWN 1 MULES
TYPE THE NUMBER OF DOLLARS WORTH OF MERCHANDISE YOU WILL BUY FOR YOUR TRIP
? 150

AFTER 3 DAYS OF TRAVEL YOU ARRIVE AT ALTAMIRANO

IT IS DAY 1 AT ALTAMIRANO PLEASE TYPE TODAY'S RETAIL MARKUP
? 90

YOU SOLD \$0.03 OF YOUR GOODS FOR A GROSS SALES INCOME OF \$0.05. TOTAL SALES SO FAR ARE \$0.05
YOUR COSTS TODAY WERE \$0.77. YOUR TOTAL COSTS SO FAR ARE \$2.27
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 1

IT IS DAY 2 AT ALTAMIRANO PLEASE TYPE TODAY'S RETAIL MARKUP
? 90
GOODS SOLD = \$0.41 GROSS SALES = \$0.78 TOTAL SALES = \$0.83
COSTS = \$0.79 TOTAL COSTS = \$3.06
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 0

YOU SOLD \$0.44 (WHOLESALE PRICE) IN 5 DAYS SO FAR
TYPE A 1 TO GO ON OR A 0 TO RETURN HOME
? 1

AFTER 1 DAYS OF TRAVEL YOU ARRIVE AT BACHAJON

IT IS DAY 1 AT BACHAJON PLEASE TYPE TODAY'S RETAIL MARKUP
? 40
GOODS SOLD = \$7.10 GROSS SALES = \$9.94 TOTAL SALES = \$10.77
COSTS = \$.97 TOTAL COSTS = \$4.03
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 1

IT IS DAY 2 AT BACHAJON PLEASE TYPE TODAY'S RETAIL MARKUP
? 40

GOODS SOLD = \$21.02 GROSS SALES = \$29.42 TOTAL SALES = \$40.20
COSTS = \$1.36 TOTAL COSTS = \$5.39
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 1

IT IS DAY 3 AT BACHAJON PLEASE TYPE TODAY'S RETAIL MARKUP
? 40

GOODS SOLD = \$8.77 GROSS SALES = \$12.28 TOTAL SALES = \$52.48
COSTS = \$1.02 TOTAL COSTS = \$6.40
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 0

YOU SOLD \$37.33 (WHOLESALE PRICE) IN 9 DAYS SO FAR
TYPE A 1 TO GO ON OR A 0 TO RETURN HOME
? 1

AFTER 1 DAYS OF TRAVEL YOU ARRIVE AT YAJALON

IT IS DAY 1 AT YAJALON PLEASE TYPE TODAY'S RETAIL MARKUP
? 20

GOODS SOLD = \$26.03 GROSS SALES = \$31.57 TOTAL SALES = \$84.04
COSTS = \$1.40 TOTAL COSTS = \$7.81
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 1

IT IS DAY 2 AT YAJALON PLEASE TYPE TODAY'S RETAIL MARKUP
? 20
GOODS SOLD = \$34.10 GROSS SALES = \$40.91 TOTAL SALES = \$124.96
COSTS = \$1.59 TOTAL COSTS = \$9.40
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 1

IT IS DAY 3 AT YAJALON PLEASE TYPE TODAY'S RETAIL MARKUP
? 10
GOODS SOLD = \$38.65 GROSS SALES = \$42.52 TOTAL SALES = \$167.48
COSTS = \$1.62 TOTAL COSTS = \$11.02
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 1

IT IS DAY 4 AT YAJALON PLEASE TYPE TODAY'S RETAIL MARKUP
? 10
THE POOR PEOPLE IN YAJALON HAVE NO MORE CASH TO SPEND NOW
GOODS SOLD = \$0.00 GROSS SALES = \$0.00 TOTAL SALES = \$167.48
COSTS = \$0.77 TOTAL COSTS = \$11.79
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 0

YOU SOLD \$136.38 (WHOLESALE PRICE) IN 14 DAYS SO FAR
TYPE A 1 TO GO ON OR A 0 TO RETURN HOME
? 1

AFTER 1 DAYS OF TRAVEL YOU ARRIVE AT OCOSINGO

IT IS DAY 1 AT OCOSINGO PLEASE TYPE TODAY'S RETAIL MARKUP
? 60
GOODS SOLD = \$1.84 GROSS SALES = \$2.63 TOTAL SALES = \$170.11
COSTS = \$0.82 TOTAL COSTS = \$12.61
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 1

IT IS DAY 2 AT OCOSINGO PLEASE TYPE TODAY'S RETAIL MARKUP
? 60
GOODS SOLD = \$5.61 GROSS SALES = \$8.98 TOTAL SALES = \$179.09
COSTS = \$0.95 TOTAL COSTS = \$13.56
PLEASE TYPE 1 TO STAY OR 0 TO GO
? 0

YOU SOLD \$143.64 (WHOLESALE PRICE) 17 DAYS SO FAR
TYPE A 1 TO GO ON OR A 0 TO RETURN HOME
? 0
YOU MUST PAY \$0.64 INTEREST ON YOUR UNSOLD CREDIT GOODS OF \$6.36

END-OF-TRIP SUMMARY DATA TABLE

CASH ON HAND = \$70.25 NET INCOME FROM THIS TRIP = \$20.25 CREDIT DEBT = \$6.36

WHILE YOU WERE GONE, YOUR FAMILY SPENT \$18.51 FOR THEIR SUBSISTENCE
AFTER SPENDING 3 DAYS IN TOWN PREPARING, YOU ARE READY TO GO ON ANOTHER TRIP
YOU HAVE CREDIT FOR GOODS WORTH \$177 IN YOUR MERCHANDISE SUPPLY STORES
YOU HAVE \$51.74 OF CASH CAPITAL TO USE
YOU OWN 1 MULES

Figure 8.

Model of the demand and sales on a route where the peddler visits three hamlets on a thirty day cycle. He leaves his home on day one and begins selling in the first hamlet on day five (large dots). By day nine sales have declined enough to cause him to shift to the second hamlet where he begins selling by day ten. By day fifteen he has sold enough in the third hamlet and returns home. His monopolistic position as one of the few--or the only seller to arrive at each hamlet enables him to enforce a periodic regime of sales. This allows him to obtain an average volume of sales, on those days of the month when he is selling, high enough to meet his monthly net income threshold (dash-dot horizontal at the bottom of the Figure). If net income shows promise of falling below this minimum for a significant amount of time the peddler would change occupations. In the Figure the gross sales during the fifteen day selling period yield a total income of 9000 Pesos (\$720 U.S.). At the average observed rate of sixteen percent net (see text) this yields 1440 Pesos (\$115 U.S.), or 48 Pesos (almost \$4.00 U.S.) per day. This was a respectable income for a long-distance itinerant peddler in 1970. Note that this net income includes the yields of the peddler's personal labor time, skills, capital, cargo animals, hired hands, and everything else that contributes to his income. Note also that the peddler's customers see him earning gross incomes ranging from 700 to 400 Pesos (\$56 to \$32 U.S.) per day. They can not know that these gross sales reduce to the monthly figure of 48 Pesos per day.

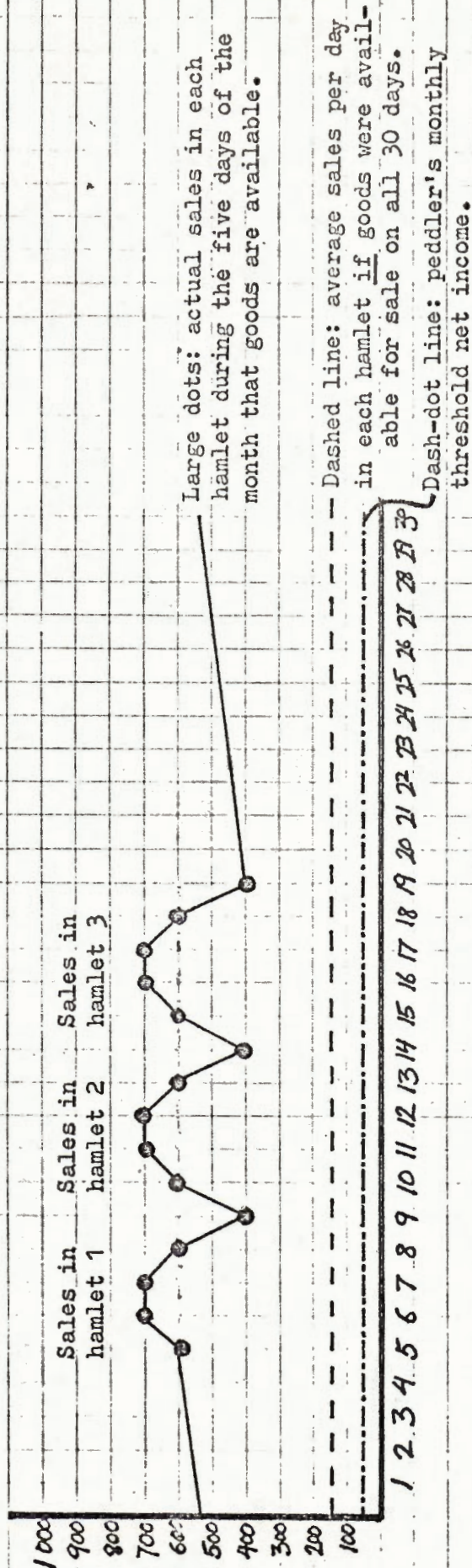


FIGURE 8. DEMAND AND SALES IN THREE HAMLETS.