

Subcontracting in Rural
Areas of Thailand

by

Donald C. Mead

Working Paper No. 4

1982

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*This paper has been developed and published as part of Michigan State University's Off-Farm Employment Project, which is financed by the Office of Multi-Sector Development, Bureau of Science and Technology, U.S. Agency for International Development (AID/ta-CA-2). The author acknowledges with thanks the many exchanges of views with researchers of the Rural Off-Farm Employment Assessment Project at Kasetsart University. Thanks are also due to Paul Strassmann and Steve Haggblade for a careful reading of an earlier draft. Of course none of these is implicated for remaining mistakes.

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Foreword

This paper is one of a series of reports produced by Michigan State University's Off-Farm Employment Project. The project, which is funded by the Office of Multi-Sectoral Development, Bureau of Science and Technology, U.S. Agency for International Development, has the basic purpose of enhancing the ability of AID missions and host country institutions to identify and implement programs and policies that generate off-farm employment and income opportunities benefiting the rural poor. One of the major components of the project is the generation of new knowledge relating to off-farm activities. In collaboration with host country institutions and AID missions, detailed field surveys of small-scale enterprises have been conducted in such countries as Egypt, Jamaica, Honduras, and Thailand; the results of these studies will be published in this series. A second component of the project involves the marshalling and dissemination of existing knowledge of off-farm activities. A state-of-knowledge paper has already been produced; in addition, special studies relating to off-farm activities will continue to appear in this series. Previously completed studies in this area currently available through the Off-Farm Employment Project include:

1. Carl Liedholm, "Research on Employment in the Rural Non-Farm Sector in Africa," African Rural Economy Paper No. 5, 1973.
2. Carl Liedholm and Enyinna Chuta, "The Economics of Rural and Urban Small-Scale Industries in Sierra Leone," African Rural Economy Paper No. 14, 1974.

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Paper No. 4., 1982.

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I. INTRODUCTION

It is a widespread characteristic of the production process around the world that many firms participate in making any single product. One producer does not usually grow rice, mill it, and then make it into noodles; each of these steps is generally undertaken by separate firms, linked together through the market. Those market links might be impersonal, as when a producer buys rice of a certain standard from a large merchant; or they might be highly personalized, based on continuing understandings or contractual arrangements between individual buyers and sellers.

Such contractual arrangements can take a variety of forms. In some cases, these may involve an agreement to buy parts or semi-finished products, with the product specification, price, and delivery schedule all agreed upon ahead of time. The buyer may then assemble or further process these purchased inputs for sale either to final consumers, to merchants, or to other producers. This type of arrangement, which is often referred to as subcontracting, has been widely practiced in a variety of industries and countries, but is most fully developed in Japan; as much as one third of the Japanese manufacturing labor force may have been employed by subcontractors in the mid-1960s.¹

The focus of this study is somewhat narrower. It concerns an arrangement whereby a producer undertakes to have certain steps in the production process done by individuals working in their own homes. The producer in the parent

¹S. Watanbe, "Subcontracting, Industrialization and Employment Creation," International Labor Review, Vol. 104, No. 1-2 (July-August, 1971), pp. 52-53. Watanbe has written extensively in this area; these papers are being revised and expanded for publication in a book, Technology, Marketing and Industrialization: Linkages Between Large and Small Enterprises (New Delhi: MacMillan, forthcoming).

firm provides the raw materials and sometimes the necessary tools and equipment, paying on a per-piece basis for work completed. This pattern was widely practiced in Europe and North America during the early years of the industrial revolution; it is usually referred to as the "putting-out system."

This system is widely used in rural Thailand today. In a recent study of patterns of industrialization in rural areas of Northern and North-Eastern Thailand, subcontracting arrangements were extensively found in the production of ready-made garments, silk, woodcarving, furniture, fish nets, knitting, lacquerware, and metal bowls.

This paper provides a brief description of how this system operates in each of four different industries; presents some survey data on people engaged in subcontracting work; then seeks to evaluate this subcontracting system, to determine its advantages and disadvantages, potential abuses and possible measures to improve its operation.

II. THE SUBCONTRACTING SYSTEM IN FOUR INDUSTRIES

2.1. Ready-made Garments

Subcontracting is practiced in the production of several different products in the ready-made garment industry; the one discussed here involves the embroidery of dresses and blouses. A number of clothing manufacturers in Chiang Mai province in Northern Thailand produce embroidered clothing, making use of subcontracting. These firms generally cut cloth and sew blouses or dresses in their own factory; the pieces are then sent to households in surrounding villages for embroidery. The final steps of inspecting, ironing, and packing for shipment are done in the factory. Thus it is only the embroidery work which is subcontracted.

The relationship between the parent firm and the village sewer is handled by agents. A large firm may have 10-20 agents, each of whom in turn supplies work to anywhere between 10 and 50 households. The number of households doing work for an individual firm, then, may reach 500, and is often five to ten times the number of workers employed in the factory itself.

The agents play a key role in this arrangement. They generally live in a village, and choose the households to whom they will supply work on the basis of their knowledge of the dependability and skills of their neighbors. The agents are responsible for transporting the pieces from the factory to the village; for distributing them to the households; later, for collecting products back to the factory. The agents give detailed instructions to the villagers as to how the work is to be done, sometimes also providing training for new workers.

Producers generally start with a few agents (2 or 3), each with only a small number of households to work with, expanding the number of households handled by each agent as they become more confident of the agent's reliability and supervisory abilities, expanding the number of agents as more can be found. It is often a process of slow growth. The agent usually receives $\text{฿ } 1-2$ for each piece of embroidery done under his or her supervision, which is 10-15% of the total amount paid by the parent firm for this embroidery work.²

Of the villagers interviewed who are engaged in this type of work, some work only 1-2 hours per day, while others put in a full 8-9 hours. Virtually all cut back sharply on their embroidery work during planting and harvesting seasons. The pay is on a piece-work basis; when converted to an hourly rate, it implies a return of between $\text{฿ } 1$ and $\text{฿ } 2.5$ per hour, depending on the skill of the worker, the employer, and the particular product they are asked to work on that week;³ returns per hour differ substantially between products, and the worker has no choice: she must work on what is given. All of the household workers interviewed were women, mostly age 20-30.

For a medium-priced dress, the raw material costs may amount to 60% of the wholesale price; cutting and sewing 15%, and embroidery an additional 12-15%, with the remainder for overhead costs and profits.

²For many years, the Baht (฿) has been held at approximately $\text{฿ } 20 = \text{US\$ } 1$, so $\text{฿ } 1 = \text{US\$ } 0.05$.

³For comparative purposes, the minimum wage for North and North-Eastern Thailand was set at $\text{฿ } 44$ per day in October 1980. This figure had been only $\text{฿ } 19$ until August 1978, when it was raised to $\text{฿ } 25$; in September 1979, it was again increased to $\text{฿ } 35$. The 130% increase in 26 months (August 1978 to October 1980) was largely a reflection of political forces at work during this period, and bore little relationship to the underlying economic realities. The consumer price index for North and North-Eastern Thailand rose by 30-35% over this same period.

The level of pay per piece in 1981 was approximately double the level which the employers recalled for five years earlier. The reasons given for this increase in pay are threefold. a) There has been some change in the fineness of the embroidering being done; it now takes more time, and hence earns higher pay per piece. b) Inflation is a fact of life in rural Thailand, as in the rest of the world. There is no satisfactory measure of the rate of increase in village prices; in urban areas of Thailand, the consumer price index rose by approximately 70% over this five-year period. c) With improving alternative income-earning opportunities, villagers have been unwilling to work for the previous wage rates.

The seasonal variation in the availability of workers is a source of frustration to owners of the firms. Some increase the pay per piece during planting and harvesting seasons, to try to counter the competing claims on workers' time. One employer reported that, by increasing her payment per piece by about 25% during planting and harvesting seasons, she is able to get all the workers she needs, even during those periods. On the whole, though, considerable variation remains in employment levels. One producer probably spoke for many when she said, "it is not a question of how many pieces are sent out, but of how quickly they come back;" the process goes much more slowly during peak agricultural seasons, when people have other work to do which has a higher priority for them.

This seasonal variation is inconvenient for the entrepreneur; but the number of workers in the workshop (those who cut and sew the dresses) also drops during planting and harvesting seasons, since these people are also needed in the fields; the different parts of the production process remain more or less in balance. Underutilization of machinery and equipment

(e.g., sewing machines) as well as reduced work loads for the supervisors is a small price to pay for the opportunity for people to work in agriculture when they are needed there, but to have useful paid employment outside of agriculture during other periods of the year.

2.2. Knitting

Knitting firms differ from ready-made garment producers in that the production of a complete knitted sweater is done within the village household. The production process is very simple, making use of hand-operated knitting machines. In the past there were a number of urban workshops where workers sat together operating these machines; in recent years these workshops have all been closed and the production shifted to small town and village producers, working as subcontractors within the household.

The demand for sweaters is highly seasonal, being heavily concentrated in the month of December (the beginning of the "cold season" in the North of Thailand and surrounding areas). Production is generally limited to the three months immediately before that. This corresponds with periods of medium and heavy demand for labor in agriculture (caring for crops, then harvesting). In order to get householders to knit during this period, the piece-work pay rate generally increases as December approaches. Pay for knitting one baby sweater in August is ฿ 1.50-2.50 depending on the sweater size and employer; at the end of the year, each figure is raised by about ฿ 0.50. It reportedly takes 30-50 minutes to knit one baby sweater, implying a return per hour of about ฿ 3 at the beginning of the season and ฿ 3.60-4 during December. For adult's sweaters, the pay is ฿ 4-5 per piece at the beginning of the season. One parent firm reported paying as much as ฿ 12 per sweater in December;

a more usual increase seems to be approximately $\text{B } 1$ per piece higher than at the start of the season. The amount of time required to make an adult's sweater ranges from 1.4-2 hours, averaging about 1.5 hours per piece. For adult sweaters, then, the pay for knitting is about $\text{B } 2.50-3$ per hour of work at the beginning of the season, and about $\text{B } 0.50$ more per hour at the end.

This pay is the return to the worker as well as to her machine; the knitting machines are almost universally owned by the household producer. A new machine costs $\text{B } 3-4,000$; a used one, about $\text{B } 1,500$. Most workers prefer to buy used machines, and to pay cash; although credit is available, interest charges are high. Used machines are readily available, because of the closing down of several knitting factories in Chiang Mai.

The approximate cost-breakdown for an adult's sweater is as follows:

Cost of yarn	$\text{B } 27.50$
Cost of knitting	$\text{B } 5-6$
Wholesale price of sweater	$\text{B } 35-38$

In the case of both the cost of knitting (done by the subcontractor) and the sales price of the sweater, the first figure is for the preseason period (August-September); the second figure refers to December. Out of the knitting cost, the agent's fee is about $\text{B } 0.50$ for an adult's sweater, $\text{B } 0.25$ for a child's.

One of the parent firms interviewed operates by selling yarn to some of his agents rather than advancing it to them. The agent then sells the finished sweaters to whoever offers him the highest price, which may be the firm from which he obtained the yarn or may be another buyer. This has the effect of shifting the financing of the production process from the parent

firm to the agent. The parent firm owner indicated that this arrangement helped him out of a difficult financial squeeze (he had previously been short of working capital); but he complained about the fact that his profits were lower. He prefers to organize the work on a subcontracting basis if he can find the working capital to finance it.

The overall future of the sweater industry is not bright. Demand fluctuates widely from year to year, depending on the weather. Tastes are reported to be shifting away from the acrylic, machine-knitted sweaters discussed here. The industry expanded rapidly some 5-8 years ago; pay to workers for knitting a sweater was then as much as twice what it is today. The high pay was reported to be necessary to provide an incentive for people to learn the new skill and to invest in knitting machines. Since then, with the demand for sweaters (and hence knitters) stagnating, knitting households find themselves with a nontransferable investment (in the machine); they take what they can get for their work. They are disappointed that rates of pay have declined, compared to 5 years earlier; but they say that they (and other households around them) would be glad to expand their levels of production, at current rates of pay, if there were opportunities to do so. In view of the depressed market for sweaters, the parent firms choose to send out only limited quantities of yarn for knitting, so the demand for workers is limited.

2.3. Fish Nets

The fish net industry is a complex one. Nets come in a variety of sizes and shapes, and are produced in a variety of different ways. The making of nets is a traditional village craft in Thailand; men and women have for generations made nets for household use as well as for sale in

their own and neighboring villages. Beyond this, there is a long tradition of buying factory-made netting, which comes in a single piece 30 or more meters long and 1-2 meters wide; this netting is then cut, joined, and finished for use by fishermen. There are distinct local differences, by province and district, concerning preferred sizes, shapes, types of floats and weights, etc.

As suggested above, nets can be made by hand by villagers, starting from string; alternatively, they can be made by joining together pieces of factory-made netting. Subcontracting is practiced in each of these two approaches. In the case of hand-made nets, the subcontracting may take the form of work for another villager; one villager may bring string, giving it to another householder in the same or a neighboring village to weave into a net, with a cash payment for the work. Alternatively, the subcontracting may be done for a merchant in town, who supplies the string and pays a householder to tie it as a net. Some designs of nets are reportedly made only in this way. Other designs can be made either by hand or by joining together the factory netting; in this case, the hand-made nets are generally of higher quality than the products made with factory netting, but are also 10-20% more expensive; for that reason, as well as because of their ready availability on demand, the factory-made products are rapidly increasing their share of the market.

The pay for making a hand-made net (labor cost only) ranges from ₤ 250-400 per net, depending on the type and size. A large net takes nearly a month to complete, yielding a return to the worker of slightly less than ₤ 3 per hour. Pay for the cheaper products implied returns of only about ₤ 2 per hour. Producers interviewed reported doing this work only occasionally

during the dry season. With the exception of nets made only by hand for commercial buyers, it seems that this fully hand-made production pattern is on its way out.

The major alternative source of supply of finished nets makes use of netting from a factory, assembled into finished products by village workers. Some villagers do this on their own, buying the netting themselves, finishing the net and selling it to their neighbors. Others do the work on a subcontract basis, generally working for merchants (combination wholesalers and retailers) in town. As in the other industries discussed, the merchants handle their transactions with villagers through agents.

One such agent interviewed has 40 households working for him. He is paid ₪ 20 to make a net of a certain size (3 1/2 meter radius, 1 1/2 cm per 2 squares). He pays the householder ₪ 14 per net. The work takes about 6 hours to complete, implying a return of ₪ 2.30 per hour. A second agent interviewed in a nearby village has only 4 households working for her. She is paid ₪ 30 by a town merchant for a different style of net, of which she passes on ₪ 20 to the household worker. The work takes longer (approximately 16 hours per piece), implying a return of only ₪ 1.25 per hour of work.

Both of these agents have been doing this work for a long time (the former, more than 30 years; the latter, more than 10). Both reported that there is some flexibility in the agent-householder tie; within limits, the worker is able to "shop around" among different agents handling similar types of net. Correspondingly, agents may choose to offer work to different households in different periods. Both agents work all year; in fact, as in the case of sweaters, the peak demand for nets is during the rainy season, when agricultural labor requirements are also high. One agent reported some

slowing down of work during this season (the number of nets sent out is constant, but the turnover is slower). The other (larger) agent claimed that he was able to increase the rate of production during the rainy season by increasing the pay per piece by about 20% during that period. This man has been working as an agent for many years, and is also the village headman. The personal relationships derived from his position and long experience, as well as the existence of an excess supply of workers for most of the year, may be as important as the price in explaining his ability to get nets made when he needs them.

A third type of subcontract work is widely practiced in this industry. This involves work for factories, inspecting the netting made by machines, and repairing any mistakes or holes discovered. There are two large netting factories in Khon Kaen, each of which makes use of this system. The pay rate is comparable for the two, and the working arrangement the same. The agent is paid $\text{฿ } 4$ for each net inspected and repaired; he pays the householder $\text{฿ } 3$ per piece for the work. The number of hours required to finish a net varies substantially, depending on the number of holes in the net and the skill of the worker; implied hourly pay rates range from $\text{฿ } 1$ - 1.75 per hour of work. This type of inspection and repair work is reportedly done on a regular basis over the whole year. Pay rates do not vary by season, nor were they reported to have changed at all over the past ten years. The income to the agents can be quite significant; the largest agents are reported to be handling some 15,000 nets per month, for which they are paid $\text{฿ } 1$ each. They are responsible, on the other hand, for transport costs, which were reported to account for 50% or more of the gross returns to the agent (although this figure looks suspiciously high).

For all types of subcontracting work in the fish net industry, rates of pay per piece were generally reported to have been constant over the past 12 years. Only one agent who has been engaged in making nets from netting for over 30 years reported some decline in pay rates over that period; this reflected, he said, an increase in the number of workers engaged in this type of work, in excess of the rate of growth in demand for such workers.

While the agents are sometimes men, sometimes women, the subcontract workers are all females. In a number of cases, mothers and daughters reported working together in a household in assembling or repairing nets. While the pay rates reported are low, all agents indicated that there are many more people wishing to work than there are opportunities to do so. The supply of work from the parent firms is limited. One of the major factories in Khon Kaen maintains its quality control for subcontracting work through a procedure whereby, if a certain agent is found on inspection to have an excessive number of unsatisfactory nets, the following month that agent's quota of materials for processing is reduced. The threat works effectively.

2.4. Silk

The production process used in making a piece of patterned silk cloth is highly complex, involving many different steps: cleaning the raw silk; winding it in different forms (several times); tying the threads and subsequent dyeing (several times); preparation of the warp thread on the loom; and the actual weaving. If we add sericulture, the process becomes even more complex, involving several additional steps concerned with the raising of mulberry trees and silk worms and the processing of the cocoons to produce silk thread.

One of the things which characterizes this industry in Thailand is the high degree of decentralization in this production process. Some of the largest producers have only a few dyers and weavers in their own factory; all the rest of the work is done in the homes of large numbers of householders who picked up the materials from the firm, undertake some particular step in the production process in their homes, then return the materials to the parent firm either for further processing in the factory or for transfer to another household, perhaps in another village, where the next processing step is taken. In the case of one medium-sized firm interviewed, there are 8 separate steps done by 8 different groups of householders each working outside the firm's own workshop, in assorted villages within a radius of 30 km of the factory. Although the figures are not very precise, it seems that over 90% of the employment resulting from this firm's activities takes place in villagers' homes. Interviews with other firms as well as with workers in a number of village households make clear that this is a very common pattern.

Interviews were done with several village households engaged in weaving silk. The pay for the most common type of cloth (2-takor, regular cloth, using a wooden frame) was $\text{฿ } 20$ per piece. The work takes about 8-12 hours per piece, providing a return of $\text{฿ } 1.70-2.50$ per hour. For 3-takor cloth using an iron frame, the pay is $\text{฿ } 40$, the time is about 12 hours per piece, yielding $\text{฿ } 3.30$ per hour. The author collected no data on returns to other activities in the silk industry. Information from a parallel study, part of the same overall project, shows somewhat higher returns for some production steps (e.g., loom preparation, fine patterning), but substantially lower returns in others requiring virtually no skills (e.g., winding and reeling

of weft, or unwrapping plastic ribbons).⁴ All of these tasks are done on a subcontracting basis: the unskilled work generally by children, the more highly skilled activities by women (and sometimes, men).

⁴See Pradit Charsombut, "The Silk Industry in Thailand," (Bangkok: Kasetsart University, Center for Applied Economics Research, Rural Off-Farm Employment Assessment Project, Conference Paper No. 17, June 1981, mimeographed), p. 22.

III. THE RELATIONSHIP BETWEEN SUBCONTRACTING AND OTHER ACTIVITIES IN RURAL AREAS

The information presented above was based on interviews by the author with entrepreneurs, agents, and village householders engaged in subcontracting. That series of interviews was part of a larger study exploring a number of different dimensions of non-farm employment in rural Thailand. A central component of that larger study was a longitudinal survey collecting detailed weekly information on labor time allocation and production activities in 424 households of 25 villages in four provinces of North, North-Eastern, and Central Thailand, from March 1980 through February 1981.⁵ This survey provides important additional information about subcontracting among village households.

Table 1, which is based on those survey results, shows that 7% of total economically active time of all adults covered by the survey was spent on subcontracting activities. This figure is unevenly distributed by province and by sex, with the major concentrations being among males and females in Chiang Mai, and females in Khon Kaen provinces.

Table 2 shows the disaggregated distribution of villages according to the share of total economically active time spent on subcontracting by people covered in the survey in that village. The information in that table reminds us that subcontracting -- like other types of rural non-farm activity -- is concentrated in particular villages; there are four villages

⁵For a description of this larger project, see Mead, D. C. and Meyer, R. L., Rural Off-Farm Employment Surveys: Approaches and Methodology, (Bangkok: Kasetsart University, Center for Applied Economics Research, Research Paper No. 3, May, 1981).

Table 1: Total Hours Spent on Subcontracting Work, As a Percentage of Total Hours Economically Active

	Province				
	Khon Kaen	Roi Et	Chiang Mai	Suphan Buri	Total
	(Percent of Total Hours)				
Adult Males	1	1	8	1	4
Adult Females	4	1	24	0	11
Total	2	1	16	0	7

Note: adult = ages 15-65

Source: ROFEAP Survey, Phase II

Table 2: Distribution of Survey Villages, According to Share of Total Economically Active Time Spent on Subcontracting

Percent of Total Economically Active Time Spent on Subcontracting	Khon Kaen	Roi Et	Chiang Mai	Suphan Buri	Total
	Number of Villages				
Adult Males:					
less than 1%	4	3	2	2	11
1 to less than 3%	4	2	1	1	8
3 to less than 10%	0	0	5	0	5
10 to less than 30%	0	0	0	0	0
30 to less than 50%	0	0	1	0	1
50 % or more	0	0	0	0	0
TOTAL	8	5	9	3	25
Adult Females:					
less than 1%	6	4	2	2	14
1 to less than 3%	0	1	1	1	3
3 to less than 10%	1	0	2	0	3
10 to less than 30%	0	0	2	0	2
30 to less than 50%	0	0	1	0	1
50 % or more	1	0	1	0	2
TOTAL	8	5	9	3	25

Source: ROFEAP Survey, Phase II

(out of the 25 covered in the survey) where more than 20% of all adult labor time -- males plus females -- is devoted to subcontracting work. Looking at females alone, there are two villages where more than 50% of all working time is spent on subcontracting.⁶

It is possible to carry this disaggregation one step further, to look at households or even individuals engaged in subcontracting activities. In order to explore the ways in which subcontracting work fits in with other activities, a more detailed examination was made of those households in which, for either males or females, time spent on subcontracting accounted for 20% or more of all economic activity. For such households (77 in all), all individuals were identified who have substantial involvement in subcontracting work (104 persons). For each individual, the major subcontracting enterprise was first identified. There were 5 such enterprise groups in the households covered by the survey: silk weaving (15 people), cotton weaving (6 people), making of cloth, knitting, and embroidery (46 people), fish net repairing (2 people), and woodcarving (30 people); there were also 5 individuals engaged in both woodcarving and clothing enterprises. Of these 104 individuals, 19 of the woodcarvers were males; the rest were all females.

⁶Studies are currently under way using this body of data to identify the characteristics of villages where there is a great deal of subcontracting, as well as those where there are concentrations of other types of non-farm activities.

For each of these individuals, the total economically active time was classified into 8 major categories as follows:

- A. Non-wage work producing products for sale or for own consumption
 - 1. Farm products
 - 2. Non-farm products
 - 3. Services
- B. Paid employment
 - 4. Farm work
 - 5. Commerce
 - 6. Subcontracting
 - 7. Other manufacturing
 - 8. Other services

For each enterprise group, a calculation was made of the average number of hours worked per person per day each month in each of these enterprise categories.⁷ The results are shown on Charts 1-5.

The pattern of time allocation shown in these charts is interesting in several ways:

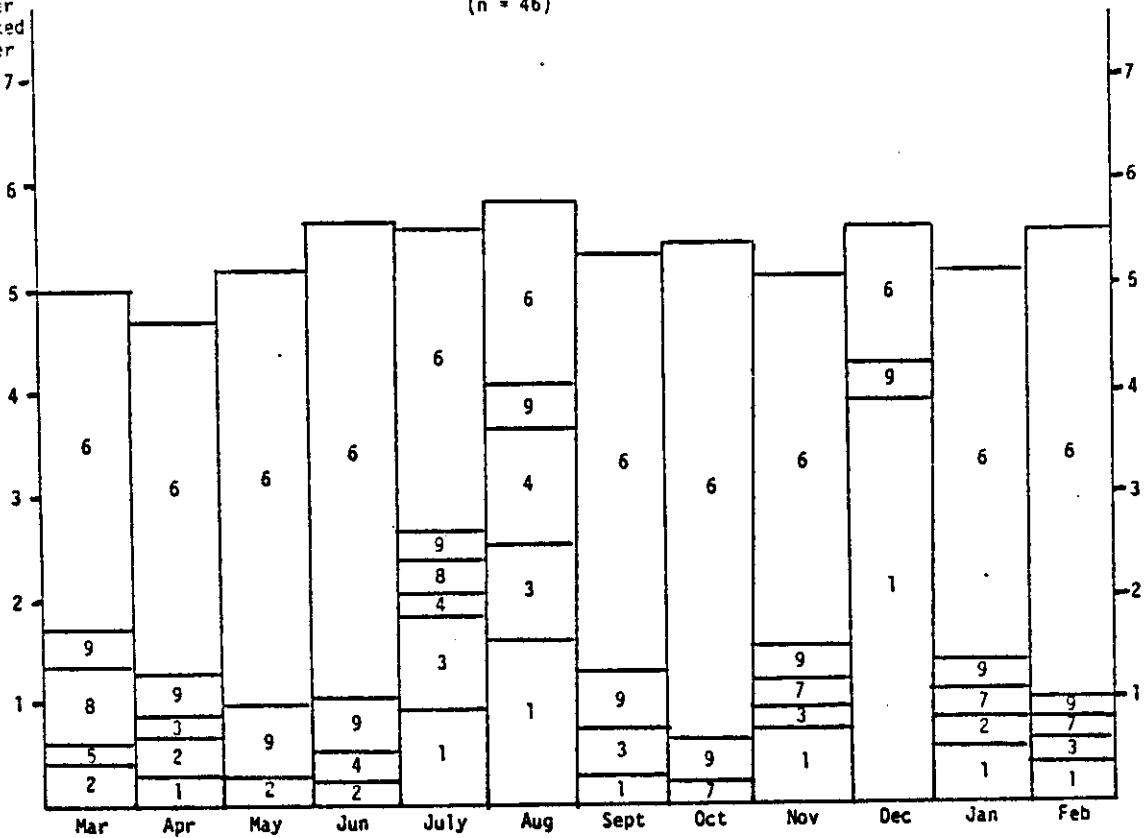
- a) Although there is considerable seasonal variation in the types of activities in which these people are engaged, the total time spent in economically active ways is remarkably stable over the year. Particularly for those engaged in clothing and woodcarving work, the seasonal variations are small; in no month did the average number of hours worked fall outside a band $\pm 15\%$ of the annual average. For silk and cotton weaving, the variations are

⁷These figures are calculated as follows: first, identify the individuals in each enterprise group; then categorize these individuals' working time, in the categories shown above; sum these for each month, then divide those totals by the number of people in that enterprise group, and again by the number of calendar days in that month.

Chart 1

Clothing, Knitting and Embroidery (Women)
(n = 46)

Average Number
of hours worked
per person per
day



Enterprise Codes for Charts 1 - 5

A. Non-wage work producing products for sale
or for own consumption:

1	Farm products (and livestock)
2	Non-farm products
3	Services

B. Paid employment:

4	Farm work
5	Commerce
6	Subcontracting
7	Other manufacturing
8	Other activities

Any enterprise accounting for less than 0.2 hours in a particular month is not shown separately, but is grouped together in category 9.

n tells the number of individuals working in a particular type of enterprise in the sample households.

Chart 4

Silk Weaving (Women)

(n = 15)

Average Number of hours worked per person per day

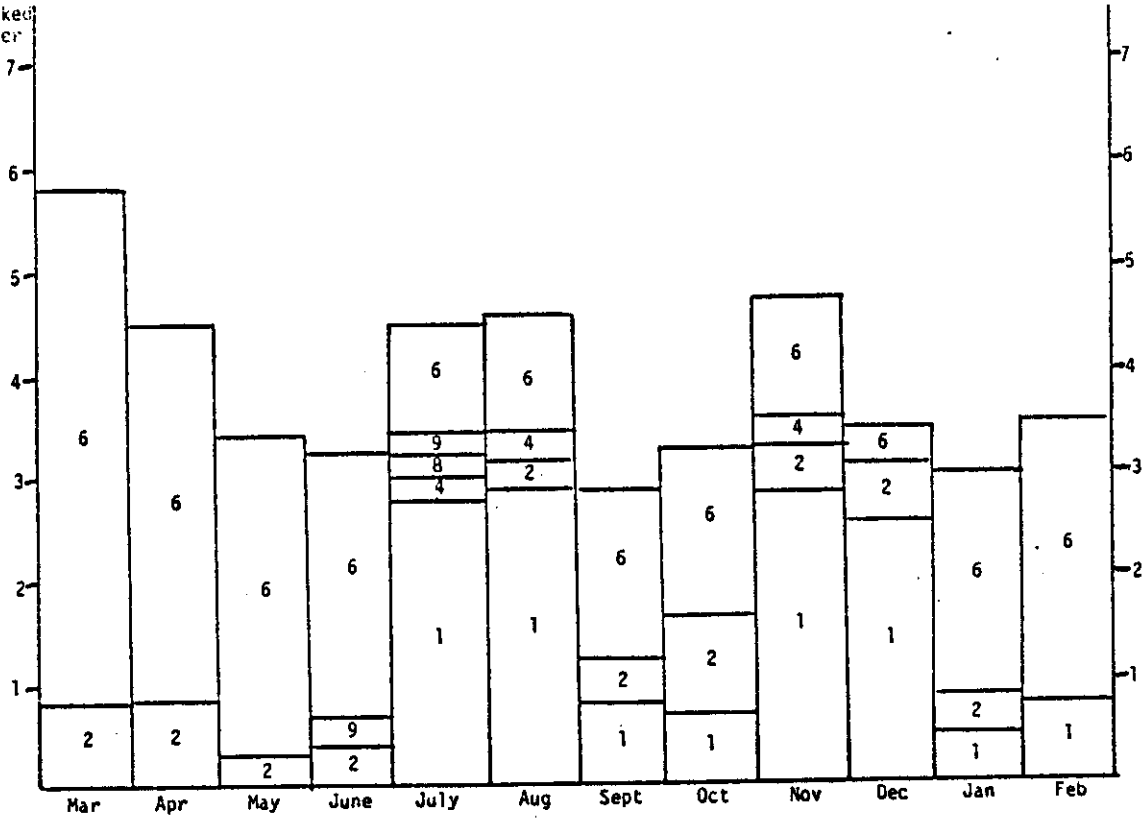
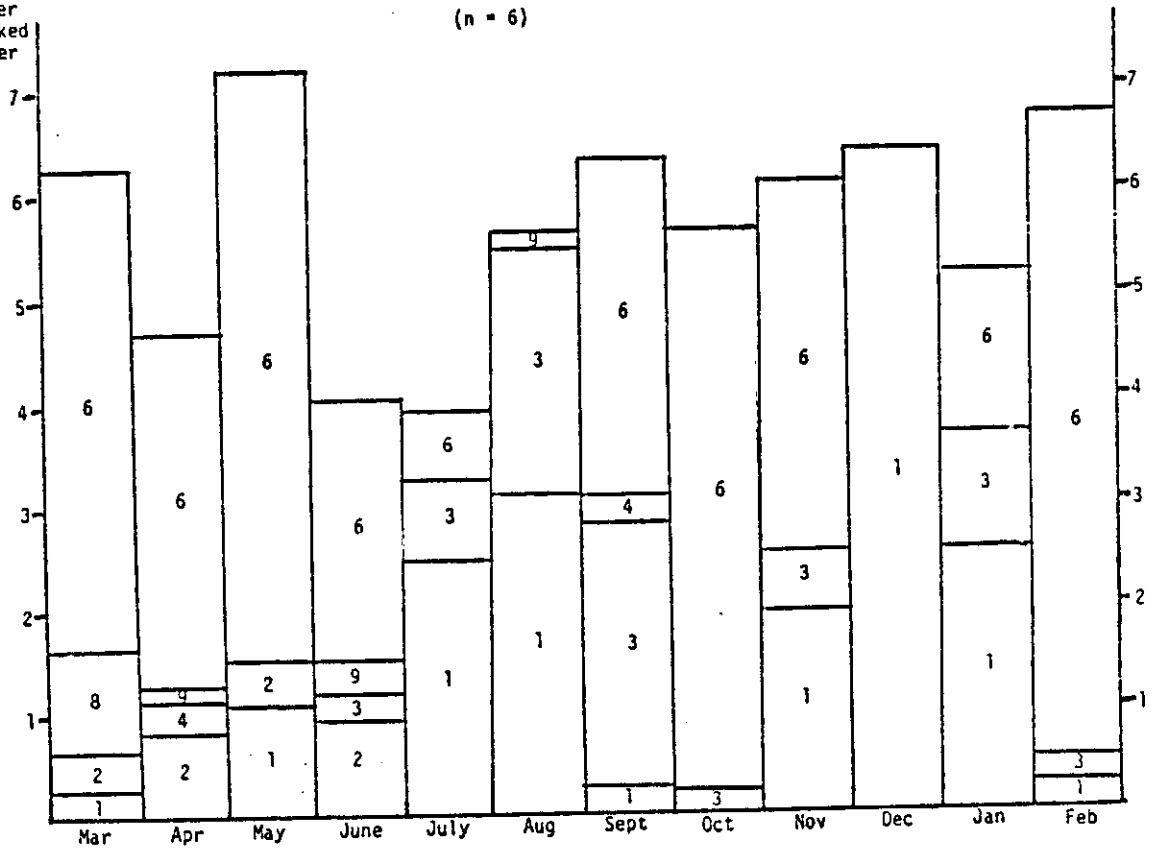


Chart 5

Cotton Weaving (Women)

(n = 6)

Average Number of hours worked per person per day



larger, ranging up to 40% below the annual average in some months and 50% above it in others; but even these variations are substantially smaller than they would be if the workers restricted themselves to one line of activity.

- b) Workers in all enterprise groups spent substantial amounts of time in agriculture during periods of planting (July-August) and harvest (November-December). On the other hand, all workers except those engaged in cotton weaving continued to do subcontracting work -- albeit in reduced amounts -- even during these months of peak agricultural demand for labor.

- c) Although these workers spent most of their time on subcontracting and farming, they were also engaged in a variety of other activities. In several cases, workers spend some time producing products for sale or for home consumption similar to the ones they make as subcontract workers (category 2, in the charts). There is some paid work in agriculture (category 4), particularly during the peak farming months. They also participated now and then in a variety of service industries, as the charts indicate.

IV. SUBCONTRACTING: AN OVERVIEW

Looking across all the industries discussed as well as others not reported on in detail here, one finds that subcontracting arrangements have important desirable features, but also some problems and limitations. These are discussed in turn below. This is followed by a discussion of subcontracting in a more growth-oriented perspective. The section concludes with an overall interpretation of the subcontracting system.

4.1. Advantages of the Subcontracting System

4.1.1. Flexibility of Working Time

The most important advantage of the subcontracting system is that it permits workers to vary their periods of work, depending on the other demands made on their time. This includes flexibility over the year (e.g., they work when they are not needed for planting or harvesting), as well as flexibility over the course of the day (e.g., they work when they are not needed for child care or housework). This flexibility makes possible a significant reduction in the underemployment or underutilization of labor, which is such a common characteristic of rural, agricultural based societies.

The vast majority of the workers currently engaged in subcontracting work would not be available for full-time, year-around employment outside their household, unless pay rates were substantially raised. Several employers indicated that, if they tried to have the same work done by full-time employees working in their factory, they would not be able to find the required number of workers, unless wages were raised sharply.

4.1.2. Parent Firms Provide Technical, Marketing and Financial Assistance

Small firms -- and particularly village producers -- have only limited knowledge of markets beyond their immediate neighborhood. They are often skillful workers, but they need to be shown how to use those skills to produce products which will sell. They can be trained by the buyers of their services to produce products for which there is a demand, then immediately set to work using that knowledge, thus avoiding a widespread problem of skill development: training people to do something, then leaving them without an outlet for their newly acquired skills. In determining the product specification and establishing patterns of quality control, the parent firm (and his agent) can help fill a serious information gap between the market and the producer.

By providing the raw materials, the parent firm may also help overcome potential financial constraints faced by small producers; the financing of working capital is shifted to the parent firm. On the other hand, the apparent willingness of village householders to purchase equipment and tools needed for the production process (knitting or sewing machines, looms, etc.) suggests that it is possible to overstate the importance of this factor.

4.1.3. Reduction in Overhead Costs

The fact that work is done in homes rather than in factories means that employers do not need to provide as large a work place; they can save on the cost of buildings, associated utilities, and land.

4.1.4. Reduction in Social and Economic Costs of Urbanization

When people start working in town, they incur additional costs: transportation, more expensive meals, etc. For the worker who commutes, time is lost in travelling. For the one who moves, there are additional costs of paying for a dwelling.

In addition to these economic costs, there may be non-economic costs borne by those who either live in or commute to town: disruption of established social relationship, with all the psychic costs which may be involved in that; increased vulnerability to disease and crime, etc. There may also be social costs associated with increasing density of population, as evidenced by the need for more sophisticated waste disposal, police and fire control, health facilities, etc. Living in town clearly opens up new opportunities, in terms of entertainment, social interaction, new job alternatives and broader horizons in general; but these changes do come at some cost. For the workers themselves, working conditions are likely to be substantially better in their own homes than they would be in a factory in town.

4.1.5. Availability of Jobs

Because some people working in their own household avoid some of these extra costs, they are often willing to work for lower rates of pay. A village worker earning ₦ 2 per hour may have a higher net cash income than his neighbor who is paid ₦ 3 per hour for work in town, if both spend the same amount of time for work plus travel.⁸

⁸Assume the villager works 8 hours, earning ₦ 16. The town worker, if he spends 45 minutes travelling each day, works for only 6 1/2 hours, earning ₦ 19.50; from this he must deduct the cost of his transport and the extra cost of his lunch, which would probably bring his net return below ₦ 16.

The fact that pay rates and overhead costs may be lower means that employers find it profitable to expand employment more rapidly than they otherwise would. With labor costs low, there is a large market for embroidered dresses in Thailand as well as in the rest of the world. If wage rates were higher -- as they would have to be, if employers were to arrange for an equal amount of work to be done within the factory -- then the market for the finished product would be smaller, implying a smaller amount of employment.

4.2. Disadvantages and Problems of the Subcontracting System

For all of its potential advantages, there clearly are basic questions which need to be asked concerning the subcontracting system.

4.2.1. Loss of Government Control

One of the major advantages of the subcontracting system to the parent firm is that it enables the producer to escape from government scrutiny. Minimum wage and other similar labor regulations can be more easily ignored, even among firms with several hundred workers, if those workers are widely dispersed so their employment can be disguised or denied. Similarly, production and sale can be hidden from the eyes of the tax officer, if it does not take place in the work place of the employer. These characteristics raise problems which need to be recognized if one is to recommend an expansion of the subcontracting system.

4.2.2. Control of the Production Process

For parent firms, a key problem of the subcontracting system relates to quality control. It is much easier to ensure that each item is of an

acceptable standard if the work is done under direct supervision. Where a part of the production process is sent out, responsibility for this quality control shifts to the agent, who is also generally not present as the work is taking place; continuous supervision during the production process is replaced by checking of the results, first by the agent, then by the parent firm. This clearly raises the possibility of variability in quality as well as wastage of raw materials. These are problems which can be controlled through careful checking by the agents of both raw material flows and the quality of products completed; but they do require attention.

4.2.3. Risks of Exploitation

Perhaps the most serious criticism made of the subcontracting system is that it may result in exploitation. This is an emotion-laden term, with no precise technical definition. Its central meaning is the idea that the rate of pay is, in some fundamental sense, "too low." This could be interpreted in terms of absolute levels: it is wrong that anyone should ever have to work for such a low wage; if they do, they are being exploited. Alternatively, the explanation could be expressed in relative terms: it is wrong for people to be paid so little, when others involved in the production of that product are earning so much. In this vein, one might want to say that agents are exploiting households if they keep for themselves "too much" of the amount they receive from the parent firm; or one might say that the parent firms are exploiting the householders, if their profits are "too high," while pay to the villagers remains low.

The temptation to interpret the results in these exploitation terms is particularly strong where the participants in the market are

obviously unequal in bargaining strength. Villagers are many, are unsophisticated and not well informed, are more willing to take whatever pay they are offered. The parent firms, by contrast, are able to pick from among a large number of villages and villagers; they are knowledgeable and capable managers, who can search out locations where villagers have the fewest alternatives, and are therefore willing to work for the lowest possible pay. Parent firms, being few, are more likely to cooperate with each other rather than competing in setting pay rates.

The issues are complex. They are shrouded in ideological frameworks and ethical value-judgments, issues which are difficult to resolve analytically. Disagreements center around two main questions: what comprises a "fair" distribution of income between different participants in the production process?; and how can one most effectively move towards what one judges to be a "better" overall level and distribution of income? On the first of these points, while it has not been possible to collect detailed information on the costs and returns of agents, the information presented above suggests that, with the possible exception of the finishing process for fish nets, agents earn returns which appear not to be excessive, i.e., which are commensurate with their work and responsibility. Agents are generally fellow villagers, whose income is perceived by their workers as fair. There are generally no major barriers preventing a subcontract worker from becoming an agent, if he so chooses. The distribution of income between subcontractors and parent firm is more difficult to judge. The information gathered concerning the overall profitability of the parent firms is uneven and incomplete. It has been possible to calculate the average returns per hour of labor time for family labor in producing 6

different kinds of shirts made using subcontracting, comparing this figure with 15 other kinds of shirts made not using subcontracting; the average return per hour is $\text{฿ } 11.9$ for the first group, and only $\text{฿ } 6.1$ for the second. But the variances in each group are large, and the differences not statistically significant.⁹ Until someone produces an effective measure of "degree of exploitation," we will remain agnostic.

4.3. The Dynamics of Subcontracting

The information presented above makes clear that village-level subcontracting is a wide-spread phenomenon in rural Thailand. One may express skepticism, on the other hand, about this type of arrangement as a basis for future industrial growth. Most of the workers are engaged in subcontracting only in their spare time, in activities which earn them only low incomes; the industries in which many of them produce center around traditional products, using techniques which are difficult to modernize, and for which demand is growing only slowly if at all.¹⁰ There are other characteristics of these subcontracting arrangements, on the other hand, which may lead one to more optimistic conclusions. For one thing, several of the products produced in this way either currently are or could be exported, facing much larger and potentially growing world markets. Embroidered clothing, patterned silk, and carved

⁹For an explanation of the approach used in calculating net returns per hour of family labor, see Vinai Artkongharn, "Profitability and Efficiency," (Bangkok: Kasetsart University, Center for Applied Economics Research, Rural Off-Farm Employment Assessment Project, Conference Paper No. 6, June 1981, mimeographed).

¹⁰For a pessimistic assessment of the potential for such activities, see E. Staley and R. Morse, Modern Small Industry for Developing Countries, (New York: McGraw Hill Book Company, 1965).

wood products are examples here. The sewing of garments is something which cannot be easily mechanized. As Sharpston has pointed out, "industrial sewing of clothing really resembles, quite closely, sewing with a domestic sewing machine . . . 80% of the labor cost of clothing manufacture is in the sewing stage, and this is extraordinarily difficult to mechanize."¹¹ Labor shortages and resulting wage increases have moved the early major garment exporters such as Japan and Korea on to other fields, leaving opportunities for countries such as Thailand where wages are still low.

Beyond this, there clearly are opportunities for upgrading the skills of subcontract workers, and for transferring these skills from one production line to another. To quote again from Sharpston, "In Morocco, in six weeks girls (who may not be literate) are taught the assembly under magnification of memory planes for computers -- this is virtually darning with copper wire, and sewing is a traditional Moroccan skill . . . In the electrical field, an equivalent of sewing is putting together of wiring harnesses. There is also an equivalent of a kind of sewing in metal working: soldering and welding."¹² Not each of these would be appropriate for village household subcontracting in Thailand, but the examples serve to illustrate the underlying point: traditional skills can provide a good basis for production in a wide variety of industrially unrelated lines.

Studies of subcontracting systems in other countries, particularly in Japan, suggest another type of evolution among subcontract producers

¹¹M. Sharpston, "International Subcontracting," Oxford Economic Papers, March 1975, pp. 107-108.

¹²Ibid., pp. 100 and 108.

which may have some relevance here; this concerns the use of machinery and equipment. A key feature of the small industry and subcontracting system in Japan was the use of second-hand machinery, often of a type no longer used in the large-scale, highly mechanized firms, but which was both viable and profitable for small subcontract producers, given their low wage costs. In Japan, this had a number of desirable features. The creation of a market for used equipment meant that each machine had a longer economic life, so the capital stock was more fully utilized; labor productivity in smaller firms was increased, and the process of modernization in large firms facilitated. Access to used machines on favorable terms helped to offset some of the biases against small producers in the financial capital markets.¹³

In Thailand, as suggested above, a number of subcontract producers do make use of simple machinery and equipment: looms for silk weavers, sewing machines for the shirt-makers, knitting machines for the sweater-makers. Particularly in the latter case, the reliance on second-hand machines no longer used by urban factories is strongly reminiscent of the Japanese experience, although in the Thai case the urban firms had not moved on to more elaborate machinery, but rather had gone out of business.

One additional way in which existing subcontracting arrangements may be a fruitful base for future development concerns the organizational set-up itself. Firms -- whether Thai or foreign -- get used to operating

¹³S. Paine, "Lessons for LDC's from Japan's Experience with Labor Commitment and Subcontracting in the Manufacturing Sector," Oxford Bulletin of Economics and Statistics, Volume 33, No. 2, p. 122. See also G. Ranis, "Factor Proportions in Japanese Economic Development," American Economic Review, September 1957, pp. 598-602.

in this way; they learn that it is both feasible and profitable to handle certain processes by subcontracting. As this becomes part of the accepted business practice in a country, it is possible to adapt the organizational arrangements to quite different industries.¹⁴

4.4. Subcontracting: An Interpretation

The most important overall characteristics of the subcontracting system would seem to be the following:

4.4.1. There is an active market for labor to do subcontracting work in rural areas of Thailand. The market is an imperfect one, to be sure; there is unequal power between the participants, incomplete knowledge in many areas, and incomplete freedom to move between different market segments. Yet there is also considerable evidence of market forces at work. Pay for sweater knitters started out high, but dropped sharply in response to the increasing numbers of people ready to do this work and decreasing demand for sweaters; pay for embroiderers has risen consistently over the past five years, and employers say that if they didn't pay those increased wages, they would lose their workers; in a number of industries, pay rates are increased each year during periods of peak demand in agriculture; people stop doing subcontracting work during certain months

¹⁴Ranis suggests that this type of evolution was characteristic of Japanese industrial growth; he discusses ways in which "imported or domestically 'grown' improvements, partly of an organizational nature, were grafted onto existing handicraft-oriented industrial arrangements" (ibid, p. 600). For additional exploration of subcontracting as a "vector" for further industrialization, see C. Berthomieu and A. Hanaut, "Can International Subcontracting Promote Industrialization?" International Labor Review, Vol. 119, No. 3 (May-June 1980), pp. 335-349.

when they can find alternative sources of employment (farm, non-farm, or off-farm) with higher returns.

4.4.2. The low rates of pay for many types of subcontract work reflect primarily the underlying supply-demand situation for these workers: the supply of potential workers with spare time either part of the day or part of the year is great relative to the demand for such workers. The limited skill requirement for most types of subcontract work reinforces these downward pressures on wages, except in certain regions, certain periods of the year, and/or certain activities where workers with particular skills may be either temporarily or over a longer period of time in short supply.

4.4.3. In spite of the concerns expressed by outsiders with regard to low rates of pay, the workers themselves were virtually unanimous in saying that they are glad for this opportunity to work. They often said that they know of many others in their villages who wish to do similar work at current wage rates, but who do not have the opportunity to do so because of the limited amount of work available.

4.4.4. It is an appropriate policy goal to seek to expand this system as a means of providing employment opportunities to more people, and also -- through a longer run change in the underlying supply-demand situation -- in order to raise the wage rates of the participants. The system's desirable features can best be strengthened and its weaknesses undermined not so much by regulation as by promotion and expansion.

4.4.5. In product lines with no particular skill requirements, the expansion of subcontracting may have only limited effects on wage rates until the overall labor supply and demand imbalances begin to change. This depends on demand patterns from a whole variety of sources, as well as fertility, migration, social customs and other influences on supply. Even if wage rates are not pushed up, however, an expansion of subcontracting will permit more people to enjoy the benefits of wage-earning, including people who currently wish to engage in this activity but for whom no work is available. If subcontracting were to expand in production lines using more skills, on the other hand, then it is likely that the expansion of employment would be accompanied by an increase in wage rates even in the short run. This would obviously be preferable in terms of benefits to the villagers.

4.4.6. It would be particularly desirable to look for ways of encouraging parent firms -- existing or new -- to build on traditional subcontracting arrangements, upgrading the caliber of work done by modifying product types, moving into new and expanding markets, or introducing some additional if modest mechanization into the subcontracted activities.

V. POLICY IMPLICATIONS

If one wishes to promote the subcontracting system, a number of steps may be appropriate:

5.1. Businessmen should be made aware of the advantage of organizing some parts of their production process making use of subcontractors. What is needed here is a salesman or promoter for the approach, who would be able to explore with a variety of businessmen the types of production steps which could be subcontracted, the ways in which the system might be established and operated, the procedures for locating agents and villages, and the possibilities for moving into new product lines or upgrading the caliber of work currently done by subcontractors.

Further follow-up could come through assistance to firms in locating and training agents. This could involve facilitating contacts with local government authorities, providing information about skills available in particular areas and villages, and qualifications and characteristics of successful agents. The assistance would need to be largely firm-specific, but there are also some general approaches which could be taught in terms of procedures for record-keeping, quality control, transportation patterns, etc.

Such a promotion program could be based in any of several different institutions. It might be done in the government sector (e.g., the Industrial Services Institute, Community Development Department, or Handicraft Promotion Division of the Ministry of Industries). Alternatively, it might be located in a private agency or organization. The key requirements would

be a group with interests in village development and with contacts in the business community. It clearly would not be appropriate to establish a new institution solely to undertake this activity; but to have one or two persons with this kind of interest and responsibility in an existing institution concerned with the village-level development could bring substantial dividends.

5.2. The government needs to think through more clearly what is feasible and desirable in terms of taxation and regulation of household producers doing subcontracting work. For a start, these workers should be explicitly exempted from minimum wage and other similar labor regulations. Such rules surely are not appropriate for people working in their own homes (farmers are not subject to minimum wage regulations when they grow rice). If the rules are not to apply to them, this should be made explicit, so no one can be threatened and in this way forced to pay a bribe.

If the government wishes to move in that direction, there are straight-forward ways in which tax incentives could be offered to firms making use of subcontracting. These might be in the form of deductions from taxable income, based on the amount a firm spends on payments to subcontract workers. Such an approach makes a great deal more sense in Thailand than the widely practiced alternative of tying tax incentives to the level of investment spending, through depreciation allowances and the like.

This whole area of taxation and regulation of firms making use of subcontracting is one where different government offices currently give conflicting signals. Many officials are suspicious of all subcontract

work, feeling that firms engage in it primarily to escape government controls; the main interest of such officials is to expand the effectiveness of government taxation and regulation. A shift to a clear policy of encouragement would be a welcome change, and could be important in facilitating the expansion of subcontract work throughout the country.

VI. CONCLUDING NOTE

The expansion of subcontracting cannot by itself solve the problem of rural poverty in Thailand. That is a complex task, which needs to be approached from many different directions. The line of reasoning suggested here is based on the proposition that incomes will rise as a result of the introduction of a variety of different income-earning options to villagers. These will compete with each other for claims on the villagers' time. Low yielding activities will be dropped, unless returns per hour increase to match the alternatives available. Subcontracting is one such alternative, and may be a particularly interesting one in view of the flexibility of working hours which it makes possible. Other alternatives include additional time spent on farm work, on the production of non-farm products within the village household, and on off-farm paid employment. Changes in income-earning opportunities in any of these lines will change the economics of each of the others. Each one has a contribution to make; each should be encouraged.

As someone once said, "Let 100 flowers bloom!"

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