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THE SOCIAL IMPACT OF RURAL FACTORIES IN TURKEY

by
Julianne Shaberman Oktay

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in
(Social Work & Sociology)
in The University of Michigan
.1974

Doctoral Committee:

Professor Howard Schuman, Chairman
Professor David Goldberg
Professor Henry Meyer
Professor Gayl Ness
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CHAPTER I

INTRODUCTION

1.1 Overview

National crises have focused much of American attention on internal social problems in the last decade. However, if we step back and consider these in world perspective, American problems, such as poverty and health care, shrink by comparison. In the U.S., only a small minority of the people can be considered poor. How can we compare this to nations where almost everybody lives in poverty? And as poverty is a relative term, the poor in America are poor relative to the highest standard of living in the world, while the poor in Asia or Africa are poor by any standard. To make matters even more uneven, America has huge resources which could be utilized for the irradication of some of our social ills - not only monetary resources but others, such as an educated and organized population easily reached by the mass media, young people whose energies are not needed by their families or the economy, and a culture which stresses both humanitarianism and hard work. Compare this to a nation which not only has very modest financial resources, but whose population

is largely illiterate, scattered across the land, and tied to traditional structures and belief systems. In such a nation, fighting poverty does not mean going out to help others. For the great majority, the proclamation, "I fight Poverty. I Work." often seen in small American businesses, is no joke. This is not to minimize the importance of American social problems or the difficulties in their solution. It does not help the ghetto dweller or the migrant worker to know that there are millions worse off than he in far-away places. Rather, it is to emphasize the huge proportions of the problems facing the poor nations in the world today, and thereby, to stress the importance of understanding the processes by which they can be ameliorated. It is essential that we not lose sight of the very real human need which lies behind the numbers that will be presented and discussed in this thesis.

The need to further understand this process of modernization goes beyond the desire, however important, to alleviate human suffering. In addition, the rich nations have come to recognize how small is our planet, and how interdependent are all of its peoples. The history of the exploitation of poor by rich nations is not a pretty story, from the days where the conquered peoples

were made slaves, through colonialism to the present day disaster in South-East Asia. It is only recently that recognition of the worldwide population explosion, the pollution of water and air, the scarcity of natural resources and the horrible destructive power of nuclear weapons has made national borders obsolete. It is now to the direct benefit of the rich nations that the poor peasant on the other side of the world limit his family size, use improved grains, and vote for politically responsible leaders. Thus, this problem deals not only with great human need, but with the critical issue of the survival of the planet.

I have been using the terms "rich" and "poor" nations as a convenient way to describe societies which differ in a great deal of ways other than wealth. There is a real problem with choice of language in this area. The common term, "modern" is unsatisfactory, not only because it is vague, but also because its referent is constantly changing. The words "developed" and "undeveloped" or "developing" suggest a universal process with a constant end point - a notion I seriously question. I prefer the term "industrial", since industrialization lies at the core of this complex process. My use of the term "rich", however, has not been entirely accidental, first, because

this process has been seen largely in terms of economics, and secondly, because wealth is the goal of those nations who have committed themselves to becoming "modern." While this is clearly an understandable goal, its achievement would not necessarily have any effect on the problems we have noted. If increased wealth is very unequally distributed in the population, it might not appreciably alter the standard of living of the poor. Wealth alone does not necessarily convince people to limit their family size, conserve natural resources, or support responsible leaders. In fact, the very opposite may be closer to the truth. The goal of wealth must be broadened to encompass a reasonably fair distribution of the newly generated resources, as well as a well informed and responsible population.

Equally important, poor nations are interested in having the wealth of a country like America, not in becoming "little Americas." They are anxious to preserve their own cultural heritage and to avoid some of the more negative aspects of the industrialization process, among them, urban slums and pollution. There is also a near universal concern for the loss of close family ties and sense of "community" thought to be found in traditional societies.

Given this set of rather complex and idealized goals, then, how can they be achieved? Is it possible to industrialize and at the same time avoid some of the problems of today's industrial societies? If so, how would one go about stimulating and guiding such a process? This type of question points up the need to understand precisely what is the social impact of industrialization; to separate out what in the Western experience is essential, what is merely historical accident. Also, we need to know how the essential components are related to one another. Let us examine briefly, then, what we know about the process of industrialization, and how this knowledge relates to our goals as stated above.

Concern with the social impact of industrialization goes back to the very roots of sociology. At the heart of Marx's thought lies the idea that the mode of production determines the social structure. To simplify his argument, by bringing people who have a common interest into close contact, the process of industrialization will lead to the development of "class consciousness", which will become an agent of social change.[1] "Marx made these predictions [that the rest of the world would follow in England's path] on the assumption that the same organization of production generates everywhere the same or similar transformations

of social classes and the political structure," writes Bendix in his analysis of Marx.[2] He points our that Marx and others of his time established an intellectual tradition which persists to this day.

Classical studies such as Toennies[3], Durkheim[4], Redfield[5], and Parsons[6], make use of ideal types, which differentiate the characteristics of traditional, agrarian societies from those of industrial areas. More recently, this approach has lead to the development of dichotomous lists of attributes, and attempts to classify societies along a continuum from traditional to modern.[7] Underlying these analyses is the assumption that each list is made up of a set of closely interrelated variables. In other words, that a certain proportion of the population working in industry "goes along with" a particular level of urbanization, of literacy, of population growth and so on.

This view is set out most explicitly by Clark Kerr, et.al., Industrialism and Industrial Man, as follows:

> "Although industrialization follows widely differing patterns in different countries, some characteristics of the industrialization process are common to all. These "universals" arise from the imperatives intrinsic to the process. They are the prerequisites and the concomitants of industrial evolution. Once under way, the logic of industrialization sets in motion many trends which do more or less violence to the traditional pre-industrial society."[8]

According to this view, a society which begins the process of industrialization must also develop the "culture of industrialization" which includes, among others, a) a nuclear family system, b) an open class structure based on ability and c) religious and ethical values which are favorable to economic gain and growth, innovations and scientific change.[9]

One problem with this type of analysis is that it assumes that because certain things have tended to go together in Western European nations, that these things must go together in all industrialized societies. As Bendix points out, this type of thinking ignores the very real differences between conditions facing England in the late eighteenth century and those confronting the pre-industrial nations today. Also, the use of the ideal type does not further our understanding of the process by which a society moves from one type to the other. The use of the nation-state as the unit of analysis has made any test of the degree to which the set of "modern" attributes are interrelated almost impossible. There just haven't been enough cases of industrialization under varying conditions.[10]

1.2 Industrialization and Urbanization

Through anthropological research it has been possible to look very closely at societies undergoing industrialization. This research tends to emphasize the destructive aspects of "progress", and in this sense, reflects the invidious comparison between traditional and modern societies found in classic thought, as well as the conclusion that a change in mode of production from agrarian to industrial is accompanied by far-reaching change in both social and personality structure. One study, of particular interest to us, is that of Manning Nash. Nash studied a town in Guatamala, Cantel, which had had for many years, a large textile mill. His study stresses the way this community developed mechanisms which allowed it to adjust to the factory with minimal cultural loss or social disorganization. He concludes, "factories may be introduced into peasant societies without the drastic chain of social, cultural and psychological consequences implied in the concept 'revolution'."[11] He goes on to suggest that where social disruption and cultural disintegration have accompanied village industrialization, the sources of stress cannot be ascribed to the factory. Other factors, such as political and ideological changes

and the removal of the worker from his village are emphasized.

Because the scope of this study is limited, the findings cannot be generalized. However, the suggestion that the factory per se is not disruptive is important. It opens up the possibility that the concept of the "modern" can be broken down into its component parts. It might be something which was closely associated with industrialization in Western experience such as urbanization, rather than industrialization itself, which causes broad social changes. Given the lack of communication and transportation facilities at the time of the early industrialization, the factory created the city. Workers had to live within walking distance of the factory, and factories had to be close to one another. While Nash's work makes real progress in separating out the effect of the factory from that of the city, his results cannot be viewed as a definitive test of the effect of industrialization without urbanization. For one thing, the factory had been in Cantel for many years before Nash studied it. Also, the factory could not be considered a modern one, and it is uncertain whether this type of factory would generate a sufficient level of well-being. Finally, Cantel, while not a large city, is

clearly a town (population over 8,000). Thus his conclusions about the effect of industry on peasant societies and village life are not really appropriate. While Nash argues convincingly that the people in Cantel are no different from those in surrounding rural communities, this does not prove that a factory would be as easily integrated in a rural area as it was in Cantel.

The separation of the effects of the two forces - industrialization and urbanization - is important, not only as a test of the "convergence" hypothesis, but also because transportation and communication technology today have made it possible to spread industry thoughout the country rather than concentrating it in cities. This idea - rural industrialization - should be examined in light of the goals with which we began. While it is generally agreed that industrialization is necessary for the expansion of economic resources, it is urbanization which tends to be blamed for many of the more negative aspects of modernization - the loss of community, impersonal relationships, the destruction of the (extended) family, and the abandonment of cultural heritage.[12] If it were possible to industrialize without creating large cities, then, we might be able to meet our first and third goals - to increase wealth without social disorganization or

cultural loss. The status of the second goal, the creation of a responsible citizenry, under non-urban industrialization remains uncertain. Is the creation of the "modern man" an artifact of the factory, the city, both or neither?

Recent application of survey research methods to the study of "modernization" is most relevant to this question because it focuses attention on the individual rather than the society or the community. This type of research has the distinct advantage over ideal type or anthropological techniques in that its results are generalizable and that through the use of controls or multivariate techniques, it can separate out the unique contribution of each of the components of "modernism." Of particular importance to us is the work of Inkeles and Smith of the Harvard Project on the Social and Cultural Aspects of Development.[13] This large scale research project focuses on the influence of the factory by comparing factory workers, cultivators and people living in urban areas who were not factory workers in six developing nations. The dependent variable in this study is based on a list of qualities considered necessary for the running of a factory. This includes openness to new experience, readiness for social change, disposition to form or hold opinions, information to base

these on, time orientation to the present or future, efficacy, orientation to long term planning, confidence that the world is calculable, valuing of technical skill, high aspirations, and respect for the dignity of others. While we may not want to accept the whole "modernity measure" package, it seems clear that many of these characteristics are closely related to our second goal - the creation of a responsible citizenry. The person who is "open to new experience," or "ready for social change" would be the most likely to adopt new agricultural practices, or new methods of family limitation. The person who is well-informed, holds opinions and is efficacious is most likely to support responsible government leaders. We want to know, then, what effect, if any, the process of industrialization has on these personality characteristics.

The results show that working in a factory is closely related to the development of individual modernity. For each year of factory experience, a man's "modernity score" goes up between one and two points. On the contrary, the city failed to qualify as a modernizing influence. The authors conclude that it is not the city per se which makes people more modern, but rather the fact that city dwellers are more likely to be better

educated, exposed to mass media, and working in factories than others. They conclude,

> "The fact that it is not the culture of the city per se which makes people more modern could be of vital importance in deciding on public policy for development. Evidently to modernize peasants and others in the countryside, we are not required to build more cities and move people to them. Rather, our results suggest that modernizing the non-city dwellers can be accomplished by extending to them benefits of education, mass media, and new occupational experience, while at the same time raising living standards... ."[14]

This finding is also reflected in the work of Schnaiberg, whose analysis of Turkish women shows that differences between rural and urban women disappear when socio-economic status is taken into account. He concludes, "Put simply, rural residence per se is not the obstacle to modernization; the rural opportunity structure is."[15]

In another large scale survey project, William H. Form compared factory workers with rural backgrounds to those with urban backgrounds in four countries. Very few differences in accomodation patterns were found between the two groups. It seems to be the work experience, rather than the residential one, which determines participation and adaptation in such diverse areas as the factory, labor union, family, neighborhood, community, and nation.[16]

Kahl's work in Brazil and Mexico reached a similar

conclusion - "The results of the questionnaires showed that geographic location made a difference in modernism as expected, but that socio-economic status made much more difference."[17]

This research answers our question about the way in which a responsible citizenry can be created, then, by arguing that the factory itself produces "modern men", and that it can do this without the aid of the atmosphere of a large city. These results are particularly important for the developing nations because they suggest that all three of our goals can be met through a policy of "rural industrialization." That is, the factory could be expected to generate wealth and to raise the level of modernity. If these factories are built in the country-side, then workers will not have to leave their families and communities behind. Thus, integrative social institutions, such as the family, will be preserved. Before recommending such a policy, however, we need to determine to what extent these research findings can be applied to populations other than those originally studied.

A close look shows that the findings cannot always be easily generalized. For one thing, the samples are limited with respect to the general population. Inkeles and Smith interviewed only men between the ages of

(approximately) 20 and 30. Schnaiberg's results are based on a study which interviewed only married women. Kahl studied only men between the ages of 25 and 49 who were working in "firms." Form's study is based only on automobile factory workers in urban areas. Even more problematic, the "rural" part of the sample is considerably weaker than the more easily accessible "urban" part in all cases. In Kahl's study, the "traditional" pole consisted of persons working in firms in small towns.[18] As this group can hardly be considered representative of those living in rural areas, the study results are based on an essentially urban population. Schnaiberg's results, while very carefully selected to be representative of the population in Ankara, are based on interviews in only four villages - two "relatively close to Ankara City"[19] and two about 120 kilometers away. Thus generalization of these findings, even to the whole spectra of villages in Ankara Province, is questionable.

In the Inkeles and Smith study, a complex matching procedure was used to create four groups - cultivators, new industrial workers, urban non-industrial workers, and experienced workers - alike in sex, age, education, religion, and ethnicity. The samples of industrial workers were also disproportionately stratified by type of

firm and urban or rural origin. Sampling method was a "quota" system rather than a strict probability sample.[20] Thus the results, while demonstrating the effect of factory work as a modernizing agent for those in the sample, cannot be generalized to any easily defineable population. Also, the sample was made up largely of urban industrial workers. Field directors were told to interview only 100 cultivators out of a total sample of 900. The great majority of factory workers studied lived in urban areas. In the two countries where relatively large proportions of rural residents were studied, India and Pakistan, attempts were made to assess the impact of the factory in rural areas. In India, where rural industrialization has been public policy for some time, cultivators were compared to men from the same village who were factory workers. In both cases the factory workers had higher modernism scores, although the correlations are quite a bit lower than those obtained comparing cultivators to urban industrial workers.[21] When industrial workers living in villages are compared to those living in towns in rural India and Pakistan, the correlation between modernity and factory experience comes out quite small for all groups.[22] Thus when Inkeles and Smith argue that the factory serves as a school of modernity,

they are on much firmer ground when talking about the urban factory than the factory in a rural area - both because the rural samples are much smaller and because the results are weaker. When I suggest that our understanding of the impact of industrialization in rural areas is weak, this is no minor problem. In the poor nations, about which we are primarily concerned, the great majority of the population lives in rural areas.

Another difficulty with predicting the effect of rural industrialization on the basis of the research we have discussed, is that most of this research studied the effect of the factory only through those who actually work in the factory. However, even in highly industrialized countries only a minority of the population actually works in factories. If the industrialization process creates responsible citizens only among factory workers,[23] then this cannot be seen as an effective tool. This is particularly problematic when we consider that automation is reducing the numbers of factory laborers, and it is clear that newly industrializing countries can adopt the most advanced technology of the world.[24] The question arises, then, whether the factory influences people who are <u>not</u> factory workers. There is some evidence for a "spread effect" in Schnaiberg, where he finds that the

husband's education and family income have an effect on the wife's level of modernism.[25] Even more relevant, a study by Howard Schuman on the effect of cooperatives in East Pakistan found that the entire village and not solely the members of the cooperatives were influenced. Schuman concludes, "It forces us to conclude that in most of the areas we have investigated - family planning, acceptance of strangers, intellectual functioning - the Academy program over several years affected all the hundred or so families in a village and not simply formal cooperative members."[26] Also, if we look closely at the theoretical discussion provided by Inkeles and Smith concerning <u>why</u> the factory makes men modern, we find that much of what is involved is <u>modeling</u>. The factory worker is exposed to <u>models</u> of efficacy, openness to change, planning and so on. He then <u>generalizes</u> these models to his everyday life. It seems reasonable to suspect that such modeling, if it indeed occurs, does not stop with the factory worker. Given the close, large family and the tight knit village characteristic of rural areas, many people who do not themselves work in the factory are likely to know what goes on there through a relative or neighbor who does. I would think that the person who knows that man (as a species) can twist huge pieces of

steel to mold what he likes, will be influenced by this knowledge in much the same way as someone who sees this process at close range. Also, if the factory worker is changing in such fundamental ways, this would in itself influence others he comes in frequent contact with.

1.3 Study Goals

In sum, we have learned something about the social impact of the factory in urban areas, but we know far less about what happens when a factory is built in a rural area. While we know something about the effect of the factory on the factory worker, we know very little about its effect on those who do not work there. This study, then, is an attempt to examine the social impact of the factory in rural areas. We will want to examine to what extent the rural factory meets the goals we set out at the start - to reduce poverty, to create responsible citizens, and to do this without disrupting social structures and destroying cultural heritage.

1.4 Policy Implications

This is not just a theoretical exercise in separating out the components of the composite "modernization", as it has very real practical implications. Many of the

developing nations already have policies which encourage industrial development away from the urban centers, among them Poland[27], Venezuela [28], Israel[29], India[30], Mexico[31], Pakistan[32], and Turkey[33]. Since the introduction of rural industrialization programs in the developing nations, a wide ranging controversy concerning their function and their effectiveness has arisen.[34] Studies of these programs have shown that they are not as efficient, economically, as are factories in urban areas.[35] However, rural industrialization programs have been designed to meet primarily social rather than economic goals. This has been recognized by Shariff in his discussion of rural industrialization in West Pakistan. "The wisdom of letting the social costs in an operation of this kind be hidden may be questionable. It may be preferable to determine the quantum of such costs, calculate the amount of investment needed to generate similar effects through alternative strategies, and avoid the confusion between inefficiency and social costs."[36] One problem here has been the real difficulty of defining and measuring such "social costs," particularly when compared to the relative ease of making an economic evaluation. This study, by setting out social goals, and attempting to measure what effect the rural factory has on these goals, will make

a contribution to the evaluation of a rural industrialization policy.

1.5 Hypotheses

1.5.1 Reduction of Poverty

In general terms, industrialization increases wealth by increasing the productivity per man hour through mechanization. By providing employment, industry increases the income of the workers. This income, as well as that of persons who migrate to the factory, can then be spent on a variety of goods and services. In addition to employment, the factory often provides a market for agricultural goods. This increases the income of the farmers directly. Finally, by taking some people off the land, the well-being of those who remain is improved. In these ways, the extra income from the factory filters through the area - to tradesman, farmer and so on.

We have already pointed out that generation of wealth will not reduce poverty unless it is reasonably well distributed in the population. There is some evidence that factory work attracts those at the bottom of the rural society - those who already work on other people's land.[37] Thus, both through the "filter" process and the direct employment of the more marginal members of

the society, we would expect the rural factory to reduce poverty in the surrounding area.

One of Marx's most disputed predictions was that industrialization would lead to a widening gap between the classes.[38] It will be interesting, although not crucial to our analysis, to see whether or not a factory has any impact on the village income gap between the rich and the poor.[39]

1.5.2 Creation of a responsible citizenry

In order for people to adopt new technologies necessary for increased productivity (adoption of new kinds of seed, for example) and for limiting reproduction, they must be willing to innovate. They must be open to new ideas coming in from extra-local areas, and to evaluate such contributions positively. In order for them to support politically responsible leaders, they must be ready to take action if they are not happy with government officials. In order to exercise good judgement, they must be well informed and able to form opinions about important issues. These capabilities are closely related to the concept of empathy - the ability to project oneself into the role of another person.[40]

Extending the conclusion of Inkeles and Smith,[41] I will hypothesize that access to a factory, not only

through work experience, but just by living near one, will raise the level of precisely these necessary qualities - innovation, formation of opinions, efficacy and empathy. This is accomplished largely through modeling. Most often, when a factory is built in a rural area, the managerial and engineering positions are filled by persons from outside the local area. These people are innovative and efficacious just by the nature of their work. Factory personnel must be able to adapt to new technologies and to solve problems efficiently. The mere presence of these relatively well-educated people exposes near-by villagers to different values, beliefs and ways of doing things. The factory can also provide a model of political efficacy - both through workers organizations and through its own activity in local politics. The factory serves to link the local area to national issues directly, by linking it to national markets, and indirectly, by bringing in mass media and educational facilities.

1.5.3 Preservation of family and community ties, and cultural (religious) heritage

Modernization has generally been seen as a disruptive process - inevitably creating high rates of crime, violence, disorganization and turmoil.[42] Rogers, for example, mentions the negative aspects of modernization

such as conflict, human suffering, breakdown of extended family and the rise in crime rates.[43] Smelser, too, describes the disruption which results from the conflict between forces of differentiation and forces of integration. When a new force, such as industrialization, enters a system, differentiation occurs. As the integrative institutions of the old system are unable to incorporate the new differentiated structure, a period of disorganization occurs until new integrative structures arise.[44] The integrative structures which are most often considered to undergo change with industrialization are religion and family.

Changes in the family system have received special attention. The classic argument can be roughly summarized as follows: Traditional, agrarian societies are characterized by a joint or extended family system. The extended family fosters a collectivity orientation and dilutes individual incentive to work, save and invest. It also hinders the geographic and occupational mobility so characteristic of an industrial society. Thus under the impact of industrialization a nuclear family type arises consisting of a couple and their unmarried children.[45] While this model has been modified and criticized,[46] it is generally agreed that some movement

away from an extended and toward a nuclear family occurs.

In addition, the family is expected to become more egalitarian and the subordinate position of women in the family to change. In general, the status of women rises and they achieve some measure of independence from father and husband.

The influence of religion is also hypothesized to decline with modernization. It has been argued that traditional religion's emphasis on otherworldly goals, preservation of the status-quo, a cyclic theory of time, fatalism, anti-scientific beliefs, and on rigid class distinctions is incompatable with the requirements of modern economic activity.[47] As industrialization progresses, religious activity is said to decrease and religion to become compartmentalized rather than the central focus of life. This interpretation has also been challenged, and there is evidence to suggest that at least some aspects of "religiosity" actually <u>increase</u> with modernization.[48] It can be argued that religion is itself a "modern" institution, providing the individual with a national identity. This discussion goes back to Weber, who on the one hand saw Asian religions as obstacles to economic development, but also found religiousity to be strongest among town dwellers who had

the time and the money to support religious organizations.[49]

For our analysis, it is important to sort out which of these phenomena are related to industrialization itself, and which to urbanization, education, or other closely related factors. In the case of the predicted break-up of the extended family and the weakening of community bonds, urbanization is clearly crucial. When we consider the change in religion, education may be more important. This does not mean, however, that we expect no change in these institutions to accompany industrialization when it occurs in a rural area.

Because employment relating in some way to a rural factory does not necessitate migration from the home village, it is not expected that the extended family structure will be destroyed. However, it is anticipated that some strain will arise between young and old and between women and men. By valuing skills like intelligence and dexterity rather than brute strength and by providing opportunities for economic independence for wives, sons and daughters, the factory will encourage them to challenge the traditional familial hierarchy based on age and sex. Thus while the extended family will probably not break up, some increased strain and possibly some role change is expected. In the case of

religion, there is no concrete evidence that religious belief or practice would be changed by the presence of a factory. A decline in religiosity would be expected only in areas where a direct conflict between the two exists. For example, if frequent prayer requirements interfere with the work schedule, we would expect these to change. But this would occur only for factory workers and then only during working hours. Other examples would be the case where a religion prohibits the use of birth control, or handling money. Even though we would expect to see a decline in religiousity in these areas of conflict, there is no expectation that this would be accompanied by declines in other aspects of religiosity. In fact, a person might be more likely to compensate for the decline by becoming more religious in areas of no substantial conflict.

1.6 Summary

Recent research results imply that a policy of rural industrialization would be of great benefit to poor nations who want to become rich while at the same time avoiding some of the negative side-effects of the industrialization process. This study is designed to take this type of research one step closer to the needs

of policy-makers by asking, "What actually happens when a factory is built in a rural area?" We will study the entire population of villages near such factories, rather than focusing only on those who work in the factory. We will attempt to answer three basic questions: (1) Does the rural factory reduce poverty in the surrounding areas? (2) Does the rural factory contribute to the development of a responsible citizenry? (3) Does the rural factory cause change in integrative institutions such as religion, the family or the community?

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[15]Allan Schnaiberg, Some Determinants and Consequences of Modernism in Turkey, Doctoral Dissertation, The University of Michigan, 1968, p.

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[19]Schnaiberg, op. cit., p.

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CHAPTER II

DATA AND METHODOLOGY

2.1 Design

Ideally, to study the effect of the factory on a rural population, we would want to use a true experimental design.[1] Hereby, we would select a number of villages which were alike in all respects, and examine them closely. We would then randomly assign half of these villages to experimental and half to control groups, placing factories near only the "experimental" villages. After some time, we would go back and reexamine both types of villages. Assuming everything else had been held constant, differences between the "control" and the "experimental" villages could be attributed to the factories. Of course, this is impossible. What is possible, is a design wherein we take a national sample in a country where factories have been built in rural areas, and compare villages which are near factories to those which are not. There are a couple of problems with this type of study. Imagine that we find that the villages near factories are different from the others. How would we know for certain that these differences were due to

the factories? Since we did not study the villages before the factories were built, we cannot know that the villages were initially alike. Thus it is possible that factories were located in areas which were already different. This is certainly likely, since we would expect factories to be located in areas which had good transportation facilities, a potential labor force, a source of raw materials, and so on. Another problem is that rural factories are often accompanied by various services, such as schools, medical facilities, entertainment, and so on. How would we know that the observed differences were due to the factory, rather than these other factors? Imagine, on the other hand, that we find no difference between the "experimental" and "control" villages. We might conclude that the factory has no social impact. But again, we could not be certain. Perhaps factories were located in particularly backward areas. They may have changed these areas such that they are indistinguishable from the rest.

Because of these difficulties, as well as others which are discussed later in this chapter, we will have to be very careful in interpreting results. We will need to try and control for factors which might have influenced factory location, as well as for services

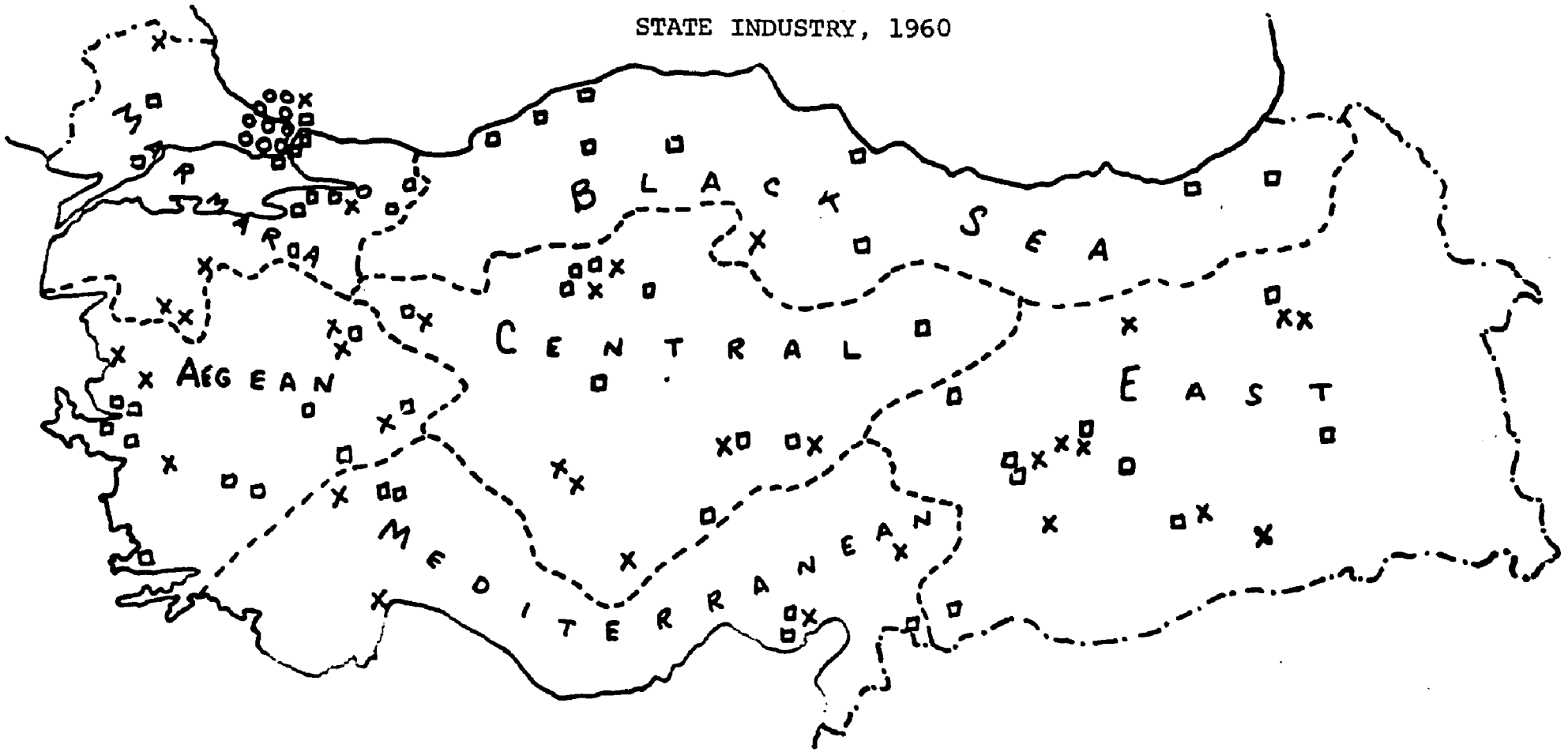
which could have accompanied the rural factories. Such artificial attempts to approximate the experimental model will certainly increase our confidence in our conclusions, but they remain limited. Clearly, it is not possible to measure, or even to think of every possible "antecedent" and "intervening" variable.[2]

2.2 Setting

In order to carry out this design, we need to study a country which has followed a policy of rural industrialization for some time. One such country is Turkey, which has had a policy of regional development since Atakurk's revolution after World War I.[3] Prior to the revolution, Istanbul (Marmara region) was the only major city in Turkey and dominated the country. Running a far second, Izmir (Aegean region) whose wealth came from a rich agricultural hinterland, had developed into a small export center. Practically all of the early industry in Turkey (there were 282 firms in 1915) was located in these two cities. Most of this was small (60% is estimated to be related to food processing and textiles which were consumed locally) and owned by foreigners. The eight government plants in 1923 were all located in Istanbul. (See Figure 2.1)

FIGURE 2.1

STATE INDUSTRY, 1960



TURKEY

1:4,500,000

Source: Malcolm R. Rivkin, Area Development for National Growth, The Turkish Precedent, New York, Praeger, 1965, p. 71 and 122.

o constructed before 1923
□ constructed 1923-1950
x constructed 1950-1960
---- Regional boundary

Following the revolution, Ataturk moved the capital from Istanbul to Ankara, then a small (25,000) town in Anatolia - Turkey's central plateau. This was the first of a series of programs designed to develop Turkey's interior. Equally important was the 1927 "Law for the Encouragement of Industry" designed to stimulate private enterprise. The incentives provided by this law, however, were not great enough to overcome the risks or the traditional Moslem contempt for the businessman. (In the past, business activities had been left to the Greek and Armenian minorities. After the revolution, these groups were driven out of Turkey, leaving a dearth of entrepreneurial skills.) Those private firms which were established were disappointing to the government because they were again congregating in the Marmara and Aegean regions. Very little industrialization was occuring in the country's interior.[4] As a result, the mid-1930's saw the development of government industries, designed to meet two criteria: import substitution and the development of the interior. The Republican Party (Ataturk's party) program of 1935 states explicately, "The industrial undertakings [which the state or individuals shall establish] shall not be concentrated in certain parts of the country, but shall instead, be spread all over the country. . ."[5]

By 1950 there were about 50 state industries in 35 communities across the country. (See Figure 2.1) 68% of the country's work force was located outside of the five largest urban centers at this time. While some of these state plants were located close to raw materials or urban markets, many were sited completely for reasons of defense or equity.[6] Private industry also developed during this period, but was heavily concentrated in Istanbul, Izmir and, in part, Ankara.[7]

During the entire Republican period (1927-1950) foreigners were considered highly suspect, and emphasis was on self-sufficiency. This resulted in a heavy emphasis on the development of industry, while agricultural production was largely ignored. During the years following World War II, both of these policies were reversed. One reason was Turkey's participation in the Marshall Plan and in the United Nations. As post-war Europe was badly in need of agricultural products, attention began to focus on the improvement of Turkish agriculture. Also, the first election was held in 1950. In anticipation, a new party (the Democratic Party) began to build up support among the peasants by promising to shift emphasis from industry to agriculture and to encourage free enterprise. Under the Democrats, the reasons for the rural

industrialization program changed, but the program continued. Between 1950 and 1960, over 40 state factories were built (see Figure 2.1), only 12 of which were located in the Marmara and Aegean regions. One reason was the government's need for continued support from the countryside. Karpat, a Turkish political analysist, reports,

> "This urgency [for economic development] is evidenced by the fact that the demand for industrialization now comes directly from the people, who are in need of additional employment outlets. Deputy candidates seek office by promising factories to their constituents and, once in office, if influential in the government, they succeed in keeping their promises, even if at times the factory has more prestige than economic value."[8]

Democratic Party leaders made a point of attending the dedication of all new plants.[9] Total employment in state industry doubled (to 128,000) between 1950 and 1960, although the program was severely criticized for being very wasteful of limited economic resources.[10]

In sum, then, Turkey has been building state factories outside of the major urban areas since 1935. Thus a study of rural Turkey will produce the raw material needed for our study - villages located near factories. By comparing these villages to others not near such factories, we will be able to assess the impact of the factory in rural areas.

2.3 Study Description

I was most fortunate that a large scale survey of Turkish villages was undertaken in 1962, and that I was able to utilize this data for this study.[11] The Turkish study, called the Rural Development Research Project (R.D.R.P.) was designed to provide two separate samples - a sample of villages and a sample of villagers.[12] The Turkish census definition of village, communities of less than 2,000 persons, was utilized to define the village universe. A recent (1960) list of all 35,000 villages in Turkey with their location and population, stratified by region,[13] was used as the sampling frame. Each village was given a probability of entering the sample proportionate to its size. 458 villages were selected in this manner. A fixed number of villagers (16) was then to be chosen from each village. A random starting point and a sampling fraction were provided for each selected village.

About 125 interviewers were selected from recruited village school teachers. These were people of village background, of both sexes, with adequate education and young enough to withstand the physical strain of the travel and interviewing. The interviewers had a two week training course in Ankara followed by three major pretests. The interviewers were divided into 16 teams of 5 - two

male and two female interviewers and one leader. Each team worked in a region where a regional coordinator served as a link between the team, the government officials in that area and the central office in Ankara. Considerable effort was spent to keep interviewer morale high throughout a very hot and exhausting summer. The major interviewer difficulty appeared to be the inaccessibility of the villages, over a fourth of which had to be reached by foot, horse or donkey.

The sample was randomly divided into two independent subsamples with the interviewing for subsample 1 done before subsample 2. This was done to assure valuable results even if the politically sensitive operation was suddenly stopped before completion. This did not occur and the results of the two subsamples have been combined for this analysis.

To obtain the sample of individual villagers, the team leader, who had been provided with the census estimate of village population and all available population lists for voting, military or tax purposes, sat down with the village leader (Muhtar), the council of elders and other knowledgeable villagers, and constructed an up-to-date list of all village residents aged 16 and over. Using the predetermined starting point and sampling

fraction, the leader then selected the sample,[14] which was immediately interviewed by the team, men interviewing men and women interviewing women. In all, 94.8% of the sample was interviewed, with an average of 15.3 respondents per village.[15]

For each village, the team leader completed a "Village Information Sheet" containing ecological information about the village. This was based on his personal observations, his discussion with the village head man, and any other person, official or otherwise, that he might find helpful.

The basic interview schedule for individuals was made up of about 100 questions and took about one hour to complete. This schedule is divided into eight main sections; communications, personal background, attitudes toward development, other psychological traits, socialization, position in and conception of the village social structure, politization and religiousity. Particular care was taken with interviewing in Kurdish speaking areas and with regional variations in connotation.[16]

The Rural Development Research Project (R.D.R.P.) then, will provide us with enough information about Turkish villagers to enable us to determine what, if any, impact a factory has on a <u>rural</u> population. In this way we will

also be able to evaluate the policy of rural industrialization according to the three goals we have established: to decrease the level of poverty and to create a responsible citizenry without social disorganization.

2.4 Index Construction

2.4.1 Industrialization

It is unfortunate, given Turkey's long standing program of regional industrialization, that the survey instrument contained only very limited material on factories. There were only two questions used to measure industrial exposure on the village Information Sheet.[17] For each village, the team leader determined, "How far from the village is the nearest factory employing one hundred or more workers?" There were 18 villages (262) individuals) within 10 kms. of a large factory, 29 villages (428 individuals) between 10 and 19 kilometers and 28 villages (421 individuals) between 20 and 29 kilometers, 51 villages from 30-49 kilometers, and 280 villages 50 or more kilometers from a large factory.[18] We do find then, a substantial number of villages in the R.D.R.P. sample which are located near factories, although the distribution is skewed toward the distant end of the continuum.

This question, "distance from factory" provides a clear and easily understandable measure. It is also useful, since it tells what kinds of social changes can be expected when a factory is introduced into a rural area. However, it is a very frustrating concept for those who want to understand the process under which these changes come about. How does the factory affect peoples attitudes? Is it that only the experience of working in a factory makes one more efficacious, for example, is exposure to others who work in factories effective, or is mere knowledge of the existence of factories enough to effect this type of change?

Our study is not designed to examine the impact of the factory on the worker.[19] However, we do want to know what role the worker plays in any "spread effect." One reason "distance from factory" is a meaningful concept is that we would expect that those villages located closest to the factory would have the highest proportion of persons working in the factory. It is reasonable to expect that the major social impact of the factory will be through the factory worker. Thus we will want to know what proportion of the villagers actually work in the factory. We will want to use a second question from the Village Information Sheet, then, in our analysis, "(If

such a factory exists within 30 kilometers) What percentage of the adults of this village, on the average, work full-or part-time in this factory?"[20] There were 33 villages where no one worked in the factory, 32 villages with less than 10% of the adults working, and 10 villages with 10% or more working in the factory. This allows us to examine whether individuals living in villages where a good proportion of people work in the factory differ from those who come from villages where no one actually works in the factory.

Information on the proportion of villagers working in the factory was available only for those villages within 30 kilometers of a factory. Since this variable is central in our analysis, as one of only two measures of industrialization, I decided to limit the analysis to the 75 villages within 30 kilometers of a large factory.[21] This limitation of the sample raises some questions concerning both the generalization of the findings and the interpretation of negative results with respect to the "distance" variable. Imagine that, for example, we find that the practice of religion is about the same for individuals in all of the three distance categories, 0-9 kilometers, 10-19 kilometers and 20-29 kilometers. We would conclude that the factory has no effect on

religious behavior. However, it is possible that the factory influences all of the villages in the subsample about the same amount. In that case, we would be making an error by concluding that no change had occurred when in fact it had.

However, it should be remembered that the range of 30 kilometers, about 20 miles, is a considerable distance in rural Turkey, where transportation facilities are poor. One question on the Village Information Sheet, "What is the most common form of transportation used to go from this village to nearby villages?" provided the following distribution:

Donkey	31%
Horse	24%
Walking	20%
Horse cart	10%
Ox cart	10%
Truck	1%
Jeep or car	1%
Other	3%
	100%

By and large, the Turkish villagers are dependent on primitive methods of transport. While the time necessary to go from the village to the nearest factory was not ascertained, the survey did get both mileage and time estimates from the village to the Kaza center. We find the following time estimates for travel for distances close to those used in the "distance from factory"

question.

Distance	Estimated time
0-9 kms.	Less than one hour
10-19 kms.	1-3 hours
20+ kms.	More than 3 hours

We can conclude that the three distance categories we will be using are meaningful categories. It is unlikely that villagers living over 20 kilometers from a factory (more than 3 hours away) would be affected to the same degree as those within 10 kilometers (less than 1 hour away). Since we will be comparing these groups to one another, it is anticipated that if the factory does have an impact on a particular variable, then this impact would be strongest among those living near the factory.

There is some support for this conclusion in the results of the cross-tabulation of "distance from factory" (up to 30 kilometers) and percent working in the factory (table 2.1). Here we find that those living within 10 kilometers of a large factory are more likely to work there, but that there is no difference between those 10-19 kilometers and those 20-29 kilometers away. Since these two factors are related, as we would expect, we will need to try to separate out the influence of each in drawing conclusions.

TABLE 2.1

PERCENT OF POPULATION WORKING IN LOCAL FACTORY BY DISTANCE FROM FACTORY

	Distance from Village to Factory (in kilometers)		
% of Villagers who work in Factory	0-9 kms. (N=18)	10-19 kms. (N=29)	20-29 kms. (N=28)
None	28%	49%	50%
Under 10%	50	41	39
10% or more	22	10	11
Total	100%	100%	100%

Our measures of industrialization, then, are quite weak. We have information on extent of exposure through factory work for only those villages within 30 kilometers of a factory. We do not know if this work is full-time, part-time, or seasonal. We do not know the duration of the work, the type of work, or the type of factory. We do not know if those who work in the factory are women or men, young or old, educated or unskilled. Nor do we know how long the factory has been in the area. Another problem was that the identification of villages was limited to village name and province, with no record of the intermediate level - the kaza. This made it all but impossible to locate villages accurately, and thus, to supplement the survey information with that from outside sources.[22]

2.4.2 Poverty

As one of our goals is the reduction of poverty, we need to develop a measure of poverty. One problem is that poverty is a relative concept. What is considered poor in one area is not in another. This will change over time also, so that a person who felt "average" one year may, because of rising expectations, define himself as "poor" the next. A measure should be somewhat objective, then, rather than rely on self-definition. There were three such measures available on the R.D.R.P.

questionnaire. First, we devised a measure of density by dividing the number of persons in the household by the number of rooms in the house, giving us a measure of "people per room" ($\bar{x}$ = 3.09). Also, each individual was asked, "In the past year, did your family ever go hungry for a period of several days?" and "In the past year, did your family ever suffer from a lack of clothing?"[23] The three measures are related to each other, as shown in tables 2.2.1 - 2.2.3. An index of poverty was constructed by scoring a "yes" answer on the "lack of food" and "lack of clothing" questions 2 points, and a "no" answer 1 point, and adding these scores to the density score for that individual. Thus an individual who reported a lack of both food and clothing and a density of 5 people per room would score 9 on the Poverty Index. Someone with no shortage and one person per room would receive a score of 3. The resulting index has the following distribution:

Score	Frequency	Score	Frequency
2	32	9	39
3	182	10	16
4	250	11	24
5	208	12	19
6	167	13	6
7	89	14	4
8	65	missing	10

TABLE 2.2

RELATIONSHIPS BETWEEN MEASURES OF POVERTY

TABLE 2.2.1 FAMILY SUFFERED FROM LACK OF FOOD BY FAMILY SUFFERED FROM LACK OF CLOTHING

Family Suffered from Lack of Food	Family Suffered from Lack of Clothing: No (N=650)	Yes (N=446)
No (N=754)	91%	36%
Yes (N=341)	9%	64%
	100%	100%

Gamma = .90, Kendall's tau_c = .54

TABLE 2.2.2 FAMILY SUFFERED FROM LACK OF FOOD BY HOUSEHOLD DENSITY

Household Density	Family Suffered from Lack of Food: No (N=754)	Yes (N=341)	eta	% of Variance Explained
Mean People per Room	2.84	3.66	.18**	3.2

TABLE 2.2.3 FAMILY SUFFERED FROM LACK OF CLOTHING BY HOUSEHOLD DENSITY

Household Density	Family Suffered from Lack of Clothing: No (N=650)	Yes (N=446)	eta	% of Variance Explained
Mean People per Room	2.78	3.55	.18**	3.2

** significant at .01 level

2.4.3 Creation of a Responsible Citizenry

We are interested in knowing whether a factory makes people more open to new ways of doing things, so that they will be willing to adopt new methods of production, and new behavior such as the use of birth control. Also, we want to see if there is a relationship between rural factories and the development of political responsibility in the community. We have developed four basic measures relevant to these questions.

2.4.3.1 Innovation

There were three questions which could be used as measures of openness to new ideas. One question asked, "Do you think that people who leave the village, live for a while in cities, and then return to the village frequently bring back with them ideas that help to improve village life?" This measure is not without problems, but it does get at whether one evaluates the contribution of new ideas in a positive way. A "yes" answer on this question was scored "2" (N=440) and a "no" answer, "1" (N=443).[24]

Another question was, "If a new and useful way of working were known to you, would you be willing to be

the first in this village to try the new way?" A "yes" answer was scored "2" (N=973) (included were those who would try, but would not be first,) and a "no" answer got one point (N=95) (45 are missing or errors.) This result is heavily skewed toward a willingness to innovate. It might be reconciled with the results of the earlier question if villagers do not define ideas coming from the cities as "new and useful."

A third question, asked only if the respondent is "married and of child bearing age" is, "Would you be interested in receiving and using a free drug which would keep you from having too many children?" Here, there were 446 answering "no" (scored one point) and 352 answering "perhaps" or "yes" (scored 2 points.) There are 313 persons who either were not asked, or who did not answer the question.

As these three measures were not closely related, these are used as separate measures of the concept of innovation.

2.4.3.2 Opinion Formation

In order to innovate, or to make responsible political decisions, a person must be able to form and

express opinions on a wide variety of topics. This was measured inversely by adding up the number of times an individual responded "don't know" to 50 selected questions concerning the individual, his family and his village. The resulting index ranged from 0-19 with the following distribution:

# of "don't know's"	frequency	# of "don't know's"	frequency
0	208	9	18
1	227	10	11
2	201	11	17
3	143	12	9
4	96	13	2
5	54	14	5
6	47	15	1
7	33	16	6
8	32	19	1

2.4.3.3 Empathy

The ability to empathize, to imagine oneself in the position of others very different from oneself, is also related to the creation of responsible citizens. Such ability is particularly important in order for people to be able to evaluate the programs and policies of authorities, be they agricultural extension agents or politicians. The R.D.R.P. questionnaire contained a series of three questions with the following format:

"Suppose you were the (Prime Minister of Turkey) (Muhtar[25] of this Village) (Kaymakam of this Kaza[26]); what are some of the things you'd want to do?" Responses were scored only if the respondent was able to give a definite answer. Table 2.3 shows that the relation between the 3 questions is high, with most villagers able to empathize with the position of Muhtar, and no large differences between Kaymakam and Prime Minister. This may be an indication of the isolation of these villages, where no real distinction is made between the county official and one of national stature. The three questions were combined into an index of empathy by scoring each definite answer one point, and summing. The empathy index ranges from 0-3 with the following distribution:

Score	Frequency
0[27]	269
1	220
2	231
3	391

2.4.3.4 Efficacy

Political responsibility requires that people not only hold opinions, but be willing to act on their beliefs. Two questions were used to measure efficacy: "Suppose that the (Muhtar and the Council of Elders) (National Government) were considering doing something

TABLE 2.3

RELATIONSHIPS BETWEEN MEASURES OF EMPATHY

TABLE 2.3.1 EMPATHY FOR MUHTAR BY EMPATHY FOR PRIME MINISTER

	Empathy for Prime Minister	
Empathy for Muhtar	Yes (Definite Answer) (N=591)	No (Vague Answer) (N=217)
Yes (Definite Answer) (N=740)	90%	45%
No (Vague Answer) (N=212)	10% / 100%	55% / 100%

Gamma = .83, Kendall's tau_c = .35

TABLE 2.3.2 EMPATHY FOR KAYMAKAM BY EMPATHY FOR PRIME MINISTER

	Empathy for Prime Minister	
Empathy for Kaymakim	Yes (Definite Answer) (N=591)	No (Vague Answer) (N=217)
Yes (Definite Answer) (N=524)	84%	28%
No (Vague Answer) (N=223)	16% / 100%	72% / 100%

Gamma = .86, Kendall's tau_c = .41

TABLE 2.3.3 EMPATHY FOR MUHTAR BY EMPATHY FOR KAYMAKAM

	Empathy for Muhtar	
Empathy for Kaymakam	Yes (Definite Answer) (N=740)	No (Vague Answer) (N=212)
Yes (Definite Answer) (N=524)	80%	24%
No (Vague Answer) (N=223)	20%	76%
	100%	100%

Gamma = .86, Kendall's tau_c = .34

you considered harmful or unjust: what do you think you could do about it?" Responses were coded by grouping those who would take some positive action and those that would not. Table 2.4 shows the relationship between the two measures. Villagers clearly feel far more efficacious at the local level than the national level - probably a realistic assessment. This does show that they are not (or do not feel themselves to be) powerless in local affairs, as they are often portrayed. To make an index of efficacy, each answer indicating that the respondent would take action was scored one point, and then the two questions were added. The index has a range of 0-2 as follows:

Score	Frequency
0	312
1	572
2	227

2.4.4 Disorganization

Disorganization is very difficult to measure, and even to define. What one person sees as positive changes, another finds disruptive. Without attempting to determine what structural changes are desireable, we will simply try to examine areas which have been widely predicted to change with industrialization.

TABLE 2.4

RELATIONSHIP BETWEEN EFFICACY MEASURES

Efficacy with Muhtar and Council of Elders	Efficacy with National Government: Yes (takes positive action) (N=276)	No (N=748)
Yes (takes positive action) (N=750)	85%	65%
No (N=321)	15%	35%
	100%	100%

Gamma = .50, Kendall's tau_c = .16

2.4.4.1 Religion

We have predicted that religious beliefs and practices would not be effected by the introduction of a rural factory. In order to measure religious behavior, a direct question: "Do you pray the ritual prayers?" was used. The response shows that most people, 84% (938), responded affirmatively, and only 14% (160) said "no", with 2 refusing and 11 errors. A second question measured religious knowledge by asking, "What are the Five Basic Principles of Islam?" There were 598 persons who answered correctly, and 469 who did not (44 errors). Thirdly, there were a series of questions measuring religious strictness. We choose three of these as follows: "Now I shall mention several different activities to you. For each of them, I'd like you to tell me whether you think the activity conflicts or does not conflict with religion. What about (hanging pictures on walls) (drinking raki[28] or wine) (lending money at interest)."[29] An index of religious strictness was made by counting the number of things the respondent felt conflicted with religion. Table 2.5 shows how this index relates to each of its component items, which "scale" rather well. In other words, of those saying only one of the items conflicts with religion, for 76% the item was "drinking raki or wine."

TABLE 2.5

RELIGIOUS STRICTNESS INDEX BY ITS COMPONENT ITEMS

Areas of Conflict with Religion	Religious Strictness Index 0 (N=22)	1 (N=76)	2 (N=300)	3 (N=713)	Total 1111
Drinking Raki and Wine	--	71%	93%	100%	1047
Lending Money at Interest	--	24	76	100	959
Hanging Pictures on Walls	--	5	31	100	809
		100%	200%	300%	

TABLE 2.6

RELATIONSHIP BETWEEN RELIGIOSITY MEASURES

	Prayer	Knowledge	Strictness
Prayer		.10	.19
Knowledge			.11
Strictness			

The separate items, prayer, knowledge and strictness were combined into a single index of religiosity, more for convenience than because the measures were closely related. (See table 2.6) To make the Religiousity Index, prayer was given 3 points, and no prayer, 1 point; knowledge of the five principles of Islam was scored 2 points, and those who did not know them received one point. These scores were then added to the Religious Strictness Index, with the following results:

Score	Frequency
2	6
3	21
4	59
5	114
6	146
7	377
8	382
error	6

2.4.4.2 Family

The aspect of family change which has received most attention is the change from an extended to a nuclear structure. An index of family type was constructed from a question in which each respondent was asked to identify all of the adults sharing his household. The results were as follows:

Family type	Frequency
nuclear	435
3 generation	531
lateral (2 or more brothers)	5
other relatives	123
alone, or with non-relatives	15
error	2

We combined the nuclear families with those living alone to get 450 nuclear families (scored 2 points) and the rest together made up 659 traditional families (scored 1 point).

Another important aspect of family structure widely predicted to change is the role of women. Unfortunately, there was no real examination of this in the R.D.R.P. questionnaire. The only question remotely related was one which ascertained, "In general, when an important decision on a family problem has to be made in your family, how is that decision made - what is the usual procedure?" We were able to code the responses for female participation by scoring each answer which specifically mentioned a female (such as, "My mother decides," or "My mother and father decide.") 2 points, and those which did not, 1 point. In all, there were 246 cases where females were included, and 733 where they were not (error = 82).

Another, rather complex index was constructed to measure the position of women. There were two questions on the questionnaire which measured the amount of

education needed for both boys and girls, "In general, about how much schooling does a (young man) (young woman) need to get along well in life?" In order to see whether an individual feels more education is needed for boys than for girls, a discrepency index was made as follows: those who said girls needed primary school or less got one point (N=392), middle school or vocational school, two points (N=209), and Lycee (high school) or university, three points (N=425). For the question concerning boys, the numbers were 139, 142 and 732 respectively. (There were 85 errors for the girl question and 98 for the boy question.) Thus there was clearly a difference in this judgement with respect to boys and girls, with 71% saying that boys needed at least a high school education! I added two points to each boys score in order to eliminate the possibility of negative numbers. The "girls" scores were then subtracted from the "boys", giving an index with the following distribution:

Score	Frequency
0	15
1	43
2	656
3	193
4	190

We also suggested that the rural factory might cause some strain between the old and the young. Again, measurement in this area is not strong. There was one relevant question: "Are young people today less respectful of their elders than they used to be?" There were 555 persons who said yes (scored 2) and 467 who said no (scored 1). The 89 who said "don't know" or refused were not included in the index.

2.4.4.3 Community

There were really no good measures of community functioning - and indeed this is a very difficult concept to measure. There was one question, "Do the people of this village usually get along well with each other or do they not get along well with each other?" There were 875 (79%) responding that they get along well (scored 1 point) and 186 reporting that conflicts occur. 50 persons were eliminated through "don't know's," refusals or reporting that "they don't have much to do with each other." (N=34)

2.4.5 Summary

This constitutes the major indices which will be used in the following analysis. Additional measures, introduced in the text, will be described at that time. All of the "test" variables will also be described when they are

introduced, and in Appendices I, II and III.

2.5 Methodology

The main technique to be utilized in the analysis of data is the analysis of variance. This is considered appropriate whenever the independent variable is nominal and the dependent variable is interval. Thus we will be treating the variables "distance from large factory" and "% of adults working in factory" as nominal variables. In fact, both variables could be considered to be at the interval level of measurement. There are difficulties here, though, since the responses were immediately coded into grouped categories. Also, the measures do not have the precision associated with interval data. It is possible in the case of the "distance" measure, that the amount of time it takes to get to the factory is more important than actual distance. Also, there are psychological dimensions to distance which are not considered here. Thus, it is reasonable to treat the industrialization measures as somewhat lower than interval data. They are probably most appropriately considered ordinal data, and we will take account of ordinality when making interpretations.

We will be treating the indexes of the dependent variables of poverty, innovation, opinion formation, empathy, efficacy, religiousity, family and community as interval level data. In this case, we face some danger, since we are treating what is actually ordinal data at a higher level than is justified. However, it has been shown[30] that the error likely to be generated by this assumption is negligible.[31]

We will present, then, a mean of the dependent variable index for each category of the independent variable. The Eta statistic will be used to show the strength of association, and the F test to determine statistical significance. In the analysis of variance[32] we break the total variation in scores into two parts: that between the individual score and the category mean, and that between the category means and the grand mean. Both the F test and the Eta are based on the ratio of these two types of variation:

$$F = \frac{\text{Between categories variation}/\text{Between degrees of freedom}}{\text{Within categories variation}/\text{Within degrees of freedom.}}$$

$$E^2 = \frac{\text{Between categories variation}}{\text{Total variation}}$$

The correlation ratio is slightly biased. However, this is serious only in cases where the number of cases in each category becomes rather small. Since our sample is

large (1100), and the number of categories small, it was not necessary to use the unbiased correlation ratio, ω^2. The interpretation for the correlation ratio ($\mathbb{E}^2$) is directly analoguous to that for ordinary product-moment correlation, but excluding the linearity assumption.

2.6 Generalizalization of Findings

Technically, our findings are generalizable to Turkish villagers living within 30 kilometers of a factory in 1962. Since Turkey has changed in these past 11 years, we cannot say that our findings are applicable to rural Turkey today. Also, it should be stressed that this study was limited to only one nation, and cannot justifiably be generalized to other industralizing areas of the world. This means that we cannot conclude that "rural industrialization" has particular characteristics, but only that it did, as far as we have been able to determine, in Turkey, in 1962.

This is not to say that the study can have no theoretical implications. Like all research, it is more secure in its negative than its positive findings. In other words, if we find no relationship between industrialism and some dependent variable where a theory predicted we would find one, then this theory has not

"held up." The theory was a general one, and predicted that certain changes would accompany industrialization. If this did not occur in Turkey in 1962, then the theory must be reformulated to take this into account. On the other hand, positive findings do not "prove" the theory, even with respect to Turkey in 1962. Theories whose predictions do "hold up" should be further tested in other areas and with different methods.

Our findings, then, should be treated with caution. This is particularly so considering the practical implication of this project. However, all research, regardless of how carefully done, is subject to many of these same concerns. Persons in decision-making positions, evaluating a development strategy such as rural industrialization, have to come to conclusions on the basis of what is known at the time, regardless of how shaky. It is hoped that our research will be of aid to these persons, in its formulation and discussion of the issues as well as its findings.

Footnotes to Chapter II

[1]See Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research, Chicago, Rand McNally & Co., 1963, Chapter 3.

[2]This terminology is from Morris Rosenberg, The Logic of Survey Analysis, New York, Basic Books, 1968.

[3]This section is heavily dependent on Malcolm R. Rivkin, Area Development for National Growth, the Turkish Precedent, New York, Praeger, 1965.

[4]Richard D. Robinson, The First Turkish Republic, Cambridge, Harvard University Press, 1963, p. 106; Zia Hershlag, Turkey: The Challenge of Growth, Leiden, E. J. Brill, 1968, p. 163; Rivkin, op. cit., p. 66. For a discussion of entrepreneurs in Turkey, see A. P. Alexander, "Industrial Entrepreneurship in Turkey, Origins and Growth," Economic Development and Culture Change, vol. 8, no. 4, 1960.

[5]Rivkin, op. cit., p. 67.

[6]Ibid., p. 70.

[7]Ibid., p. 82.

[8]Kemal H. Karpat, Turkey's Politics, The Transition to a Multi-Party System, Princeton, Princeton University Press, 1959, p. 305.

[9]A. Said Nil and Nusret Baban, Turkiye 1950-1958, Istanbul, Sulki Garan Matbaasi, 1959.

[10]See, for example, Individual Reports of State Economic Enterprises in Turkey, Organization for Economic Cooperation and Development and Agency for International Development, Ankara, 1961.

[11]The Rural Development Research Project was co-sponsored by the Turkish Government and the U.S.A.I.D. I am most grateful to Dr. F. W. Frey for letting me use this data for my research. This section is heavily dependent on his description of the project in Frederick W. Frey, "Surveying Peasant Attitudes in Turkey," Public Opinion Quarterly, 27, Fall 1963, pp. 335-355.

[12]A third sample of formal village leaders and their wives was also obtained. This third sample is not included in this study.

[13]The sample was also stratified on urban proximity, and an additional sample of villages near cities was taken. This sample is not included in our study.

[14]Team leaders had been trained to avoid trend and periodicity in the frame, and were carefully observed in three pre-tests to make sure they understood the correct method of choosing the sample.

[15]This is somewhat less than the 16 persons per village expected, in part because this number (16) was calculated from census population estimates which included soldiers, those physically or mentally incapable of being interviewed, transients, etc., which were excluded from this sample.

[16]Further discussion of the validity of the data is found in Chapter 5.

[17]A third question, "What sort of factory is this - that is, what does it produce?" was asked, but, unfortunately was never coded. This information would have made it possible to utilize other available information on characteristics of Turkish factories, such as size, sex of employees, date of construction and so on.

[18]As villages over 30 kilometers from a factory were not included in the subsample analyzed in this study, we do not have precise numbers of individuals for the 30-49 and 50+ kms categories.

[19]The question as to whether our sample included factory workers or not is important, since higher scores could reflect changes in factory workers rather than a "spread" effect. However, two questions determing primary and secondary occupation show the number of persons identifying themselves as factory workers to be minimal. Also, we found no correlation between these "occupation" questions and either of the other two measures of industrialization (distance from factory and proportion of villagers working in the factory. This could mean that those who identified themselves as "laborers" work in urban factories, or even factories in Western Europe. More likely, the response "Işçilik," which means "working"

might mean some form of labor other than factory work. In either case, we can feel confident that our sample does not contain factory workers in numbers significant to alter the results.

[20]It is not clear whether the person making the estimate reported this percentage on a base population which included women, old people, and so on.

[21]This was done also for the practical purpose of reducing the large data set (made up largely of persons living over 30 kms. from a factory) to a more reasonable size (1111). As the financing of the computer expenses for this project was uncertain, such economizing was necessary. However, in hindsight, there were better ways to have achieved this without completely eliminating one end of the "distance" continuum - sampling from only the (larger) distant categories, for example. Further discussion of the impact of this decision on the results is found in Chapter 5.

[22]I am grateful to Dr. Richard Robinson, who allowed me the use of his marvelous library at the Harvard University Center for Middle East Studies. Unfortunately, I was unable to pinpoint the location of the majority of villages.

[23]A third question in this series, dealing with lack of fuel, was eliminated as it was considered too closely related to regional factors, i.e., families in heavily forested regions would not suffer from lack of fuel, no matter how poor they are.

[24]208 of the 228 persons not included in this index answered "don't know," probably indicating no contact with persons who have come back to the village from the city.

[25]Translation: headman.

[26]Translation: Governor of this County.

[27]This score includes those who gave vague answers, those who give no answer, and error cases.

[28]Raki is a common Turkish whiskey flavored with anise.

[29]There were two other questions in this series, "translating the Koran into Turkish" and "using a birth control drug" which are not used in this index as they were felt to be too closely related to factors other than religiousity.

[30]Sanford Labowitz, "The Assignment of Numbers to Rank Order Categories," ASR, June 1970, vol. 35, no. 3, p. 515.

[31]This is particularly so since most of our variables approximate a normal distribution. Most also have healthy numbers of cases in each category, (the exceptions being "poverty" and "opinion formation").

[32]Hubert J. Blalock, Jr., Social Statistics, New York, McGraw Hill, 1972, p. 317-328 and 354.

CHAPTER III

THE SOCIAL IMPACT OF THE RURAL FACTORY

We have set three goals for "modernization" programs. Obviously, of prime importance is that such a program reduce poverty. This is the promise of industrialization and the central goal of countries pursuing it. Secondly, there is a critical need for people in these nations to use their new-found powers in responsible ways. This means that resources not be exploited, that population growth be controlled, and that political leaders not use new weapons to settle problems. Finally, violent disruption of social institutions, such as the family, the community, and the pattern of religious belief and behavior, should be avoided. In this chapter, we will examine the effect of the factory on the rural village to determine its impact on poverty, the ability of villagers to act responsibly, and integrative social institutions. We will be using two measures of industrialization - the distance from the village to the factory (up to 30 kilometers) and the percentage of adults who work in the local factory. We will begin with "distance" and then

determine whether the relationships (if any) are due to the influence of factory workers.

3.1 The Impact of Distance from Factory

3.1.1 Poverty

We have argued that the introduction of a factory into a rural area will raise the standard of living of people living in the surrounding area. In order to measure the standard of living, an index of poverty based on three factors - lack of food, lack of clothing, and density, was created. In comparing the three categories of "distance from factory" (row 1, table 3.1) we see that poverty is highest in those villages farthest from the factory (5.79), that it falls lowest in villages 10-19 kilometers from the factory, and moves up somewhat to 5.23 in those closest. Since the relationship is not monotonic, we want to determine which differences account for the significant result. Using separate t tests, we find that the difference between the far and medium categories, as well as that between the two extreme categories are significant at the .01 level ($t = 4.59$ and 2.96 respectively.) The increase between the medium and close categories is not significant ($t = .86$). We find, then, a positive relationship between distance from factory and "poverty" (i.e., as

TABLE 3.1

POVERTY AND WEALTH DISTRIBUTION BY DISTANCE FROM FACTORY

Poverty and Distribution of Wealth	Distance from Factory (in kilometers)			
	20-29kms (N=421)	10-19kms (N=428)	0-9kms (N=262)	% of Variance Explained
Poverty Index	5.79	5.08	5.23	1.7**
Number of Wealthy Persons in Village	2.35	2.40	2.22	1.4**
Perceived Inequity	1.87	1.88	2.08	1.0**

* = significant at the .05 level
** = significant at the .01 level

Note: All tests are 2-tail.

distance decreases, the level of poverty is reduced.) However, the relationship is small, with distance explaining only 1.7% of the variance.[1]

We have mentioned the possibility that the factory will generate wealth, but that this will be unequally distributed such that it will not have any impact on the extent of poverty. If this is the case, we would expect that wealth would be more unequally distributed in villages closest to factories than others. The R.D.R.P. questionnaire contained the following question concerning wealth distribution in the village: "In your village, is there just <u>one</u> wealthy person, a few wealthy people, or is everyone just about the same in wealth and no one much wealthier than the rest?" The responses were coded such that a score of 1 meant only one wealthy person (N=41), 2 was a few wealthy people (N=631), and 3 for no one wealthier than the rest (N=417).[2] The results (row 2, table 3.1) show a low score for the villages closest to factories, indicating a higher liklihood of only one or a few wealthy people. Again, the results are not monotonic. However, the difference between the far and medium distance villages is not significant (t=1.35), while the closest villages are significantly different from both medium and far categories (t=4.28 and 2.97 respectively.) The data suggest then, that the incoming wealth from the factory is concentrated rather than diffused throughout the village

population.

Supporting this interpretation is a question dealing with the perception of change in wealth distribution. Individuals were asked whether they felt that wealth differences in the villages were getting larger, getting smaller or staying the same. This question was made into an index of perceived inequity by scoring the first response 3 (N=346), the second 1 (N=270), and the third 2 (N=414).[3] This index is presented for each of the levels of "distance from factory" in the third row of table 3.1. Here, as in the previous variable, we find the far and medium distance villages with similar scores (although it is monotonic) with the villages closest to the factory showing the highest perceived inequity. The data suggest, then, that wealth differences are more likely to be perceived to be <u>increasing</u> only in the villages nearest the factories. However, here too the amount of variance explained by "distance" is very small (1%).

These results should be of particular interest to those advocating rural industrialization to counter inequity. It is suggested here that by generating some new income in the surrounding area, rural factories may very well decrease rural-urban or regional inequity. However, this does not mean that equity within the factory

area is increased. On the contrary, our data suggest that wealth differences are perceived to be increasing in villages nearest the factory.

3.1.2 Responsible Citizenry

It is vitally important, both for internal development and for the survival of the entire world, that citizens in the poor countries behave in a mature and responsible manner. We have developed measures of qualities essential to the development of such behavior: Innovation, Opinion Formation, Empathy and Efficacy. Table 3.2 presents the mean score for each of these indicies for each "distance from factory" category. Looking at the innovation questions, we see that we again explain a small, although significant portion of the variance. In the question on whether or not the respondent agrees that ideas coming from the city improve village life, the values are monotonic, although not linear. The biggest difference is between 20-29 kilometers and 10-19 kilometers, with all those within 20 kilometers of the factory showing similar values. The other two questions, whether the respondent would be the first in his village to try a new method, and whether he would try birth control, show the same pattern with the largest split occuring between the far and medium villages. The relationship

TABLE 3.2

CITIZEN RESPONSIBILITY BY DISTANCE FROM FACTORY

Citizen Responsibility	Distance from Factory (in kilometers)			
	20-29kms (N=421)	10-19kms (N=426)	0-9kms (N=262)	% of Variance Explained
Innovation				
R. Sees City Ideas Improving Village Life	1.12	1.22	1.25	0.5*
R. Would Be First To Try New Method	1.87	1.93	1.94	2.3**
R. Would Use Birth Control Drug	1.38	1.46	1.48	0.5*
Opinion Formation (# of 'Don't Know's')	3.93	3.38	3.48	1.2**
Empathy Index	1.58	1.65	1.84	0.8**
Efficacy				
Takes Action If Government Does Unjust Thing	.87	.94	.98	0.4*
Optimism	2.86	2.91	2.90	0.3
Depression	1.94	1.97	2.00	0.04

* Significant at the .05 level
** Significant at the .01 level

between distance and opinion formation (number of don't know responses) is not monotonic, although the pattern is similar to that found with the innovation measures - the farthest villages are the least "modern", with the medium and close villages showing similar scores (t=.39). Here, however, the relationship is explained only by the difference between the far and medium villages (t=2.42). For both the empathy and efficacy indices, the result is monotonic,[4] although again, not linear.

In sum, we find that there is a small relationship between distance from factory and the qualities considered necessary for the development of a responsible citizenry. However, there is a disturbing lack of linearity which makes us unsure what it is about "distance" that brings about this change, or whether it has anything to do with distance at all. With the one exception of "empathy," the biggest split comes between the far (20-29 kilometers) and medium (10-19 kilometers) categories for these variables. In contrast to the "distribution of wealth" measures, attitudes compatable with citizen responsibility appear to spread beyond the most immediate group of villages.

As it has been popular to consider the "industrial man" as discontent, having lost the "blissful innocence" of his ancestors, it was considered interesting to see if the villagers closest to factories displayed any of these

characteristics. The last two rows of Table 3.2 show that the changes we have discussed do not appear to be accompanied by changes in general outlook on life. Individuals were asked two questions reflective of their general level of "happiness." "Do you expect that things will become better or worse for you during your lifetime?" and "Do you ever feel that your problems and difficulties are getting to be more than you can bear?" The first question was coded for "optimism", with a "better" response coded 3 points (N=1043), "Worse" was given 1 point (N=9) and those who said that things would stay the same (N=10) or said they didn't know (N=26) were scored 2 points.[5] The second question was scored for "depression" by giving those who said "yes" (N=455) 3 points, "occasionally" (N=171) 2 points and "no" (N=476) 1 point.[6] Table 3.2 shows that no significant difference in either of these variables can be detected in either levels of optimism or depression. However, since the variation in the "optimism" index is so small, showing an almost universal belief in a better future, the differences in the table may well be meaningful. Again, the split occurs between the "far" and "medium" distance categories, and the direction is in the opposite of the prediction - those closest to the factory are more likely to anticipate a better future.

Greater variation in the depression question makes us more confident that there is no relationship here.

3.1.3 Integrative Institutions

3.1.3.1 Religion

We hypothesized that a factory would not have any effect on the practice of or belief in religion unless a direct conflict exists. In such a case, religiosity would be expected to decrease only in the area of conflict. The first row of table 3.3 shows that there is a slight rise in religiosity (index based on prayer, knowledge and strictness) as distance from factory decreases. This finding supports those arguments which suggest that religiosity is compatible with a modern life style, and that it is enhanced rather than threatened by contact with national centers. Clearly, none of the components of the religiosity index conflict directly with the existence of a factory.[7]

One case where some conflict might arise is in the area of birth control. Religion has traditionally sanctioned the idea of the large family. Contradicting this, it would be reasonable to expect that the introduction of a factory would be accompanied both by propaganda for birth control[8] and people who practice it. Thus determining how villagers near factories interpret

TABLE 3.3

INTEGRATIVE INSTITUTIONS BY DISTANCE FROM FACTORY

	Distance from Factory (in kilometers)			
	20-29kms (N=421)	10-19kms (N=428)	0-9kms (N=262)	% of Variance Explained
Religion				
Religiosity	6.64	6.70	6.84	0.4*
R. Sees No Conflict Between Religion and Use of Birth Control	1.12	1.10	1.18	0.6**
Family				
Extended Family				
Family Type	1.41	1.39	1.40	0.04
Friends/Relatives	2.01	2.00	2.04	0.04
Role of Women				
Women Included in Decision-Making	1.13	1.18	1.13	0.2
Discrepancy Between Male and Female Education Needed	2.45	2.51	2.51	0.1
Children				
Young Less Respectful of Elders	1.34	1.34	1.34	0.0
Rational Punishment of Child	1.54	1.61	1.57	0.1
Community				
Perceived Conflict Among Villagers	1.17	1.10	1.08	0.8**

* significant at .05 level
** significant at .01 level

the relationship between religion and the use of birth control would give us some indication of whether religion is acting as a barrier to the adoption of this practice or not.

In the R.D.R.P. questionnaire, respondents were asked whether they felt that the practice of birth control conflicts with the Moslem religion. "No" responses were scored 2 points (N=131) and "Yes" responses were scored 1 point (N=879).[9] Examining the results by distance from the factory, (row 2, table 3.3) we see that those living near a large factory are the least likely to perceive a conflict between birth control and religion. The relationship is not monotonic, however, the fact that the difference between the far and medium categories is not significant (t=.89), while the closest villages are significantly different from both medium and far ones (t=2.77 and 2.04 respectively) supports the hypothesis that strict interpretation of religious doctrine decreases when it comes into direct conflict with the values of industrial life.

In sum, the data suggest that there is no overt decline in religiousity with rural industrialization. In fact, there is some indication that traditional religious behavior, knowledge and strictness may actually increase in areas near factories. However, this religiosity ought not be viewed as an obstacle to modernization. An increase in the practice of and knowledge about a national religion

might be part of a rise in national identification. Evidence that villages near factories are less likely to see conflict between religion and the use of birth control suggests that religious views are flexible and can adjust tc the needs of industrial life.

3.1.3.2 Family

We have argued that much of the theory on family structure is not relevant to the case of the rural factory. We would expect, however, that the factory would cause some change in certain areas of family functioning. Employment and renumeration on the basis of achievement rather than ascriptive criteria such as age and sex would contradict traditional relationships between young and old as well as men and women. Clearly, factory work could create strain in these relationships, however, even the knowledge of new opportunities and of achievement-based criteria might cause some dissatisfaction with traditional relationships.

The data relevant to the issue of family structure and roles are presented in Table 3.3. It is clear that there is no difference in family type (a high score indicates a nuclear family structure) for the three different distances from the factory. To further explore this finding, a second question related to the pervasiveness

of the family in the life pattern of the respondent was analyzed. Each respondent was asked "Are your friends generally relatives of yours or not?" The response "relatives" received 1 point (N=181), "both in equal numbers" 2 (N=622), and "not relatives" (N=271) 3 points.[10] The index of overlap between family and friends, designated Friends/Relatives, again shows no difference between the various distances. These results support our expectation that rural industrialization does not lead to a change in family structure or a decline in its importance. It is interesting to note that the majority of Turkish villagers are not limited to family members for friendships, but have equal numbers of relatives and non-relatives among their friends.

Surprizingly, when we look at differences in the three types of villages concerning women's roles, we again find no difference. Table 3.3 shows that there is no difference between villages on amount of female involvement in family decision-making.

A second index dealing with women's roles, based on the discrepancy between the amount of education considered necessary for males and females, shows no difference by distance from factory. Thus, as far as we are able to measure, the rural factory appears to have no

effect on the position of women in the family system. It should be noted, however, that the levels of education considered necessary rise for both men and women as distance from a factory decreases.[11] Thus while the relative position of women does not improve, neither does it deteriorate through a widening gap. This would occur if the rising demand for education was applied only to men.

Further examination of Table 3.3 shows that rural industry appears to have no effect on parent-child relations. Two questions are examined. It is expected that the introduction of new opportunities for youth would lead to a decrease in the level of respect with which the young traditionally regard their elders. The same result will occur as young people find the experiences and wisdom possessed by older people irrelevant to modern life patterns.[12] Respondents were asked, "Are young people today less respectful of their elders than they used to be?" This question was coded so that a higher score indicated a decline in respect of young for older persons. The results, contrary to our hypothesis, show no difference for the varying distances.

To explore this question further, a second aspect of parent-child relations is examined: child-rearing practices. As societies modernize, it has been considered

important to produce children who will achieve success rather than children who readily obey.[13] In child-rearing, a shift is expected from corporal punishment to more rational methods. In the Turkish villages, respondents were asked, "If a young boy - about ten years old - disobeys his father, what do you think is the best way to deal with him?" The responses were coded as follows:

Response	Score	Frequency
Spanking or beating	1	667
Other[14]	2	149
Talking to show wrong	3	261

Again, the results show no difference in child-rearing empahsis for close, medium and far villages.

In sum, then, we can conclude that rural industrialization programs have produced no change in the family type or familial roles in the surrounding villagers. Our hypothesis that rural industry would not lead to the break-up of the extended family type in the surrounding area was supported. Our discussion predicting changes in the relations between family members (men and women, young and old) was not. This suggests that the break-up of the extended family, if it does indeed occur, may be essentially an urban phenomena, perhaps created and sustained by the mobility inherent in urbanization.

Our findings also support the idea that the traditional family is strong enough to withstand the threat of new opportunities for women and the young. For example, Nash[15] reports that women and young factory workers simply hand their income over to the traditional head-of-household. In Greece,[16] young women have been shown to work in the factory in order to augment their dowries.

3.1.3.3 Community

We do not expect that living near a rural factory will in any way weaken community ties. The following question was used to measure the level of conflict in the village: "Do the people of this village usually get along well with each other or do they not get along well with each other?" Responses were scored such that a high score indicated perceived conflict in the village. The results, in the last row of Table 3.3, not only confirm our hypothesis, but show that villagers living near factories report somewhat lower levels of conflict.

How can we explain this finding? Perhaps the rural factory operates as a kind of "safety valve" in surrounding villages. It is possible that the presence of an alternate source of employment serves to minimize the land disputes so common in agrarian societies. The decrease in poverty

discussed earlier might also lower the level of conflict among villagers. Whatever the cause, there is no evidence of increased conflict in villages near factories. On the contrary, there is a small positive relationship between how well people in the villages get along with each other and how close they live to a factory.

3.1.4 Summary

Evaluating the impact of the rural factory according to the goals established in Chapter I, we find that the factory has no disruptive effect on integrative social institutions. In fact, it seems to be related to a small reduction in community conflict. At the same time, it does not appear to be particularly effective in reducing poverty or in creating more responsible citizens. While we do get significant results showing that villagers living near factories are less likely to be poor, and more likely to be innovative, opinionated, empathetic and efficacious, the amount of variance explained is only 1 - 2%. We are also hesitant to draw firm conclusions in this area because many of the relationships are not monotonic, and those that are, are not linear.

As previously discussed, we expect "distance from factory" to effect change largely through the mechanism of the factory worker. Perhaps examination of extent to

which others in the village actually participate in factory work will help to clarify these findings.

3.2 The Impact of Village Participation in Factory Work

When it is argued that factories reduce poverty, this is largely, although not entirely, by providing salaries which serve to stimulate economic growth. It has also been shown that the factory makes the factory worker more "modern".[17] We have argued that perhaps it has a similar effect on persons who do not actually work in the factory, but who live near one. In a small community with an extended family structure,[18] we would expect modern ideas and ways of thinking to spread from the worker to others in his family and village. While this may not be the only way in which the factory could effect change, we would expect it to be a major one. Thus we would expect that persons living in villages with factory workers would be less likely to be poor and more likely to subscribe to modern ideas than persons who live in villages located near a factory but where no one actually works in the factory.

In order to examine whether or not this is the case, we examined the question on what proportion of villagers actually work in the factory and found that work experience

in the local factory was surprizingly low. There were 488 persons living in villages where no one worked in the factory, 477 in villages where the figure was less than 10%, and only 146 lived in villages with 10% or more of the adult population working in the factory. Because of the inaccuracy in this measurement (where "adult" is left undefined, it is unclear whether the figure given is based on a total population or just the working population, and the estimate was to include persons who worked full-time as well as those who worked "from time to time"),[19] it was decided to use only two categories in the analysis - villages where no one worked in the factory and those where anyone did.

3.2.1 Poverty

The first row in Table 3.4 shows that, surprizingly, there is no relationship between level of poverty and whether or not anyone in the village works in the factory. As we did find some evidence that poverty was lower in villages closest to factories, we must look elsewhere for an explanation. If it is the factory which is responsible for the reduction of poverty in these villages, it must be doing so indirectly, and not through the salaries of local workers.

We also found that persons living in villages nearest factories were the most likely to say that wealth differences in their village were getting larger. Can this be explained by the "factory work" variable? The second row of Table 3.4 shows that persons living in villages with factory workers are indeed more likely to perceive wealth differences in their village increasing. Since "distance from factory" and "villagers work in factory" are related,[20] it is possible that the initial relationship (between distance and perceived inequity) will disappear when whether or not villagers work in the factory is held constant. Table 3.4.1, in which three categories of the "test" variable are used, shows that the initial relationship between distance from factory and perceived inequity is explained by the proportion of villagers who work in the factory.

In sum, we have not been able to clarify the relationship between distance from factory and poverty, and this will be explored further in subsequent chapters. We did find that there is a relationship between villagers having work experience in the factory and increased perception of inequity in the village. This finding may support the Marxian notion that factory work raises "class consciousness". Lack of additional data makes it

TABLE 3.4

POVERTY AND WEALTH DISTRIBUTION
BY VILLAGERS WORK IN FACTORY

Poverty and Distribution of Wealth	Villagers Work in Factory: No (N=488)	Yes (N=623)	% of Variance Explained
Poverty Index	5.33	5.34	0.0
Perceived Inequity	1.97	2.16	0.8**

* significant at .05 level
** significant at .01 level

TABLE 3.4.1

PERCEIVED INEQUITY
BY DISTANCE FROM FACTORY AND VILLAGERS WORK IN FACTORY

% of Adults in Village Who Work in Factory	Distance from Factory (in kilometers): 20-29kms	10-19kms	0-9kms
0	1.99 (N=204)	1.94 (N=191)	2.02 (N=58)
< 10%	2.14 (N=147)	2.06 (N=165)	2.32 (N=128)
10% or more	2.03 (N=33)	2.21 (N=42)	2.11 (N=62)

	df	S.S.	f
Error	1021	596.1289	
Distance from Factory	2	3.0740	2.6324
Work in Factory	2	8.2764	7.0876***
Interaction of Distance & Work	4	2.9205	1.2505

*** significant at .001 level

impossible to explore this area further.

3.2.2 Responsible Citizenry

Table 3.5 shows that there is no relationship between whether people in the village work in the factory or not, and any of the variables we have designed to measure the development of citizen responsibility.[21] This is a truly startling result. Surely if the factory has such a profound impact on the minds of men, as we have been lead to expect,[22] some change along these lines could be detected in the workers' village. We have raised the issue of the applicability of some of these findings to rural areas. The lack of any relationship (made even more hopeless by the negative direction of most of the differences which do appear) serves to underline this point. It is possible that factory work does have an impact, but that there is no "spread" effect beyond the workers. Or perhaps there need to be a substantial number of workers from any one area before change can be detected. In either case, it suggests that factory work cannot be seen as a very efficient tool for raising area modernism. On the other hand, we have found some evidence that "distance from factory" is related to higher levels of citizen responsibility. As this is not explained by the phenomena of more factory workers in villages closer to factories,

TABLE 3.5

CITIZEN RESPONSIBILITY BY VILLAGERS WORKING IN FACTORY

Citizen Responsibility	Villagers Work in Factory		
	No (N=488)	Yes (N=623)	% of Variance Explained
Innovation			
R. Sees City Ideas Improving Village Life	1.22	1.17	0.1
R. Would Be First To Try New Method	1.83	1.85	0.04
R. Would Use Birth Control Drug	1.03	1.04	0.01
Opinion Formation (# of "Don't Know's")	2.81	3.05	0.2
Empathy	1.71	1.64	0.1
Efficacy	.94	.91	0.04

this too will be further explored in the next chapters.

3.2.3 Integrative Institutions

We do not expect, and indeed do not find, evidence that participation in factory work is socially disruptive (Table 3.6) with one exception. The first row of the table shows a small but significant decline in religiosity when villagers work in the factory. This is a reversal of the relationship between distance from factory and religiosity, where we saw a slight increase in religiosity among those villagers living close to factories. As we would expect, when we control for factory work experience, (Table 3.6.1), the relationship between distance and religiosity is strengthened. This is particularly true in villages where some people do work in the factory. This cannot be explained by factory work itself interfering with religious observance, because the questions making up the religiosity measure didn't involve things that would interfere with work, and because our respondents weren't factory workers. The relationship between the factory and religiosity isn't easily interpretable. It does give pause to both those who argue that religiosity declines with industrialization, and those who argue that it increases. It does not appear to be as simple or straightforward a process as either of these explanations

TABLE 3.6

INTEGRATIVE INSTITUTIONS BY VILLAGERS WORK IN FACTORY

Social Institutions	Villagers Work in Factory		
	No (N=488)	Yes (N=623)	% of Variance Explained
Religion			
Religiosity	6.86	6.59	1.0
Family			
Family Type	1.40	1.41	0.01
Women Included in Decision-Making	1.15	1.14	0.01
Discrepancy Between Male & Female Education Needed	2.45	2.52	0.1
Young Less Respectful of Elders	1.33	1.35	0.04
Community			
Perceived Conflict Among Villagers	1.16	1.11	0.1

TABLE 3.6.1

RELIGIOSITY BY
DISTANCE FROM FACTORY AND VILLAGERS WORK IN FACTORY

Villagers Work in Factory	Distance From Factory (in kilometers) 20-29kms	10-19kms	0-9kms	% of Variance Explained
No Villagers Work in Factory	6.89 (N=221)	6.80 (N=207)	7.00 (N=60)	0.4
Villagers Work in Factory	6.36 (N=200)	6.61 (N=221)	6.80 (N=202)	1.2**

** significant at .01 level

would have us believe.

As with the "distance" measure, we find no evidence of increased strain within the family or the community when villagers work in the local factory.

3.2.4 Summary

We have found precious little evidence that any social impact the rural factory may have is related to whether anyone actually works there or not. The only exception was "perceived inequity", which was dependent on villagers experiencing factory work. Whether villagers worked in the factory did not relate to poverty, any of the variables associated with citizen responsibility, or, with the exception of religiosity, any of the measures of integrative institutions. While thought on the impact of industrialization has always assumed that changes accompanying factories were brought about through the experience of factory work, our findings here suggest that perhaps we need to look at other sources of impact.

One problem with the measure "villagers work in factory" is that of the direction of causality. Had we found strong relationships, we would have had to consider whether, for example, high efficacy among villagers had stimulated people to work in the factory, rather than vice versa. As it is, unless it can be shown that

perception of inequity, as opposed to poverty, drives people to work in factories, or that high village religiosity keeps them away, we are not overly worried about this problem.

Footnotes to Chapter 3

[1]While this is not impressive by any standard, it must be evaluated relative to results in comparable social science research, rather than some perfect standard. For example, a recent study concludes that 'city of residence' is a "useful explanatory variable in studies of attitudes" on the grounds that this variable (net of 5 individual attributes) explains a median (for 26 variables) of 2.4% of the variance for Blacks and 1.9% for Whites. Howard Schuman and Barry Gruenberg, "The Impact of City on Racial Attitudes," American Journal of Sociology, vol. 76, no. 2, September 1970. See Chapter 5 for further discussion of the size of the relationships.

[2]There were 11 "don't know's," 2 refusals and 9 errors.

[3]There are 81 cases missing from this index.

[4]This is perhaps because each of these is an index, rather than a single question. The effect of combining several questions is to smooth out the ups and downs of the individual questions. Thus if we put all of the "citizen responsibility" variables into one index, our results are also monotonic.

[5]There are 6 refusals and 17 errors.

[6]There are 9 refusals.

[7]A possible exception is "lending money at interest," which would conflict with modern economic institutions like banks and cooperatives.

[8]This is especially so in State factories, which make up the bulk of Turkey's rural factories.

[9]There were 101 villagers not included in this index.

[10]There were 2 "don't know's," 1 refusal and 7 errors.

[11]For "female education needed," the figures for the three distance categories are 1.82, 1.90 and 1.93. For males, they are 2.28, 2.40 and 2.38.

[12]Margaret Mead, Culture and Commitment, Garden City, American Museum of Natural History Press, 1970.

[13]Kenneth Boulding, The Meaning of the Twentieth Century, New York, Harper and Row, 1965.

[14]This includes isolating, depriving of food, threatening, scolding and other. There were also 5 "don't know's" and 29 errors.

[15]Manning Nash, Machine Age Maya, The Industrialization of a Guatemalan Community, Glencoe, The Free Press, 1958, Chapter 5.

[16]Ioanna Lambiri, Social Change in a Greek Country Town; The Impact of Factory Work on the Position of Women, Athens, Center of Planning and Economic Research, no. 13, 1965.

[17]Alex Inkeles and David H. Smith, Becoming Modern, Individual Change in Six Developing Countries, New York, Basic Books, (Forthcoming), Chapter 11.

[18]In the R.D.R.P. sample, a full 86% of the villagers reported knowing everyone in the village.

[19]Turkish Translation: "zaman zaman"

[20]See Chapter 2.

[21]Similar results were obtained when this was analyzed with 3 categories of the "proportion of villagers working in the factory" variable.

[22]See particularly, Inkeles and Smith, op. cit.

CHAPTER IV

THE SOCIAL IMPACT OF URBANIZATION, AGRICULTURAL DEVELOPMENT, POPULATION, SOCIAL SERVICES, AND MASS MEDIA

4.1 Factory Location

This section will address the problem of selection. We have found some modest relationships between how far a villager lives from a factory and his standard of living, innovation, opinion formation, empathy, efficacy and religiousity. Contrary to our expectations, we were not able to account for these relationships by examining whether or not others in the village actually work in the local factory. We will now consider the possibility that these relationships are not due to the factory, but rather to some third variable. Perhaps there was something distinctive about the villages in which factories were located in the first place. In other words, some other variable may be responsible for both the location of the factory and the distinctive character of the closest villages.

Let us consider, then, what kinds of factors influence the location of factories. First, factories,

even in rural areas, tend to be located in or near towns. Also, in cases where the factory uses agricultural products as raw material (sugar, textiles), a high level of agricultural development would be necessary. Another factor which may have been considered in factory location is population. If a labor force must be recruited, location in a sparsely settled area might be unwise. In Turkey, defense considerations were an important factor in factory location, particularly prior to World War II. For example, the Karabuk steel factory site was chosen because it was protected by mountains, even though both coal and iron had to be transported there.[1] Thus topographical features might be related to factory location. Finally, we have mentioned the possibility that political factors are responsible for factory location, as factories were often promised in political campaigns.

4.1.1 Urban proximity

Up to this point, we have been ignoring the variable of urbanization and treating our villages as a natural control, where the effect of industry was present without the confusing question of urbanization. In doing so, we have overlooked an important consideration: the possibility that villages located near factories are also located near urban centers. Since the Turkish

factories are usually located in towns,[2] proximity to a factory would be synonomous with proximity to a town. Thus we must consider the possibility that the relationships we have discovered are due to the influence of the town, rather than the factory.

4.1.1.1 Urbanization Index

There are two measures for urbanization on the Village Information Sheet: distance from the village to the nearest city of 50,000 or more[3]; and distance from the village to the nearest Kaza center.[4] These measures, while not ideal,[5] will enable us to construct an index of urbanization.[6] Table 4.1 shows the relationship between distance from factory and the urbanization index. Table 4.2 shows the relationship between the Urbanization Index and the major dependent variables we have examined. To simplify analysis, the Urbanization Index was divided into two categories - High ("5" - "8", N=268) and Low ("2" - "4", N=833).[7]

4.1.1.2 Poverty

We find that there is no significant relationship between urbanization and poverty. In fact, the level of poverty is actually higher for those living in villages with urban contact. Urbanization, then, could not possibly explain the relationship which we found between

TABLE 4.1

MEAN URBANIZATION BY DISTANCE FROM FACTORY

	Distance from Factory (in kilometers)			
	20-29kms (N=421)	10-19kms (N=428)	0-9kms (N=262)	% of Variance Explained
Mean Urbanization Score	3.70	3.72	4.84	12.3**

** significant at .01 level

TABLE 4.2

POVERTY, CITIZEN RESPONSIBILITY AND INTEGRATIVE INSTITUTIONS BY URBANIZATION

	Urbanization		
	Low (N=833)	High (N=278)	% of Variance Explained
Poverty			
Poverty Index	5.29	5.49	0.2
Citizen Responsibility			
Innovation			
R. Sees Ideas From City Improving Village Life	1.19	1.19	0.0
R. Willing to be First in Village to Try New Method	1.83	1.87	0.2
R. Would Use Free Birth Control Drug	1.03	1.05	0.01
Opinion Formation			
# of Don't Know's	3.03	2.69	0.3*
Empathy	1.60	1.89	1.2**
Efficacy	.92	.92	0.0
Integrative Institutions			
Religion			
Religiosity	6.61	7.00	1.4**
Family			
Nuclear Structure	1.41	1.37	0.2
Discrepancy Between Education R Sees Necessary for Male & Female	2.45	2.61	0.6**

TABLE 4.2 (con't.)

Female Participation in Decision-Making	1.16	1.12	0.1
R. Feels Young People are Less Respectful of Elders	1.35	1.32	0.04
Community			
Village Conflict	1.12	1.13	0.0

* significant at .05 level
** significant at .01 level

proximity to factory and decreasing poverty. This is a particularly confusing result when we remember that poverty was found to be unrelated to whether or not villagers actually work in the factory. In other words, there must be something about the factory other than either employment or factors found in cities, such as access to markets, which influences poverty. This could be indirectly through wages, through the purchase of agricultural raw material, or through some other variable that is related to both factory location and poverty.

4.1.1.3 Citizen Responsibility

We do find a small positive relationship between urbanization and empathy, and a tiny one between urbanization and opinion formation. Urban proximity does not stimulate a willingness to innovate among villagers, nor does it increase their sense of efficacy. This suggests an interesting distinction among the variables we have used in measuring "citizen responsibility." Both opinion formation and empathy reflect a mental set - both knowledgeable about society and able to imagine many of its positions. However, this mental set is not necessarily linked to any particular behavior. On the other hand, willingness to innovate and efficacy both suggest a propensity to act: innovation because it

involves the adoption of a new way of doing things, and efficacy because it suggests a readiness to take action. It appears that cities and towns influence the mental set of villagers, but not attitudes more closely related to behavioral change. The factory, on the other hand, seems to have a slight influence on all of these variables.

Since we have found a relationship between urbanization and both opinion formation and empathy, we will now examine the possibility that it is urban proximity rather than distance from a factory which produced the initial relationships. Table 4.3 gives the mean opinion formation scores by "distance from factory" for villagers with both low and high urbanization scores. The uncontrolled values are also presented to ease comparison. We see here that the initial pattern (a sharp decline in the number of don't know's from far to medium distance category and a slight rise between this and the closest category) persists in villagers with both high and low urbanization. However, when "distance from factory" is controlled, the relationship between urbanization and opinion formation is no longer significant ($F=2.73$). Thus, instead of explaining the influence of the factory by controlling for urbanization, the very opposite occurs.[8] It should be stressed that the

TABLE 4.3

MEAN OPINION FORMATION+ SCORES BY
DISTANCE FROM FACTORY AND URBANIZATION

	Distance from Factory (in kilometers)		
	20-29kms	10-19kms	9 or less kms
Urbanization			
Low	3.40 (N=330)	2.72 (N=363)	2.98 (N=140)
High	3.23 (N=91)	2.29 (N=65)	2.49 (N=122)
Total	3.36 (N=421)	2.66 (N=428)	2.75 (N=262)

	df	S.S.	F
Error	1105	10118.49	
Distance from Factory	2	116.35	6.35**
Urbanization	1	25.03	2.73
Combined effect of Distance and Urbanization	2	3.99	0.2182

** significant at .01 level

+ number of "Don't Know" responses

influence of the city or town does not explain the initial non-monotonic pattern, and thus the precise nature of the relationship between "distance from factory" and "opinion formation" remains unclear.

Table 4.4 shows the mean scores on the empathy index by both distance from factory and urbanization.

Comparing the controlled results (empathy and distance from factory) with initial findings, we see that the increase in empathy level as we move closer to a factory holds up in areas with low access to urban areas. However, the results are confusing when we look at villages which have high urbanization scores, where an unusually high score on empathy (2.05) for those with high urban contact but 20-29kms from a factory, gives a non-monotonic pattern. It appears, then, that the effects of "distance from factory" and urbanization may not be additive. Instead, there may be interaction between the two independent variables.

A two-way analysis of variance test shows that interaction (the effect of the combination of urbanization and distance) is significant (F=4.85), while the independent effect of the distance variable is not (F=2.17).[9]

TABLE 4.4

MEAN EMPATHY SCORES BY
DISTANCE FROM FACTORY AND URBANIZATION

	Distance from Factory (in kilometers)		
	20-29kms	10-19kms	9 or less kms
Urbanization			
Low	1.45 (N=330)	1.64 (N=363)	1.81 (N=140)
High	2.05 (N=91)	1.68 (N=65)	1.89 (N=122)
Total	1.58 (N=421)	1.65 (N=428)	1.81 (N=262)

	df	S.S.	F
Error	1105	1528.01	
Distance from Factory	2	5.99	2.17
Urbanization	1	18.34	13.26***
Combined effect of Distance and Urbanization	2	13.43	4.85***

*** significant at .001 level

We are left with the suggestion that urbanization and distance from factory both influence empathy, but that their effects are not additive. We would expect high empathy scores among persons living near cities, and among those living near factories but far from cities. The theoretical implications of this result are far from clear. In terms of policy, it would suggest that, with respect to empathy, a factory will be effective in developing citizen responsibility only if it is located far from cities and towns! A factory in an area with high access to urban centers will not effect empathy in any clear way. It is important to remember that our study deals only with villagers, and in this group, the levels of urbanization at which a factory influences empathy are very low.[10] If we find other results demonstrating this pattern, it would severely limit the conditions under which a factory could be used as a stimulant to modernism among villagers.

This finding also cautions us not to look only at one development factor alone, but rather to take into account the level of other factors as well. This particular case (urbanization and distance from factory) would suggest that results from studies of the impact of factories in cities or towns should not be generalized to

rural areas. Our conclusion with respect to empathy is compatable with Nash,[11] who found a factory to have little or no effect in a small town. However, our data implies that had Nash studied the impact of the factory in an isolated rural area, his results would have been quite different.

4.1.1.4 Integrative Institutions

We did not find that the factory had any impact on the integrative institutions we have studied with the possible exception of religion. Thus, there is no need to see if this lack of relationship is explained by urban proximity. However, it is interesting to see what impact, if any, access to urban areas has on these institutions.

4.1.1.4.1 Religion

Table 4.2 shows a positive relationship between urban proximity and religiosity. Since the borderline relationship we found between religio and distance from factory was strengthened when we controlled on whether or not anyone in the village worked in the factory, it might be worthwhile to see if the apparent positive relationship between religiosity and factory proximity is explained by urban proximity. Table 4.5 shows the mean religiosity values by factory distance for low and high urban access persons. It is clear that

TABLE 4.5

MEAN RELIGIOSITY SCORES BY
DISTANCE FROM FACTORY AND URBANIZATION

	Distance from Factory (in kilometers)			
	20-29kms	10-19kms	9 or less kms	Eta
Urbanization				
Low	6.55 (N=328)	6.67 (N=361)	6.59 (N=140)	.04
High	6.93 (N=91)	6.85 (N=65)	7.13 (N=122)	.10
Total	6.64	6.70	6.84	.06*

the initial monotonic relationship disappears in both urbanization categories. There is no clear relationship between religiosity and distance from factory when urbanization is controlled. However, access to factory workers reduces religiosity while access to urban areas increases it. We might speculate that the higher perceived inequity in villages with factory workers is related to this.[12] Increased "class consciousness" could be negatively associated with religiosity. In any case, this analysis supports the image of the "town" as a religious stronghold.[13]

4.1.1.4.2 Family and Community

In the area of family structure, we see no difference between those close or far from urban areas. (table 4.2). However, it is interesting to note that urban access produces a gap in perceived education needed for males and females. Increasing urban proximity results in a rise in the amount of education villagers say that boys need to get along in the world, but no change in that proposed for girls.[14] As a result, the discrepancy index rises in areas close to cities and towns. This is interesting because, it will be remembered we found that the amount of education needed by both boys and girls rose as the village neared a factory such that

the discrepancy index remained stable. It is hard to see why this might be. We might hypothesize that employment opportunities for village women in cities are not education-based (e.g. household workers), while those in factories are.

Finally, Table 4.2 shows that potential urban contact neither increases nor decreases the level of perceived conflict in villages.

4.1.1.5 Summary

We began this section with the expectation that the observed influence of the factory might be due to the fact that those living near factories also live near towns or cities. We have found this to be true with only one variable - religiosity. We also found a complex relationship between distance from factory, urbanization and empathy, indicating that factory proximity increases empathy only in isolated areas. With these two exceptions, we still do not know what it is about factories which effects these variables.

It does seem clear that cities and factories have quite different impacts on neighboring villagers. Comparing the two, we have found that "distance from factory" influences poverty, innovation, opinion formation and efficacy, but has no influence on

any of the integrative social institutions we have discussed. Access to cities and/or towns does not influence poverty, but is associated with empathy, religiosity and an increasing gap between male and female status. We might conclude that the influence of the town is more conservative than that of the factory.

In trying to understand the different influence of town and factory, it is well to remember that the villages in our sample are not near the major urban centers of the nation. Rather, they are near either provincial capitals or kaza centers. It is possible that these towns do not have "modern" structures. In fact, there is nothing new about towns, and they may perform very traditional functions.[15] In contrast, a factory is a modern institution. This is particularly so in Turkey, where rural industry is dominated by large State factories. Our analysis of the question whether or not villagers actually work in the factory, however, suggests that if there is something about the factory that influences people's attitudes, it doesn't depend on anyone working in the factory. Other factors which could account for this relationship, such as social services and mass media, will be discussed in the second part of this chapter. We will now turn our attention to the question of the impact

of agricultural development.

4.1.2 Agricultural Development

We have been assessing the possibility that some other variable is responsible both for the location of the factory and for reduced levels of poverty and increased levels of citizen responsibility. One possibility is that factories are located in areas with high levels of agricultural development. It is only logical that, for example, a sugar processing plant would be located in an area with abundant sugar production. Table 4.6 shows that a good portion (63%) of the Turkish state industries are agriculture-based. Thus the relationship between agricultural development and our dependent variables must be examined.

4.1.2.1 Agricultural Development Index

There are two aspects of agricultural development which are measured in the Rural Development Research Project. First, the main and second occupation for each village was determined.[16] This provided a measure of the extent of cash cropping in the village. Secondly, a measure of the presence of modern agricultural machinery in the village was constructed. These were combined into a single index of agricultural development.[17]

TABLE 4.6

STATE INDUSTRIES BY TYPE, 1923-1960

Type of Industry	Before 1923 (N=9)	1923-1949 (N=56)	1950-1960 (N=44)	Total (N=109)
Agriculture-Based				
Textiles	56%	22%	25%	27%
Sugar	--	7	32	17
Other Agricultural	11	33	9	19
Total Agricultural	67%	62%	66%	63%
Non-Agricultural				
Cement, Minerals, Metals, Chemicals, Armaments	11	26	34	30
Other	22	12	--	7
Total Non-Agricultural	33%	38%	34%	37%
Total	100%	100%	100%	100%

Source: Malcolm R. Rivkin, Area Development for National Growth, The Turkish Precedent, New York, Praeger, 1965, p. 71 & 122.

Table 4.7 shows the mean agricultural development score for each level of "distance from factory." We see that while there is a significant relationship, the medium distance villages have the highest scores. It is unclear why this is so, but as there is a considerable difference between the farthest and closest villages in the predicted direction, we must consider the possibility that agricultural development could have influenced both factory location and our dependent variables. In the following analysis, the Agricultural Development Index is divided into two categories, low (N=429) and high (N=682).

4.1.2.2 Poverty

Our next consideration must be whether agricultural development is related to poverty, as we would clearly expect. Table 4.8 shows that there is indeed a negative relationship between amount of poverty and level of agricultural development. It appears possible, then, that factories are placed near areas with high levels of agricultural development, and that these areas, because of the successful agriculture, have higher living standards. In order to test this explanation, we need to look again at the relationship between poverty and factory proximity, controlling for level of agricultural development. Table 4.9 shows that in areas with low levels of agricultural

TABLE 4.7

AGRICULTURAL DEVELOPMENT BY DISTANCE FROM FACTORY

	Distance from Factory (in kilometers)			
	20-29kms (N=421)	10-19kms (N=428)	0-9kms (N=262)	% of Variance Explained
Agricultural Development	3.11	3.51	3.34	1.0**

** significant at .01 level

TABLE 4.8

POVERTY, CITIZEN RESPONSIBILITY AND INTEGRATIVE INSTITUTIONS BY AGRICULTURAL DEVELOPMENT

	Agricultural Development		
	Low + (N=429)	High++ (N=682)	% of Variance Explained
Poverty			
Poverty Index	5.96	5.05	2.6**
Citizen Responsibility			
Innovation			
R. Sees Ideas From City Improving Village Life	1.16	1.21	0.1
R. Willing to be First in Village to Try New Method	1.80	1.86	0.5*
R. Would Use Free Birth Control Drug	1.03	1.04	0.0
Opinion Formation			
# of Don't Know's	2.93	2.96	0.01
Empathy	1.72	1.63	0.2
Efficacy	.91	.93	0.01
Integrative Institutions			
Religion			
Religiosity	6.77	6.67	0.1
Family			
Nuclear Structure	1.40	1.40	0.0
Discrepancy Between Education R. Sees Necessary for Male & Female	2.52	2.47	0.1

TABLE 4.8 (con't.)

Female Participation in Decision-Making	1.15	1.15	0.0
R Feels Young People are Less Respectful of Elders	1.36	1.33	0.1
Community			
Village Conflict	1.15	1.11	0.3 *[18]

* significant at .05 level
** significant at .01 level

\+ low agricultural development made of scores 1 & 2
++ high agricultural development made of scores 3-8

development, there is a clear negative relationship between factory proximity and level of poverty. However, in areas with developed agriculture, the non-monotonic pattern reappears. The Analysis of Variance shows that agriculture is a stronger factor in reducing poverty than factory proximity, but both are significant. In order to determine if the simple dichotomization of the Agricultural Development Index was confusing this relationship, the same analysis was made using three and six categories.[19] With three categories, the results are the same as with two, except that it is the middle category that is not monotonic. With six categories, (table 4.9.1), three are monotonic-negative (categories 2,3 and 5), two are monotonic-positive (1 & 4) and one is not monotonic (6). In this case, distance from factory, agricultural development and the combination of the two are significant. By increasing the number of categories we find that the results have become more confusing rather than less so. Also, looking at the relationship between agricultural development and poverty for each of the three distance categories, while the direction is generally negative, the relationship is in no case monotonic. There seems to be some relationship between these three factors, but it is not easily interpretable. The same is true for the

TABLE 4.9

MEAN POVERTY SCORES BY
DISTANCE FROM FACTORY AND AGRICULTURAL DEVELOPMENT

	Distance from Factory (in kilometers)		
	20-29kms	10-19kms	9 or less kms
Agricultural Development			
Low	6.25 (N=193)	5.69 (N=133)	5.57 (N=96)
High	5.40 (N=222)	4.80 (N=292)	5.04 (N=165)
Total	5.79	5.08	5.23

	df	S.S.	f
Error	1095	5457.83	
Distance from Factory	2	78.92	7.91***
Agricultural Development	1	193.37	38.79***
Combination of Factory and Agriculture	2	5.28	0.53

*** significant at .001 level

TABLE 4.9.1

MEAN POVERTY SCORES BY
DISTANCE FROM FACTORY AND AGRICULTURAL DEVELOPMENT

	Distance from Factory (in kilometers)		
	20-29kms	10-19kms	9 or less kms
Agricultural Development			
1 (Low)	5.85 (N=60)	5.98 (N=45)	6.60 (N=25)
2	6.43 (N=133)	5.55 (N=88)	5.21 (N=71)
3	6.48 (N=73)	5.57 (N=105)	5.00 (N=33)
4	4.44 (N=52)	4.91 (N=81)	5.32 (N=76)
5	5.50 (N=52)	5.13 (N=45)	4.78 (N=45)
6 (High)	4.64 (N=45)	4.82 (N=61)	4.36 (N=11)

	df	S.S.	f
Error	1083	5218.32	
Distance from Factory	2	78.21	8.12***
Agricultural Development	5	226.58	9.41***
Combination of Factory and Agriculture	10	212.33	4.41***

*** significant at .001 level

interaction effect, since the non-conforming patterns do not appear either at the top or the bottom of the continuum.

In sum, there seem to be three relationships here; between distance from factory and poverty, agricultural development and poverty and the combination (distance from factory and agricultural development) and poverty. None of them is clear or easy to interpret. It should be stressed that far more sophisticated measurements of "poverty" than the one we used are available. Our confusing findings suggest a need for the application of these at the local level in order to better understand the economic impact of a factory or agricultural development in a rural area.[20] This type of result is not particularly satisfying, but it will be useful if it makes us more cautious in interpreting findings and more skeptical of the initial, "obvious" explanation.

4.1.2.3 Citizen Responsibility

When we discuss the data on those variables measuring citizen responsibility, our line of argument changes. We do not want to argue that growing cash crops or access to modern machinery makes people more modern, although it is not completely unreasonable. On the other hand, there is a body of literature suggesting that

the peasant who innovates in agriculture is the one who has modern ideas, who is willing to try new ways, who has some independence from his father and can take risks, and who is not afraid of the "wrath of God" if he departs from traditional ways.[21] One example is Rogers' study of villages in Columbia which concludes that empathy is a major predictor of agricultural innovativeness.[22] Thus it is possible that areas where villagers are particularly innovative or empathetic, have achieved high levels of agricultural productivity.

Let us examine, then, whether there is any relationship between level of citizen responsibility and agricultural development. Contrary to our expectation, Table 4.8 shows that level of agricultural development is related only to the respondents willingness to be the first in his village to try a new method, and then only slightly. It is reasonable that this question would be most closely related to agricultural development, which is dependent on farmers trying new methods. In table 4.10, it is clear that the relationship between distance from factory and readiness to try a new method is not explained by agricultural development. This evidence suggests that adoption of agricultural innovation may not be related to other aspects of the development of a responsible citizenry.

TABLE 4.10

MEAN "WILLINGNESS TO BE FIRST IN VILLAGE TO TRY NEW METHOD" SCORES BY DISTANCE FROM FACTORY AND AGRICULTURAL DEVELOPMENT

	Distance from Factory (in kilometers)			
	20-29kms	10-19kms	9 or less kms	% of Variance Explained
Agricultural Development				
Low	1.72 (N=197)	1.87 (N=135)	1.85 (N=97)	2.0**
High	1.78 (N=224)	1.91 (N=293)	1.89 (N=165)	2.0**
Total	1.87	1.93	1.94	2.3**

** significant at .01 level

It seems possible that a person can be very modern in agriculture without becoming efficacious, empathetic or able to form and express opinions. Also, the lack of relationship between agriculture and the other two measures of innovation suggest that this type of "innovation" may be limited only to agriculture and not indicative of a general openness to new ideas in other areas.

4.1.2.4 Integrative Institutions (Family, Religion and Community)

Since neither measure of industrialization had any impact on family structure, and since we were able to explain the apparent relationship between distance from factory and religiosity by urban access, we do not need to look at these in order to "explain" anything. However, it is interesting to compare the effect of alternate types of development. We see in table 4.8 that level of agricultural development does not influence either religiosity or family patterns. There may be a very small relationship between agricultural development and a reduction of perceived village conflict.[23] We examine the (remote) possibility that this accounts for the relationship between "conflict" and distance from factory in table 4.11. The Analysis of Variance shows that both agricultural development and factory proximity are slightly related to

TABLE 4.11

MEAN "PERCEIVED CONFLICT IN VILLAGE" SCORES BY DISTANCE FROM FACTORY AND AGRICULTURAL DEVELOPMENT

	Distance from Factory (in kilometers)			
	20-29kms	10-19kms	9 or less kms	% of Variance Explained
Agricultural Development				
Low	1.17 (N=197)	1.14 (N=135)	1.11 (N=97)	0.3
High	1.17 (N=224)	1.08 (N=293)	1.07 (N=165)	1.2**
Total	1.17 (N=421)	1.10 (N=428)	1.08 (N=262)	

	df	S.S.	f
Error	1055	150.12	
Distance from Factory	2	2.05	7.20**
Agricultural Development	1	0.86	6.01*
Combination of Distance and Agriculture	2	0.37	1.29

* significant at .05 level
** significant at .01 level

a reduction in perceived village conflict. Although it seems as if the factory reduces conflict only in areas of high agricultural development, interaction is not significant in this case. As we discussed earlier, the reduction in perceived village conflict may be related to a higher standard of living.

4.1.2.5 Summary

We have not been able to account for relationships between distance from factory and our dependent variables by adding agricultural development as a "test" variable. We have seen, though, that agricultural development is related to a reduction of poverty, but that it seems to have no general effect on either citizen responsibility or integrative social institutions. Thus agricultural development has a different impact than does either distance from factory or urban proximity. It appears that both factories and modern agriculture reduce poverty in the area; that neither disrupt social institutions and that only factories serve to modernize the ideas and attitudes of villagers.

4.1.3 Population

We have mentioned that one factor which might influence factory location is the availability of a labor force. A factory in an area with a dense population would

be more likely to attract workers than one in a sparsely populated region. We have also shown that Turkish State factories were often sited to provide jobs in areas with surplus labor.

Unfortunately, we have no direct measure of density. We do, however, know the population of each village.[24] It is reasonable to assume that large villages have more surplus population than small ones. Thus we might expect that villages located near factories would have larger populations than those farther away. Instead, Table 4.12 shows a curvilinear pattern, with villages 20-29kms and 9 or less kms from a factory having the largest populations. When we divide the villages into two groups at the mean population of 779 persons, we find that village size is not related to any of our dependent variables. This lack of any meaningful findings suggests that the criteria of size may not be a meaningful one for categorizing places. Perhaps the economic or political structure of a place is more important than its size.

It is equally possible to consider population not as a determinant of factory location, but as a possible result of the factory siting. Of course, the factory is <u>expected</u> to draw population - this has been a central force in the development of the industrial cities the

TABLE 4.12

MEAN VILLAGE POPULATION BY DISTANCE FROM FACTORY

	Distance from Factory (in kilometers)			
	20-29kms	10-19kms	9 or less kms	% of Variance Explained
Mean Village Population +	860	668	831	4.4**

+ 1960 Turkish Census

** significant at .01 level

world over. Since our sample includes only villages, it does not include the towns or factory compounds which house the majority of factory workers. However, in villages very close to factories it would be possible to "commute." Also, much of Turkish factory labor is seasonal or part-time,[25] and this would extend the range over which "commuting" is feasible. If the factory does indeed attract population to nearby villages, (or conversely detract people from them), it would probably not attract all segments of the population equally. If migration is occuring, we would expect to find growth in that segment of the population most susceptible to migration: adult males. It is possible that villages which are located near factories contain a disproportionate number of adult males and that this is responsible for the relationships we have observed. If males are more efficacious than females, for example, and if the factory attracts men to nearby villages, then the higher efficacy scored in these villages would be due to their population structure, and not to any direct impact of the factory on people's attitudes.

To test this possibility, we need to know the percent of the population which is male for villages close to factories and those farther away. Table 4.13

TABLE 4.13

PERCENT ADULT MALES BY DISTANCE FROM FACTORY+

	Distance from Factory (in kilometers)		
	20-29kms (N=28)	10-19kms (N=29)	9 or less kms (N=18)
Percent Adult Male ++	23.21	22.59	22.39

+ This table is based on an N of 75 villages
++ # of adult males (15+ years)/total population

shows that there is very little difference between the three types of villages, and that what difference there is is in the opposite direction than we predicted. The closer the village is to a large factory, the lower is the percent of its population which is adult male. There is no evidence here of migration into villages close to factories.

This conclusion is supported by the examination of a question which determined how long each villager had lived in the village (table 4.14). It is indicative of the stability of the village population that the majority answered, "since birth." As Table 4.14 shows, there is no indication that those who had migrated into their villages were concentrated in areas close to factories.

As far as we are able to determine, then, there is no indication that the factories altered the population structure of nearby villages. It does not appear that the differences which we have found between villages close to factories and those further away could be due to changes in population brought about by the factory. It should also be noted here that it does not appear that factories located in rural areas retard migration to urban areas. Since inhibiting urbanization is one of the rationals for rural industrialization programs, this

TABLE 4.14

AMOUNT OF TIME INDIVIDUALS HAVE LIVED IN THEIR VILLAGE BY DISTANCE FROM FACTORY

	Distance from Factory (in kilometers)		
	20-29kms (N=262)	10-19kms (N=428)	9 or less kms (N=262)
Time Lived in Village			
Since Birth	67%	78%	69%
10-16 years	17	12	15
5-9 years	3	3	5
2-4 years	3	1	2
0-2 years	10	6	9
Total	100%	100%	100%

finding has serious implications.

4.1.4 Other Factors

We have examined three factors which might conceivably have been responsible for the location of factories in particular areas. There are others which we must, unfortunately, leave unexplored. We have mentioned that defense considerations played a significant role in the determination of factory location.[26] Some factories were placed in safe mountainous areas, and few were located near the borders. It was not possible for us to measure the relative military safety of the villages in our sample. However, there is no reason to suspect that villages located far from borders or those protected by mountains would be different from other villages. The same can be said for villages which are near resources, such as mineral deposits.

A second factor which we have mentioned but not measured is the political one. It is often said that plant location was determined largely for political reasons, serving as an incentive and a reward for desired political behavior.[27] We had no way of measuring such an influence, and it is indeed possible that the political factor could explain some of our results. However, concern with

politically motivated decision-making focuses on the Democratic Party, and generally the later years of its control (1955-1960). Thus we are talking about a relatively small proportion of Turkish factories. It does not seem likely that these would have a great impact on our findings.

4.1.5 Summary

To briefly sum up this section, we have not been able to show that there is something in an area which caused factories to be located there and also caused lower incidence of poverty, higher levels of citizen responsibility and lower levels of conflict. We have examined proximity to towns, level of agricultural development and size and have found that while these are (in the case of urbanization and agriculture) related to our dependent variables, each has a different kind of impact from that of the factory. We must now go on to explore what it is about living near a factory which "causes" these differences. Of course, we cannot determine with certainty the direction of causality here. It is always possible that factories are located in areas which are already wealthier and more modern for reasons which we have not measured. However, we can propose a direction of causality, both because previous theory and

research supports this line of reasoning, and because we have examined the major forces which might determine factory location and found that the factory seems to have an independent impact.

4.2 Factory Concomitants

What is it about living near a factory that could bring about the changes we have observed? Let us consider what kinds of things might happen when a factory is constructed. In Turkey, the factories which are built by the government bring with them a variety of social services. Schools are needed for the children of workers, vocational courses may be offered to upgrade labor skills, medical services are often provided. It is possible that these facilities might be influencing our dependent variables rather than the factory itself. Another factor which is considered very important for the development of "modernism" is the mass media.[28] It is certainly likely that a large factory would increase the availability of mass media in the area.

4.2.1 Social Services

There is considerable evidence of a positive relationship between education and the type of variables we are using to measure "citizen responsibility."[29]

Clearly, education exposes one to new ideas (innovation), new "models" (empathy) and opinions (opinion formation). In that it exposes one to resources for solving problems, and in that education is a source of status, it can be expected to increase efficacy. However, we are not studying the effect of education on the individual who experiences it, but rather the impact of the school on villagers who live near one. Of course, the two are related, and one way in which the school can be expected to influence people is through education. However, there could also be a "spread" effect here. It is possible that the mere existance of a school provides models and channels new ideas into the surrounding community. This is particularly so if the concept "school" is broadened to include such services as adult education, vocational education and libraries. We might also expect these educational services to influence the social structure of surrounding communities. For example, teachers provide an alternate source of knowledge (which is a kind of power) to the village Imam.[30] This might be related to a decline in religiosity. Schools would also introduce ideas which undermine the authority of older people, and possibly, men. This is both because teachers are often women, and because education is available to both males

and females.[31] By creating new sources of power and new avenues of achievement, schools could be expected to undermine the traditional power structure and thus to increase community conflict. While there is a clear relationship between education and standard of living, this operates indirectly through occupational opportunities. Therefore, we would not anticipate any direct relationship between proximity to educational facilities and level of poverty.

A second aspect of social service is medical facilities. Exposure to modern medicine could be expected to increase one's sense of efficacy by demonstrating man's ability to control nature and by providing evidence of the value of new ideas. As one of the village Imam's traditional functions is to heal the sick (with cures such as having the sick person drink water in which a piece of paper with an inscription from the Koran has been floating), access to medical personnel may lead to a decline in religiosity. We would not expect access to medical services to influence either family or community structure. While there may be some relationship between poverty and medical care[32] it would probably not be direct, and would not be expected to influence the standard of living in the surrounding area.[33] As this is not part of

the goal of medical programs, it will not be explored here.

4.2.1.1 Social Service Index

The Village Information Sheet determined which social services were located within 10 kilometers of the village.[34] We were able to construct indicies of educational and medical services by counting the number of such services to which the village had access.[35] As the two types of services (medical and educational) were closely related, a single index was formed by counting the number of educational and medical services within 10 kilometers of each village. Table 4.15 shows the mean number of social services for villages located 20-29kms, 10-19kms and 9 or less kms from a large factory. It is clear that there is a strong positive relationship here - the closer a village is to a factory, the more social services it is likely to have nearby. The scores on the Social Service Index for each village are transferred to the villagers in order to examine the relationship between access to social services and our dependent variables, citizen responsibility and integrative institutions. The index was split into two parts; low = 0-5 (N=449); high = 6-9 (N=662).

TABLE 4.15

MEAN NUMBER OF SOCIAL SERVICES BY DISTANCE FROM FACTORY

	Distance from Factory (in kilometers)			
	20-29kms (N=28+)	10-19kms (N=29)	9 or less kms (N=18)	% of Variance Explained
Mean Number of Social Services in Village Area	5.14	6.34	7.61	16.8**

** significant at .01 level

+ This table was made using the villages, rather than the villagers, as the unit of analysis. There were 28 villages 20-29kms from a factory.

4.2.1.2 Citizen Responsibility

Surprizingly, Table 4.16 shows no relationship between number of social services and innovation, opinion formation and empathy. While the relationship between efficacy and social services is significant ($p < .05$), it is not in the predicted direction. There is no evidence, then, that those living near factories have higher levels of citizen responsibility because the factories provide social services.

It should be noted that this result says nothing about the effect of educational services on those who use them.[36] It does suggest, however, that these services have no real "spread" effect in the surrounding villages.

4.2.1.3 Integrative Institutions

In Table 4.16, we see that there is a negative relationship between social services and religiosity, as we predicted. No change is noted in family structure in villages with high access to social services. Again, contrary to expectations, we see a decrease (rather than an increase) in perceived village conflict with higher levels of social services. Since we have evidence of a similar relationship between distance from factory and conflict, we want to test whether this was due to the higher level of social services in villages near factories.

TABLE 4.16

SOCIAL SERVICES BY
CITIZEN RESPONSIBILITY AND INTEGRATIVE INSTITUTIONS

	Number of Social Services in Village Area		
	Low (0-5) (N=449)	High (6-9) (N=662)	% of Variance Explained
Citizen Responsibility			
Innovation			
R. Sees Ideas From City Improving Village Life	1.19	1.19	0.0
R. Willing to be First in Village to Try New Method	1.82	1.85	0.1
R. Would Use Free Birth Control Drug	1.02	1.05	0.04
Opinion Formation			
# of Don't Know's	3.10	2.84	0.2
Empathy	1.65	1.68	0.04
Efficacy	.97	.89	0.3*
Integrative Institutions			
Religion			
Religiosity	6.87	6.60	1.0**
Family			
Nuclear Structure	1.42	1.39	0.1
Discrepancy Between Education R. Sees Necessary for Male & Female	2.45	2.52	0.2

TABLE 4.16 (con't.)

Female Participation in Decision-Making	1.14	1.15	0.0
R. Feels Young People are Less Respectful of Elders	1.36	1.32	0.1
Community			
Village Conflict	1.16	1.10	0.5**

* significant at .05 level
** significant at .01 level

Table 4.17 shows that both factories and social services are related to village conflict,[37] although the factory only clearly reduces conflict in areas with high access to social services.

4.2.1.4 Summary

In spite of a strong relationship between access to social services and distance from factories, we find no evidence that this accounts for the relationship between factory proximity and the variables associated with citizen responsibility. Neither distance from factory nor access to social services influence family structure, and both seem to relate to some reduction in village conflict. However, access to educational and medical facilities does appear to reduce the influence of religion, while access to factories does not.

4.2.2 Mass Media

The mass media is important to study here, not only because it could account for the effect of factory proximity, but also because it is particularly appealing as a tool of modernization, being inexpensive, flexible and far-reaching. Mass media has been identified as a central factor in the modernization process,[38] and like social services, we would expect it to have an effect on citizen responsibility and integrative institutions.

TABLE 4.17

MEAN VILLAGE CONFLICT BY
DISTANCE FROM FACTORY AND SOCIAL SERVICES

	Distance from Factory (in kilometers)			
	20-29kms (N=421)	10-19kms (N=428)	9 or less kms (N=262)	% of Variance Explained
Social Services				
Low	1.19 (N=266)	1.08 (N=142)	1.24 (N=41)	1.2*
High	1.15 (N=155)	1.10 (N=286)	1.05 (N=221)	0.6*
Total	1.17	1.10	1.08	0.8**

	df	S.S.	f
Error	1055	150.19	
Distance from Factory	2	1.62	5.69**
Social Services	1	1.10	7.75***
Combination of Distance and Social Services	2	.49	1.70

* significant at .05 level
** significant at .01 level
*** significant at .001 level

By presenting new ideas, we would expect the mass media to make villagers more innovative. By exposing them to the society beyond the village, it would be related to higher levels of opinion formation and empathy. However, it is not clear that mass media would have any effect on efficacy. As a demonstration of man's technical ability, it could make people feel more efficacious in a general sense. However, this would not make one feel more politically efficacious. In fact, awareness of vast extra local systems might have the opposite effect. Nor would it be expected to have any direct effect on poverty. Whether mass media would bring about change in integrative institutions would probably depend heavily on the content of the media. Clearly, it has the potential to do so. For example, in the Republican period in Turkey (1923-1950), the government used the mass media (radios) to counter the influence of religion, which was considered "traditional." In this period, we would expect exposure to mass media to be negatively related to religiosity. In the years preceding the R.D.R.P. survey (1950-1960) religion was not considered incompatable with modernization, and thus we would expect no relationship. Similarly, only if the mass media exposes people to alternative family types and family roles would we expect it to relate to change in

family structure.

4.2.2.1 Mass Media Index

The index of village access to mass media was made from a series of questions on village proximity to a telephone, a telegraph, a cinema and postal delivery. The number of such services was counted, and then combined with questions on the number of radios in the village and frequency of newspaper delivery.[39]

We would expect to find a relationship between access to mass media and factory proximity, since factory staff coming to the rural area would create a demand for newspapers, radios and magazines. Communication facilities, such as telephone and telegraph, would be brought automatically by the factory. Also, Turkish State factories often provide movie theaters for their workers. Table 4.18 shows that this is indeed the case. Access to mass media rises as we get closer to a large factory. Perhaps, then, the reason that villagers who live near factories have higher levels of efficacy, empathy and so forth is because they have greater access to the mass media. In the following analysis, the mass media is divided into two categories and transferred to the individual villagers: low (0-10) with 614 cases and high (11-18) with 297 cases.

TABLE 4.18

MASS MEDIA BY DISTANCE FROM FACTORY

	Distance from Factory (in kilometers)			
	20-29kms (N=421)	10-19kms (N=428)	9 or less kms (N=262)	% of Variance Explained
Mean Value of Mass Media Index	9.51	10.08	10.90	2.9**

** significant at .01 level

4.2.2.2 Citizen Responsibility

Surprizingly, Table 4.19 shows that access to mass media is not related to empathy or opinion formation. Its relationship to efficacy is negative, and thus could not possibly account for the positive relationship we found between factory proximity and this variable. However, there is a weak relationship between mass media access and innovation (willing to be first in village to try new method). Table 4.20 explores the relationship between distance from factory and this measure of innovation, controlling for level of mass media access. Here it appears that both variables (mass media and factory proximity) are positively related to innovation.

4.2.2.3 Integrative Institutions

In Table 4.19 we see a negative relationship between religiosity and village access to mass media, as we would expect if the content of radio programs, for example, was anti-religious.

We also find a very slight positive relationship between mass media and female participation in family decision-making. While this is the first indication of a changing role for women that we have found, it would be a mistake to get very excited about it. The relationship is very small and just barely significant at the .05

TABLE 4.19

VILLAGE ACCESS TO MASS MEDIA BY
CITIZEN RESPONSIBILITY AND INTEGRATIVE INSTITUTIONS

	Village Access to Mass Media		
	Low (N=614)	High (N-297)	% of Variance Explained
Citizen Responsibility			
Innovation			
R. Sees Ideas From City Improving Village Life	1.19	1.19	0.0
R. Willing to be First in Village to Try New Method	1.82	1.86	0.3 *
R. Would Use Free Birth Control Drug	1.03	1.05	0.01
Opinion Formation			
# of Don't Know's	2.93	2.97	0.01
Empathy	1.71	1.62	0.02
Efficacy	.96	.87	0.5 **
Integrative Institutions			
Religion			
Religiosity	6.80	6.59	0.5 **
Family			
Nuclear Structure	1.40	1.40	0.0
Discrepancy Between Education R. Sees Necessary for Male & Female	2.48	2.49	0.0

TABLE 4.19 (con't.)

Female Participation in Decision-Making	1.12	1.18	0.3 *
R. Feels Young People are Less Respectful of Elders	1.33	1.35	0.01
Community			
Village Conflict	1.16	1.07	1.2 **

* significant at .05 level
** significant at .01 level

TABLE 4.20

INNOVATION+ BY
DISTANCE FROM FACTORY AND VILLAGE ACCESS TO MASS MEDIA

	Distance from Factory (in kilometers)			
	20-29kms	10-19kms	9 or less kms	% of Variance Explained
Village Access to Mass Media				
Low	1.74 (N=244)	1.88 (N=259)	1.85 (N=111)	1.7 **
High	1.77 (N=177)	1.93 (N=169)	1.89 (N=151)	3.2 **
Total	1.87 (N=421)	1.93 (N=428)	1.94 (N=262)	2.3 **

** significant at .01 level

+ "R is willing to be first in village to try new method"

level. The probability of getting this kind of result by chance is relatively high. Also, there is no evidence of change in closely related areas (discrepency between education needed for males and females, for example).

Our treatment of community conflict has assumed that change would be related to an increase in conflict between villagers. We have consistently found the opposite to be true - the more modern the village, the better villagers get along with one another. Mass media is no exception. Table 4.19 shows a significantly lower level of village conflict in villages with high mass media scores. We look again at the relationship between perceived village conflict and distance from factory (in order to test the proposition that it is mass media, and not the factory which brings about the decline in perceived village conflict) in Table 4.21. Although the relationship is not monotonic with respect to the villagers with high access to mass media, it appears here that both factory proximity and mass media are related to a reduction in village conflict.

4.2.2.4 Summary

In sum, we find no evidence that villagers living near factories are different because the factories increase their exposure to the mass media. Contrary to

TABLE 4.21

MEAN PERCEIVED VILLAGE CONFLICT BY
DISTANCE FROM FACTORY AND VILLAGE ACCESS TO MASS MEDIA

	Distance from Factory (in kilometers)			
	20-29kms	10-19kms	9 or less kms	% of Variance Explained
Village Access to Mass Media				
Low	1.23 (N=244)	1.13 (N=259)	1.11 (N=111)	1.2 **
High	1.10 (N=177)	1.04 (N=169)	1.07 (N=151)	0.4
Total	1.17 (N=421)	1.10 (N=428)	1.08 (N=262)	0.8 **

** significant at .01 level

previous research, we do not find access to the mass media to be a powerful variable. Why this is so is not clear. It will be remembered that we are looking at whether a person lives in a village that has mass media facilities, not whether he actually reads the paper or listens to the radio. It could be argued that the mass media influences only those who are directly exposed to it. And it is true that it is easier to see how a school or a factory could influence people not directly involved. However, if this is the case, then our results suggest that most people in villages with high mass media access are not exposed to it. This possibility points to a real problem with mass media as a tool for modernization. The policy implication would be that you cannot merely provide villages with radios and the like. You also have to get people to listen to them.

Another possible explanation is that the effect of the mass media depends on the content of the media (i.e. the medium is not the message). Clearly, we would not expect the effect of listening to religious services to be the same as listening to news analysis.

One final point is that the effect of both mass media and social services is strikingly similar (table 4.21) It turns out that they are very highly correlated (r=.47).

Thus we would not want to make any real distinction between them. However, since neither was at all powerful, we will not try to separate out any independent effect.

4.3 Summary

This chapter has examined a series of possible explanations for the relationships we found between distance from factory and a series of "dependent" variables measuring poverty, citizen responsibility and integrative institutions. We have been able to explain the apparent positive relationship between factory proximity and religiosity by controlling "urbanization." Some of the relationship between factory proximity and empathy was also explained by urbanization. Examination of the impact of level of agricultural development left us very unsure about the nature of the relationship (if any) between factory proximity and poverty. Social services and mass media were surprizingly ineffective, explaining none of the initial relationships with distance from factory. While these initial relationships are small, and they are often not monotonic, they are quite persistent. Table 4.21, which sums up the findings of this chapter, shows factory proximity to be a relatively powerful variable.

We began our inquiry with the development of three goals by which a strategy for "modernization" should be evaluated: 1) It should reduce poverty, 2) It should develop a responsible citizenry, and 3) It should do these without social disruption. We find that the rural factory has some relationship to poverty, but it is not a clear negative one. Perhaps the economic effect of the factory is not distributed so as to have any impact on the poorest levels of society. Thus we would not want to argue that rural industrialization programs alleviate poverty on the basis of these uncertain results. In contrast, agricultural development is more clearly related to a reduction of poverty. It may well be that the economic benefits here are more widely distributed than those of the rural factory. On the other hand, we find that rural factories are surprizingly effective in the development of innovation, opinion formation, empathy[40] and efficacy. In contrast, neither mass media nor social services had the expected impact here. With respect to the disruption of social institutions, we find that rural factories themselves have no effect on religion, but that proximity to towns is associated with an increase in religiosity, and that access to factory workers, social services and mass media are negatively related to

religiosity. This suggests that the question of whether or not religion is compatible with "modernization" will not be resolved simply. Rather, the specific characteristics of different aspects of development need to be examined to determine whether they conflict with religion, in what areas, and to what extent. We have some evidence[41] that religious beliefs may be flexible, and change in one area of belief does not necessarily lead to a general decline in religiosity. None of the variables studied was associated with any marked change in family structure or roles, although admittedly our measures here are particularly weak. One of the clearest and most interesting findings is the consistent negative relationship between the independent variables (with the one exception of agricultural development) and perceived level of community conflict. Perhaps our tendency to idealize the sense of "community" in rural areas has led us to overlook some of the major sources of conflict in the <u>traditional</u> community - for example, the blood feud, the conflict over land rights, and the uneven battle between land owners and landless tenant farmers. We have speculated that this apparent reduction in conflict may be related to an improved economic situation. This would be an interesting avenue for further exploration.

One problem with our results is that the relationships are consistently small, often explaining less than 1% of the variance. The following chapter will explore the accuracy of the observed magnitudes and their meaning.

TABLE 4.22

CORRELATION OF POVERTY, CITIZEN RESPONSIBILITY AND INTEGRATIVE INSTITUTIONS BY FACTORY AND ALTERNATIVE VARIABLES

	Distance from Factory***	% Working in Factory	Urbanization	Agricultural Development	Social Services	Mass Media
Poverty						
Poverty Index	-.13**	.00	+.04	-.16**	NA	NA
Citizen Responsibility						
Innovation						
R. Sees Ideas From City Improving Village Life	+.07*	-.03	.00	+.03	.00	.00
R. Willing to be First in Village to Try New Method	+.15**	+.02	+.04	+.07*	+.03	+.05*
R. Would Use Free Birth Control Drug	+.07*	+.01	+.01	.00	+.02	+.01
Opinion Formation						
# of Don't Know's	-.11**	+.04	-.05 (N.S.)	+.01	-.04	+.01
Empathy	+.09**	-.03	+.11**	-.04	+.02	-.04

TABLE 4.22 (con't.)

Efficacy	+.06*	-.02	.00	+.01	-.05	-.07**
Integrative Institutions						
Religion						
Religiosity	+.06 (N.S.)	-.10**	+.12**	-.03	-.10**	-.07**
Family						
Nuclear Structure	-.02	+.01	-.04	.00	-.03	.00
Discrepancy Between Education R. Sees Necessary for Male & Female	+.04	+.03	+.08**	-.03	+.04	.00
Female Participation in Decision-Making	+.03	-.01	-.03	.00	.00	+.05*
R. Feels Young People are Less Respectful of Elders	.00	+.02	-.02	-.03	-.03	+.01
Community						
Village Conflict	-.09**	-.03	.00	-.05*	-.07**	-.11**

NA not ascertained
(N.S.) not significant when controlled

* significant at .05 level
** significant at .01 level
*** for ease of comparison, this is considered inversely as factory proximity

Footnotes to Chapter 4

[1]See especially Max W. Thornburg, Graham Spry, and George Soule, Turkey, An Economic Appraisal, New York, Twentieth Century Fund, 1949, pp. 107-110 and 21a; V. Herschlag, Turkey, An Economy in Transition, The Hague, Van Kenlen, 1960, for critiques of this plant.

[2]Malcolm R. Rivkin, Area Development for National Growth, The Turkish Precedent, New York, Praeger, 1965, p. 121.

[3]The question was, "How far is this village from ____?" (nearest city of 50,000+ in population was named by the interviewer). There were 5 villages 9 or less kms, 7 villages 10-19kms, 13 villages 20-49kms, 16 villages 50-99kms and 32 villages 100+ kms from a city of 50,000+. Distance from city was unknown for 2 villages.

[4]'Kaza' is an administrative unit similar to the county in the U.S. There were 20 villages less than 9kms, 30 villages 10-19kms and 23 villages 20+kms from a kaza center. For 2 villages, distance from the kaza center was unknown.

[5]The measures would exclude any towns which are under 50,000 in population but which are not kaza centers. However, it is most likely that this is an 'empty set.' In 1960 there were only 145 cities with populations of 10,000 and over in all of Turkey. Of these, only 27 had populations over 50,000. This leaves 118 towns not in our "large city" category. However, Turkey has 67 Provinces, each with about 5-10 kazas in each. This means approximately 500 kaza centers - many more than the 118 "unaccounted for" towns. It is very unlikely, then, that there is any important urban center which is not covered in these measures.

[6]See Appendix I for the description of this index.

[7]Some analysis using more categories is found later in this chapter.

[8]This conclusion is consistent with the results when 3 categories of "urbanization," low (2 & 3) N=395; medium (4) N=438; high (5-8) N=278 are used (F=1.36).

[9]Division of the Urbanization Index into 3 categories does not change this result. (Urbanization - F=8.82, Distance and Urbanization - F=3.47, Distance - 1.48). In this case, low urbanization has 395 cases, medium has 438, and high has 278.

[10]The "low urbanization" score on the trichotomized scale means that the person must live at least 10-19kms from a kaza center and 50-99kms from a city of 50,000.

[11]Manning Nash, Machine Age Maya, The Industrialization of a Guatemalan Community, Glencoe, The Free Press, 1958.

[12]However, we find no relationship between perceived inequity and urbanization (low urbanization = 1.91, high urbanization = 1.95, eta = .01)

[13]Such an image is common in literature. Popular examples include Flaubert's Madame Bovery and Lewis' Main Street.

[14]The score on "Education considered necessary for females" for low urban access was 1.88, and for high urban access, 1.87.

[15]See Gideon Sjoberg, The PreIndustrial City, Past and Present, Glencoe, The Free Press, 1960; Clifford Geertz, Peddlers and Princes, Social Change and Economic Modernization in Two Indonesian Towns, Chicago, University of Chicago Press, 1963; Gideon Sjoberg, "Application of the Ideal-type Constructs to the Metropolis in the Economically Less-Advanced Areas," in the Study of Urbanization, Phillip Hauser and Leo Schnore, eds., New York; Horace Miner, ed., The City in Modern Africa, New York, 1967; Robert Redfield and Milton B. Singer, "The Cultural Role of Cities," in Economic Development and Cultural Change, 3, 1954; For discussion of cities in Turkey, see Turkish cities, see Mubeccel Kiray, Eregli-Agir Sanayiden Once Bir Sahil Kasabasi, Ankara, 1964; Paul J. Magnarella, "From Villager to Townsman in Turkey," The Middle East Journal, Spring 1970; Grandville H. Sewell, "Squatter Settlements in Turkey: Analysis of a Social, Political and Economic Problem," unpublished Ph.D. Dissertation, M.I.T., 1964, and Peter Suzuki, "Peasants Without Plows: Some Anatolians in Istanbul" Rural Sociology, vol. 31, no. 4, 1966.

[16]The exact wording was "What is the principal occupation of the village?"; "(If principal occupation is farming) what is the main crop?"; "What is the second main occupation in the village?"

[17]See Appendix II for further description of this index.

[18]Actually, the probability is slightly above .05 (p=.0557). As this was very close to .05, it was decided to examine the 'relationship' further.

[19]The frequencies are as follows:

3 categories		6 categories	
Score	Frequency	Score	Frequency
1	429	1	132
2	423	2	297
3	259	3	214
		4	209
		5	142
		6	117

[20]Robinson has done some interesting work on unanticipated consequences of the introduction of tractors, Richard D. Robinson, "Turkey's Agrarian Revolution and the Problem of Urbanization," Public Opinion Quarterly, vol. 22, no. 3, Fall 1958, and "Tractors in the Village: A Study in Turkey," Journal of Farm Economics, vol. 34, November 1952. For further study of changing agriculture in Turkey, see John Kolars, Tradition Seasons and Change in a Turkish Village, Chicago, University of Chicago, Dept. of Geography, Research Paper No. 82, 1963; and Jan Hinderink and Mubeccel Kiray, Social Stratification as an Obstacle to Development, New York, Praeger, 1971.

[21]Much of this literature is summarized in Everett M. Rogers, Diffusion of Innovation, New York, Free Press of Glencoe, 1962.

[22]Everett M. Rogers, Modernization Among Peasants: The Impact of Communication, New York, Holt, Rinehart & Winston, Inc., 1969, p. 304.

[23]This is a very borderline relationship. (see footnote 18).

[24]This is taken from the 1960 Turkish Census figure.

[25]Zvi Heischlag, Turkey, The Challenge of Growth, Leiden, E. J. Brill, 1968, p. 174-5. For discussion of the problem of labor fluctuation in other areas, see Wilbert E. Moore and Arnold S. Feldman, eds., Labor Committment and Social Change in Developing Areas, New York, Social Science Research Council, 1960.

[26]Rivkin, op. cit., p. 70.

[27]Ibid., p. 141-2.

[28]Daniel Lerner, The Passing of Traditional Society, Glencoe, The Free Press, 1958; Rogers, op. cit.; For more recent discussion of this issue, see Jane F. Marceau, "Communication and Development: A Reconsideration," Public Opinion Quarterly, vol. 36, no. 2, 1972.

[29]Alex Inkeles and David H. Smith, Becoming Modern, Individual Change in Six Developing Countries, New York, Basic Books, (forthcoming); Howard Schuman, Alex Inkeles and David H. Smith, "Some Social Psychological Effects and Noneffects of Literacy in a New Nation," Economic Development and Cultural Change, vol. 16, no. 1, 1967; Allen Schnaiberg, Some Determinants and Consequences of Modernism in Turkey, Unpublished Dissertation, University of Michigan, 1968.

[30]Translation: Moslem religious leader

[31]Actually, this is only partially so in Turkey, where boys are more likely to be sent to school than girls. Some data on differential education rates by sex are presented in Chapter 5. For discussion of education in Turkey see A. M. Kazamias, Education and the Quest for Modernity in Turkey, Chicago, University of Chicago Press, 1966; F. W. Frey, "Education" in R. E. Ward and D. E. Rustow, eds., Political Modernization in Japan and Turkey, Princeton, Princeton University Press, 1964.

[32]It is probably a circular one, in that poor health contributes to economic inefficiency, and poverty makes the medical care and good nutrition necessary for health unlikely.

[33]In fact, we do find a negative relationship between poverty and the social service index (eta = .14). It is not clear why this is so, and we know that it does not explain the relationship between distance from factory and poverty. Using 2, 3 and 5 categories of the social service index as a control, F=6.23, 6.17 and 5.96 respectively for the relationship between poverty and distance from factory. All are significant at the .01 level. This relationship will not be explored further here.

[34]In fact, the pre-coded categories also allowed for the possibility that the service was located in the village itself. Since this response was rare, we included these responses in the "within 10kms" category.

[35]See Appendix III for the description of this index.

[36]In Chapter 5, a clear relationship between personal education and "citizen responsibility" is shown. If we look at the impact of distance from factory for the different educational levels, we find that the factory has the greatest impact on those with over 3 years of school.

[37]The same conclusion is reached when we repeat this analysis with 3 and 5 categories of the social service index. The frequencies for the two 'splits' are as follows:

3 categories		5 Categories	
Score	Frequency	Score	Frequency
1	324	1	133
2	376	2	191
3	411	3	229
		4	267
		5	291

[38]D. Lerner, op. cit.; E. Rogers, op. cit.; Frederick W. Frey, "The Mass Media and Rural Development in Turkey," Cambridge, M.I.T. Center for International Studies, Rural Development Research Project, Report no. 3, 1966.

[39]See Appendix IV for description of the construction of the Mass Media Index.

[40]Although we find a relationship here only in areas well outside of towns.

[41]See the discussion on conflict between religion and birth control in Chapter 3.

CHAPTER V

WHY ARE THE RESULTS SO SMALL?

We found initially that there is a small relationship between the distance a Turkish villager lives from a large factory and "citizen responsibility." Also, those living close to factories may be somewhat less likely to be 'poor' than those living farther away, although the relationship is not monotonic. We find no evidence that proximity to a factory is disruptive of social institutions. To the contrary, there is some tendency for those living closer to factories to perceive that the people in their villages get along better than those living further away.

In the preceding chapter, we have been trying to discover what it is about the factory which brings about these changes. Surprizingly, we have been unable to explain our initial findings. We have had some difficulty in interpreting our results clearly, and we have had to limit the context in which a relationship occurs in some cases. However, we have not been able to show either that something about factory location explains the

findings, or that factory concomitants such as social services or mass media are responsible.

We now turn attention to another kind of question. It is noted that the relationships we have found are very weak, generally explaining less than 1% of the variance in the dependent variable. Is it possible that there are strong differences between areas close to and far from large factories, but that these aren't showing up in this analysis for some reason? In this section we will discuss the following possibilities; 1) that strong differences are obscured because this analysis was done using the individual villager, rather than the entire village, as a unit of analysis; 2) that stronger relationships would have been found had we analyzed all villages, rather than arbitrarily eliminating those villages over 30 kilometers from a large factory; 3) that regional variations obscure the true relationship; 4) that a lack of validity and/or reliability in the data utilized is responsible for our very moderate findings; and 5) that studying a more relevant subgroup of the Turkish village population would have yielded larger relationships.

5.1 Unit of Analysis

We have analyzed individual villagers rather than

using the village as the unit of analysis. It is possible that strong differences between villages are weakened due to variation within villages.

In order to assess this possibility, the data were aggregated by village. For selected variables, a mean score of all individuals within each of the 75 villages was obtained. Using this aggregated data set, we looked at the relationship between "distance from factory" and these dependent variables. Table 5.1 shows, in the first column, the eta which we obtained initially (see Chapter 3), and in the second column, the r for the aggregated data set.

In interpreting these results, it is important to bear in mind the differences between the two data sets. In the first, we have a much larger number of cases (N=1111), and we have 3 kinds of variations: variation within each village; variation between the villages in the same "distance from factory" category, and variation between the three "distance from factory" categories. In the second case, we have a smaller number of cases (N=75) and we have eliminated the first type of variation. We would expect, then, for the amount of total variation explained by distance from factory to be greater with the second data set, since the total variation is smaller. Thus, the measure of association ($\sqrt{\text{explained variation}}$)

TABLE 5.1

DISTANCE FROM FACTORY BY
POVERTY, CITIZEN RESPONSIBILITY AND INTEGRATIVE INSTITUTIONS
(COMPARISON OF RESULTS USING AGGREGATED & NON-AGGREGATED DATA)

	Correlation (eta) with non-aggregated data (N=1111)	Correlation (r) with aggregated data (N=75)
Poverty		
Poverty Index	.13**	.20
Perceived Inequity	-.10**	-.18
Citizen Responsibility		
Modernism+	-.13**	-.295
Integrative Institutions		
Family		
Discrepancy Between Education R. Sees Necessary for Male & Female	-.03	.03
Community		
Village Conflict	.09**	.20

* significant at .05 level
** significant at .01 level
\+ Index combining empathy, efficacy, innovation and opinion formation.

would be higher. On the other hand, since the probability of getting a meaningful result when there is no relationship in the population is inversely related to the size of the sample, we would be less likely to obtain significance with the aggregated data set.

We would expect, then, to find larger measures of association, but to be less likely to have statistically significant results when analyzing the data in aggregated form. Turning to Table 5.1, we find that this is the case in the majority of relationships. For example, the eta between poverty and distance from factory is +.13, and the r for the same relationship using aggregated data is higher, +.20. However, the relationship is significant at the .01 level when we analyze villagers, but is not significant at the .05 level with the aggregated data. We find this pattern in 4 of the 5 relationships. One ("discrepancy between male and female education considered necessary by R.") shows no difference between the two measures.

The results of the two types of analysis are also quite consistent with regard to variables other than "distance from factory" as well.[1] While there are <u>some</u> differences[2], our conclusions would have been very similar had we aggregated the data initially. There is no evidence that using villagers rather than villages as the unit of analysis would have yielded much stronger relationships

than the modest ones we found. We conclude, then, that if "distance from factory" is a strong variable, this is being masked by something other than our failure to aggregate the data at the village level.

5.2 Subsample

Another possible way to explain our lack of strong, convincing findings is that such relationships actually exist, but that they do not show up because our sample is limited to people living in villages that are within 30 kilometers of a large factory. Perhaps factories make a large difference, but all persons within the 30 kilometer radius are about equally effected. To observe this type of effect, we would have to have included people living more than 30 kilometers from a factory in our analysis. While we cannot analyze the entire data set, we can get some indication whether or not this explanation is likely. It will be remembered that the survey on which this analysis is based consisted of two separate instruments, one of which was a "Village Information Sheet." We have some data from the whole range of villages which can be used to compare villages over 30 kilometers from a large factory to those within the 30 kilometer limit. While we cannot do this for variables taken from the questionnaire

asked to individual villagers, there is some information on the "village information sheet" which is related to variables like poverty, distribution of wealth and religiosity. If villages within 30 kilometers are equally influenced by factories, then we would expect to see marked differences between those living within 30 kilometers and those living beyond the 30 kilometer limit. Table 5.2 presents the available data for the entire set of villages.[3]

In the first section of the table dealing with age, we see very little difference among the four distance categories. The next section deals with the proportion of houses in the village which have glass windows. This can be considered a measure of wealth. Here we see a pattern showing a positive relationship between poverty and distance from a factory. Looking across the first row (0-49%) we see considerable difference between the first 3 columns. The pattern is continued in the last column (villages over 30 kms) but the difference is not large. Thus had we included these villages in our sample, the result would probably have been somewhat stronger. However, it does not appear that these additional data would have changed a modest relationship to a strong one.

The next two sections, dealing with land ownership patterns and thus distribution of wealth, show no clear

TABLE 5.2

DISTANCE FROM FACTORY BY
SELECTED VILLAGE CHARACTERISTICS* FOR ENTIRE DATA SET

	Distance from Factory (in kilometers)			
	0-9kms	10-19kms	20-29kms	30+kms**
Age				
16-19 years	10.4%	8.3%	10.3%	10.9%
20-29 "	24.0	24.3	23.9	24.9
30-49 "	36.8	40.9	39.1	39.0
50+ "	28.8	26.5	26.7	25.2
Total	100 %	100 %	100 %	100 %
Number	250	408	397	3998
Error	12	20	24	1944***
% of houses in village that have glass windows				
0-49%	5.7%	19.4%	26.4%	29.1%
50-99%	25.9	28.3	40.0	31.8
100%	68.4	52.3	33.6	39.1
Total	100 %	100 %	100 %	100 %
Number	262	428	421	5912
Error	--	--	--	30
% of villagers who own land in the village				
0-49%	39.7%	13.6%	33.8%	27.8%
50-90%	33.2	46.0	44.1	46.0
90%+	27.1	40.4	22.1	26.2
Total	100 %	100 %	100 %	100 %
Number	262	428	421	5943
Error	--	--	--	--

TABLE 5.2 (con't.)

	0-9kms	10-19kms	20-29kms	30+kms**
% of people in village who work on others' land				
Under 10%	32.1%	32.5%	25.4%	40.2%
10-49%	33.6	46.0	44.4	37.7
50%	34.3	21.5	30.2	22.1
Total	100 %	100 %	100 %	100 %
Number	262	428	421	5927
Error	--	--	--	15
# of people who committed crimes in past year				
0	55.4%	47.8%	33.3%	65.5%
1-4	29.0	33.1	52.2	22.5
5+	15.6	19.1	14.5	12.0
Total	100 %	100 %	100 %	100 %
Number	262	414	421	5896
Error	--	14	--	46
% of girls aged 7-12 who attend school				
Under 25%	14.7%	13.0%	9.2%	17.8%
25-74%	17.5	17.5	20.5	28.1
75-90%	15.6	29.1	37.2	19.3
90%+	52.2	40.4	33.1	34.8
Total	100 %	100 %	100 %	100 %
Number	211	347	347	4021
Error	27	16	29	207
No School****	24	65	45	1641

TABLE 5.2 (con't.)

	0-9kms	10-19kms	20-29kms	30+kms**
% of boys aged 7-12 who attend school				
Under 25%	0.0%	4.2%	3.6%	3.5%
25-74%	14.2	13.4	12.6	23.2
75-90%	26.1	14.3	51.9	25.9
90%+	59.7	68.1	31.9	47.4
Total	100 %	100 %	100 %	100 %
Number	211	335	360	3960
Error	27	28	16	241
No School****	24	65	45	1641
% of adult males who go to the Mosque daily				
Under 10%	27.1%	35.9%	26.7%	26.6%
10-24%	35.8	17.9	35.9	20.6
25-49%	16.5	16.6	19.4	23.4
50%+	20.6	29.6	18.0	29.4
Total	100 %	100 %	100 %	100 %
Number	218	379	345	4780
Error	27	0	16	278
No Mosque****	17	49	60	884

* Variables used in this table, with the exception of "age" are taken from the Village Information Sheet. Thus the number of cases was equal to the number of villages. However, in constructing our data set, information about the village had already been attributed to the individual villager. Thus the numbers on which the percentages are based are numbers of individuals living in villages with a particular characteristic. As data for the entire survey were available only for villages, the numbers of villages in the total project were multiplied by 15.3, the average number of individuals interviewed per village. Since this number was not

TABLE 5.2 (con't.)

uniform for each village, the numbers are not completely accurate and should be considered as gross estimates rather than precise measures.

** This column was obtained by subtracting the number of persons living in villages less than 30 kilometers from a large factory from the total for each row.

*** The error figures are based on a total sample size of 7053, which is equal to the total number of villages (461) times the mean number of interviews per village (15.3).

**** Information about school and mosque attendance was determined only in those villages which had a school or mosque.

patterns, although there may be a slight trend for those villages closest to factories to have less people owning land and more people working on others' land. This is consistant with our previous findings with perceived inequity. Since the difference occurs between 0-9 kilometers and 10+ kilometers, using villages over 30 kilometers would not either strengthen or weaken our initial result.

The section of the table dealing with frequency of crime shows an interesting pattern. There is a decline in the percent of crime-free villages as we move farther from the factory up to the 30 kilometer mark. However, there is a sharp rise in proportion of crime-free villages when we move to the "over 30 kms from a factory" category. Thus had we cut off the sample at 30 kilometers, we would have concluded that there is a positive relationship between crime and distance from factory. In this case, including those villages over 30 kilometers from a factory would have weakened rather than strengthened our finding.

The next two sections, dealing with school attendance, are probably not highly accurate due to the number of errors and the sensitivity of the question.[4] Even so, there is no indication of a sharp difference between villages up to and those over 30 kilometers from a factory. The last

section, on Mosque attendance, also shows no clear differences between the four distance categories.

This analysis is not without problems. It deals with only limited data, and the method by which the table was constructed is not completely accurate. However, if villages 30 kilometers or more from factories were grossly different from the villages in our sample, this would probably show up. Instead, we have found no evidence that our results would have been stronger had we analyzed the entire data set rather than looking only at villages within 30 kilometers of a factory.

5.3 Regional Variation

Turkey is a large country characterized by significant regional variation. Geographically it is surrounded by water on three sides - north, west and south. Along the water lie fertile coastal plains, narrowest at the Black Sea in the North. Behind the plains are mountains, which ring the largely barren central plateau. Innovation has tended to come into the country from the West, and spread gradually eastward. A similar movement, although less important, has been from the coastal areas to the interior. Turkey has traditionally been divided into 7 regions: the Marmara, Aegean, Black Sea, Central, Mediterranean,

East Central and South East. (see figure 5.1). There is general agreement that the Westernmost regions, Marmara and Aegean, are the most developed, and the East is least developed, with the Central regions (Black Sea, Mediterranean and Central) somewhere inbetween. In fact, region has been found to be one of the best predictors of level of development.[5] Given that region is an important variable in understanding Turkish development, is it not possible that enormous regional variations are making it difficult to isolate the effect of the rural factory?

First, let us examine the regional location of the villages in our sample. Are they dispersed throughout the country, or are they concentrated in a particular region? Table 5.3 shows the percentage of villages in each region for our sample of villages located 30 kilometers from a large factory or less and for the nation as a whole. This table shows that the villages in our sample are well distributed throughout Turkey. While there is some difference between our sample and the national figures, it does not follow the "West to East" pattern we might expect.[6]

Table 5.4 shows that while there are differences between the regions on mean distance from factory, they also do not reflect the pattern of national development.

FIGURE 5.1

REGIONS OF TURKEY, 1960

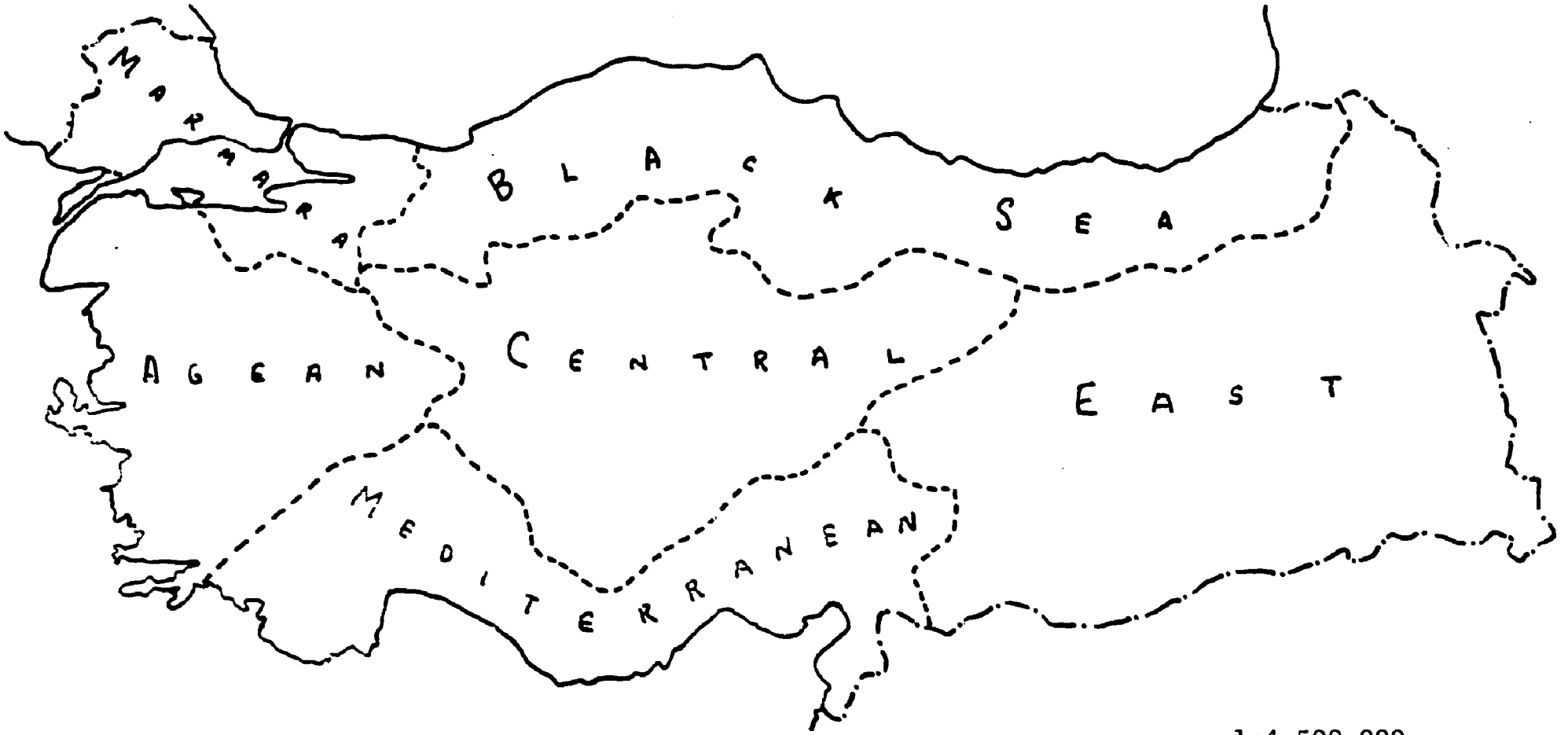


TABLE 5.3

REGIONAL DISTRIBUTION OF SAMPLE VILLAGES AND NATIONAL POPULATION

Region	Villages Within 30 kms of a Large Factory	National Population (1960 Census)	Difference
Marmara	13%	19%	- 6%
Aegean	22	11	+11
Black Sea	19	20	- 1
Mediterranean	15	10	+ 5
Central	15	23	- 8
East	16	17	- 1
	100%	100%	
	(N=75)	(N=27,802)	

TABLE 5.4

MEAN DISTANCE FROM FACTORY BY REGION

Region	Mean Distance From Large Factory (in kilometers)*	N
Marmara	17.5	10
Aegean	16.9	17
Black Sea	13.1	11
Mediterranean	17.2	14
Central	16.7	17
East	14.5	6
		75

* Mean distance was calculated from the grouped data by giving each village the value of the midpoint of its category. Thus a village coded 1 (0-9kms) was considered 4.5kms from a large factory.

A second question is to what extent the "West to East" pattern holds in our sample with respect to the dependent variables we have analyzed. Table 5.5 shows mean scores by region for our sample. Also presented is the rank of each region, making it easier to recognize the expected pattern (highest ranks for the leftmost regions and the lowest for the East region at the far right of the table). Looking first at the poverty index, we do see clear evidence of increasing poverty as we move from West to East. Surprizingly, there is no support for a West-East pattern with respect to the various "Citizen Responsibility" measures. In fact, it looks as if the central regions, particularly the Black Sea and Mediterranean, have the highest scores. Our data do support the West-East pattern with respect to village conflict, which generally <u>increases</u> as we move from West to East. This again suggests that we need to reassess our perception of the close knit village community.

Thus while the national survey of Turkish villagers does show the classic pattern of regional influence, the subsample we have used generally does not. This suggests that regional influence may have more to do with differential rate of development than cultural or structural differences.

TABLE 5.5

POVERTY, CITIZEN RESPONSIBILITY AND VILLAGE CONFLICT BY REGION

	Region					
	Marmara (N=163)	Aegean (N=255)	Black Sea (N=215)	Mediterranean (N=164)	Central (N=162)	East (N=152)
Poverty						
Poverty Index	4.39	4.93	5.45	6.33	5.14	6.04
(rank)	1	2	3	6	4	5
Citizen Responsibility						
Innovation						
R. Sees Ideas From City Improving Village Life	1.19	1.27	1.18	1.23	1.12	1.11
(rank)	4	6	3	5	2	1
R. Willing to be First in Village to Try New Method	1.83	1.91	1.89	1.82	1.81	1.69
(rank)	4	6	5	3	2	1
R. Would Use Free Birth Control Drug	.96	1.00	1.13	1.16	1.02	.93
(rank)	2	3	5	6	4	1

TABLE 5.5 (con't.)

	Marmara (N=163)	Aegean (N=255)	Black Sea (N=215)	Mediterranean (N=164)	Central (N=162)	East (N=152)
Opinion Formation						
# of Don't Know's	3.02	2.97	2.76	2.74	2.81	3.47
(rank)*	2	3	5	6	4	1
Empathy	1.65	1.35	1.97	1.79	1.70	1.64
(rank)	3	1	6	5	4	2
Efficacy	.76	.90	1.00	.97	.92	.98
(rank)	1	2	6	4	3	5
Integrative Institutions						
Community						
Village Conflict	1.01	1.07	1.14	1.18	1.17	1.19
(rank)	1	2	3	5	4	6

* The ranks on this variable have been reversed to facilitate comparison. Thus the highest rank means lowest number of don't know's.

This is not to say that region is not a significant variable in our subsample. Table 5.6 shows the opposite to be the case. However, it also shows what happens to the relationships between distance from factory and major dependent variables in this study when region is controlled. There is no evidence here to support the argument that regional differences are interfering with our results in such a way that strong relationships appear weak.

5.4 Validity of Data

We also want to entertain the possibility that our findings are deceptively weak because there is so much "noise" in the data. Clearly, enormous problems arise in crosscultural survey research of the type of the Rural Development Research Project. First, there are language and cultural differences which make the construction of a questionnaire difficult, particularly when it is measuring intangible concepts like "empathy." Also, both interviewers and interviewees were new to this process. Sampling in a developing country like Turkey means that available lists of villages, and even more crucial, of persons in a village, are likely to be inaccurate. Inexperienced coders had to make important decisions on

TABLE 5.6

VARIANCE IN POVERTY, CITIZEN RESPONSIBILITY AND PERCEIVED CONFLICT EXPLAINED BY DISTANCE FROM FACTORY AND REGION *

	% of Variance Explained by Distance From Factory	% of Variance Explained by Region	% of Variance Explained by Distance From Factory Net of Region
Poverty	1.65%	7.22%	1.44%
Citizen Responsibility**			
Modernism	1.65	2.10	1.17
Perceived Village Conflict	0.8	1.9	1.0

* Figures in this table are based on a Multiple Classification Analysis.[7]

** Composite measure based on empathy, efficacy, opinion formation and innovation.

categorization. And, of course, there are the errors in any survey associated with key punching and manipulating large data sets by computer. How are we to judge whether the data we have analyzed are valid and/or reliable?

Fortunately, the study director, Dr. Frey, has undertaken careful checks of validity both in the design of the survey and in analyzing the results. First, in sampling, it will be remembered that a two-stage sampling design was used. The first stage, villages, made use of the just-completed 1960 national census which listed all 35,000 villages with location and population. Frey admits that "the greatest sampling risk was that of the second stage procedure. . .[particularly] obtaining the list of adult villagers resident in each of the 458 selected villages."[8] As there was no existing list of village residents,[9] the interviewing team was given the job of constructing such a list "on-the-spot," utilizing all available lists, in consultation with the village leaders. Once the lists were complete, the team leader, using a preassigned random starting point and interval, selected the sample. In assessing the accuracy of the second stage sampling procedure, Frey comments, "According to the 1960 census, we should have secured an average of 16 desired respondents per village. However, the census

estimate was based upon a defined population somewhat larger than ours in that it included soldiers, those physically or mentally incapable of being interviewed, transients, etc. We obtained an average of 15.3, which, considering everything, was extremely close to the census figure."[10]

Response rate was very good, with 94.8% of the sample actually interviewed. The refusal rate was less than 1%. Frey also reports that he checked between-interviewer variations, and that "failure to find [any] extreme differences was another factor increasing our confidence in the findings."[11]

The problems of developing a questionnaire for peasants in a developing country were also handled with care. One minor and three major pre-tests were carried out. Because of illiteracy, list cards were not used. Therefore, in multiple choice questions choices were kept few, brief and simple. Language problems were handled with equal sensitivity. In Kurdish speaking areas,[12] Frey writes, "We secured a number of very able bilingual (Turkish-Kurdish) interviewers, trained them carefully as a unit, and relied upon their real prowess at simultaneous translation, though inevitably sacrificing thereby, some control over interviewer performance."[13] Concerning

problems of regional variations in word connotation, he states, "In the half-dozen questions where this problem was acute, we attempted, on the basis of a specific pre-testing of the alternatives, to select the least damaging procedure and then to continue to probe for possible warping of results throughout the field operations and the analysis."[14]

In examining the accuracy of the survey findings, Frey makes three types of comparisons. First, it will be remembered that the survey was done in two parts. This was done by randomly dividing the sample of villages into two independent subsamples. The reason for this procedure was concern that, due to its political sensitivity, the survey might be stopped before completion. The two subsamples can be compared to test the reliability of the findings. Frey argues that if errors from sampling, interviewing and coding were large, the two subsamples would disagree markedly. Table 5.7 shows very small differences between the two subsamples.

The second type of test Frey makes is to compare his results with results from the Turkish census[15] in order to judge the liklihood that both subsamples are biased. Table 5.8 shows reasonably close results from the Rural Development Survey and the Turkish census.

TABLE 5.7

DIFFERENCES BETWEEN THE TWO SUB-SAMPLES FOR SELECTED CLOSED QUESTIONS, OPEN QUESTIONS AND INTERVIEWER RATINGS *

Closed Questions	Percentage Point Differences
Percent who report leaving village once a week or more often	0
Percent who have even seen a movie	1
Percent who report that friends are literate	0
Percent under 20 years of age	1
Percent over 60 years of age	0
Percent who report past attendance at school	1
Percent who report voting in a past national election	2
Percent who state that influence of schools on the young is "good"	2
Percent who report own occupation as housewife or housework	3
Percent who report no secondary occupation	7
Percent who report health as "very good"	3
Percent who say it is the duty of the government to provide good water supply	1
Percent who would attend a vocational course if offered in the village	3
Percent who report that family went hungry in past year	0

TABLE 5.7 (con't.)

Open Questions	Percentage Point Differences
Percent who report that most important problem facing village is "water supply"	4
Percent who give first mention to "intellectual or cultural development" as one of the two things to teach their children	0
Percent who mention "Ataturk" as the person they most admire	0
Percent who would wish for more education if one wish could be granted in future	1
Percent who mention a specific project they would undertake if they were the Prime Minister	5
Percent who mention a specific village project they would undertake if they were the Muhtar	7
Interviewer Ratings	
Percent of respondents reported as answering most questions sincerely	3
Percent of respondents rated as having difficulty in understanding many questions	1
Percent of respondents rated as generally cooperative	5
Percent of respondents rated as having other adults present at interview	6

* Source: Frederich W. Frey, Rural Development Research Project, Report #1, Center for International Studies, MIT, Cambridge, Mass., page 34-35.

TABLE 5.8

COMPARISON OF TURKISH CENSUS AND
RURAL DEVELOPMENT RESEARCH PROJECT SURVEY *

Percentage of Village Population According to Family Size, per 1955 Census and R.D.R.P. Survey

Family Size	1955 Census**	R.D.R.P. Survey
One person	1%	5%
Two persons	3	4
Three persons	6	6
Four persons	10	10
Five persons	14	14
Six persons	15	13
Seven or Eight persons	24	22
Nine or more persons	26	23
Don't Know & Refusal	1	3
Total	100%	100%

Number of Rooms per Village Family (1955 Census) and per Respondent (R.D.R.P. Survey)***

Number of Rooms	1955 Census** Percentage of Village Families	R.D.R.P Survey Percentage of Villagers
One	26%	19%
Two	36	35
Three	17	21
Four	10	14
Five	4	4
Six	3	2
Seven or more	3	2
Don't Know & Refusal	3	2
Total	100%	100%

Table 5.8 (con't.)

Comparisons of Findings from
the 1960 Village Census and the 1962 R.D.R.P. Survey

Item	1960 Census	1962 Survey
Percent of Peasants Resident in Village which has:		
Religious Leader (Imam)	81%	83%
Coffee House	44	39
Guest Room	47	45
Mosque or Chapel	83	86
Primary School	73	75
Drinking Water from Springs	70	64
Drinking Water from Wells	15	18
Percent of Peasants Resident in Village according to the Village's Distance from the County (Kaza) Center:		
1-5kms (0-4kms on survey)	9%	5%
6-10kms (5-9kms " ")	16	13
11-15kms (10-14kms " ")	17	19
16-20kms (15-19kms " ")	15	17
20kms (19kms " ")	42	45
No information	6	--
Percent of Peasants Resident in Villages Located on the Plain	21%	19%
Percent of Peasants Resident in Villages of Size:		
0 - 199	5%	5%
200 - 399	21	20
400 - 599	23	21
600 - 999	29	28
1,000 - 1,999	23	26

* Source: Frederick W. Frey, Rural Development Research Project, Report #1, Center for International Studies, MIT, Cambridge, Mass., pages 40-42.

Table 5.8 (con't.)

** Source of 1955 data: 1955 Genel Nufus Sayimi
Ankara, 1957, page 52.

*** As the census uses households as the unit of analysis, and the R.D.R.P. Survey samples individuals, the two are not strictly comparable. We would expect a smaller proportion of households with many rooms, since persons living in large families are under-represented in a survey of households rather than of individuals.

Finally, Frey compares subgroups - men and women - in his survey to see whether well-known differences (that girls are less likely to be sent to school than boys; are therefore less likely to be literate; and are less likely to be born in the village where they live because of patrilocal marriage patterns) are reflected in the findings. Table 5.9 is presented to illustrate the "construct validity" of the survey items.

Frey concludes that, "the results available to date are highly consistent internally and dovetail closely with the most reliable outside information on related topics."[16]

Another possibility is that there is something unusual about the subsample we have chosen - that it does not reflect the validity of the larger sample. To test this, we can make similar comparisons using our own subsample of villagers (those living within 30 kilometers of a factory). Tables 5.10, 5.11 and 5.12 show selected dependent variables by sex, age and educational level of respondent.

In Table 5.10, comparing males and females, we find that the data are consistent with our expectations. Women are less educated and have less modern attitudes than do men. Where we would not expect to find any difference by sex, such as family poverty, we find none. The same is true for family type and perception of how well villagers get along with each other.

It is interesting to note how women and men compare on questions relating to the position of women. It will be

TABLE 5.9*

INFERENTIAL CHECKS ON ACCURACY
AS REVEALED BY SEX DIFFERENCES

	Men	Women
Percent reporting literacy	49%	9%
Percent reporting past attendance at school	39	18
Percent reporting that they were born in village	88	62
	(N=3010)	(N=3311)

* Source: Frederick W. Frey, Rural Development Research Project, Report #1, Center for International Studies, MIT, Cambridge, Mass., page 244.

TABLE 5.10

SEX BY SELECTED DEPENDENT VARIABLES

	Sex		
	Male (N=561)	Female (N=550)	% of Variance Explained
Poverty			
Poverty Index	5.31	5.37	0.01
Education+	1.96	1.27	9.0**
Citizen Responsibility			
Innovation			
R. Sees Ideas From City Improving Village Life	1.25	1.13	0.6**
Opinion Formation			
# of Don't Know's	2.54	3.37	2.0**
Empathy	1.97	1.36	6.3**
Efficacy	.96	.88	0.4*
Integrative Institutions			
Family			
Nuclear Structure	1.42	1.39	0.2
Discrepancy Between Education R Sees Necessary for Male & Female	2.40	2.50	1.0**
Female Participation in Decision-Making	1.06	1.23	2.6**
Community			
Village Conflict	1.12	1.13	0.01

* significant at .05 level

** significant at .01 level

\+ The index of education was made by scoring "none" one point, "3 years of less" two points, and "more than 3 years" three points.

remembered that to this point, only one of the variables we have examined (mass media) was related to the question on the extent of female participation in family decision making. As table 5.10 shows, sex is related to this, with women more likely than men to report that females are involved. This could mean that women exaggerate their familial role, or that men minimize it. The latter is certainly not unlikely in a society where a man's status depends partly on his ability to dominate women.[17] The second measure relating to the position of women, discrepancy between the amount of education considered necessary for males and females, shows that women are even more likely than men to respond that more education is necessary for males! This may reflect a lack of recognition of the general value of education by women, which may be considered useful primarily for employment. This is not unlikely given their own low levels of education.[18]

When we look at the influence of age (table 5.11), we again find a consistency which supports the validity of the data. We would expect to find, and do find an increase in religiousity and a decline in level of education with increasing age. On the other hand, we would not expect, and do not find, any difference between the young and the old on perception of inequity in the village, female

TABLE 5.11

AGE BY SELECTED DEPENDENT VARIABLES

	Age (in years)						
	16-19 (N=101)	20-29 (N=254)	30-39 (N=253)	40-49 (N=161)	50-59 (N=147)	60+ (N=139)	% of Variance Explained
Poverty							
Perceived Inequity	1.97	1.89	1.85	2.04	1.90	1.91	0.5
Education+	2.51	2.06	1.58	1.44	1.18	1.08	14.4**
Citizen Responsibility							
Innovation							
R. Sees Ideas From City Improving Village Life	1.35	1.26	1.23	1.16	1.16	1.02	1.4**
R. Willing to be First in Village to Try New Method	1.83	1.84	1.90	1.86	1.87	1.73	1.2**
R. Would Use Free Birth Control Drug	.42	1.20	1.43	1.18	.84	.55	20.3**
Empathy	1.89	1.76	1.69	1.71	1.64	1.55	0.6

TABLE 5.11 (con't.)

	16-19 (N=101)	20-29 (N=254)	30-39 (N=253)	40-49 (N=161)	50-59 (N=147)	60+ (N=139)	% of Variance Explained
Efficacy	.80	.97	1.00	.96	.88	.88	0.8
Integrative Institutions							
Religion							
Religiousity	6.26	6.51	6.68	6.94	6.98	6.96	2.9**
Family							
Nuclear Structure	1.36	1.32	1.52	1.52	1.37	1.27	4.0**
Female Participation in Decision-Making	1.06	1.17	1.16	1.17	1.11	1.17	0.5
R.Feels Young People are Less Respectful of Elders	1.28	1.33	1.35	1.35	1.46	1.32	0.6
Community							
Village Conflict	1.17	1.13	1.11	1.09	1.17	1.05	0.6

* significant at .05 level ** significant at .01 level

\+ The index of education was made by scoring "none" one point, "3 years or less" two points, and "more than 3 years" three points.

participation in family decision-making, or how well people in the village get along. Contrary to expectation, we find that young and old are about equally likely to agree that "young people today have less respect for their elders than they used to." We would expect that the nuclear family would be most common among middle aged people, while the young and the old, who are more often single, would be more likely to live with relatives. This is precisely what we find. In the area of "citizen responsibility," we would expect young people to be more open to innovation. However, we find this to be the case only with respect to the question on "R. sees city ideas improving village life." There is a curvilinear trend in the other "innovation" variables - willingness to be the first to try a new method, and willingness to use free birth control - suggesting that it is persons in the middle age groups who are the most receptive to innovative ideas. This has important practical implications, for instance, that the middle-age groups are the best "target group" for new programs. It is disturbing to note that those most interested in birth control, the 30-39 years age group, are probably people who already have large families. There is no indication here that young people are considering planning or limiting their families.

When we look at educational level (table 5.12), we see a very clear positive relationship between years of schooling and innovation, empathy, efficacy and opinion formation. However, we see no evidence that education is associated with a decline in religiousity. As we might expect, there is no relationship between education and family structure or perception of how well people in the village get along.

In sum, examination of our dependent variables by personal characteristics (age, sex and education) generally show predictable and consistent results. These argue against the possibility that our modest findings are explained by gross error in the data.

On the other hand, it is important to point out that the amount of variance explained by these "personal characteristic" variables, which we might expect to be larger than the portion explained by a contextual variable such as "distance the individual lives from a factory," is not very high. Eta's rarely go over .20. The highest correlations are generally those between independent variables; sex and education = .30, age and education = .38. These are not out of line with the correlations we found between our own independent variables; distance from factory and urbanism = .35, "distance" and social services = .41, "distance" and mass media = .17. In fact, relative

TABLE 5.12

EDUCATION BY SELECTED DEPENDENT VARIABLES

	Education					
	None (N=733)	3 years or less (N=149)	3-5 years (N=48)	Grade School Graduate (N=126)	5+ years (N=23)	% of Variance Explained
Citizen Responsibility						
Innovation						
R. Sees Ideas From City Improving Village Life	1.11	1.20	1.35	1.47	1.70	3.6 **
Opinion Formation						
# of Don't Know's	3.33	2.76	2.15	1.64	1.13	4.4 **
Empathy	1.53	1.85	1.83	2.10	2.48	4.0 **
Efficacy	.89	.96	.88	1.00	1.48	1.7 **
Integrative Institutions						
Family						
Nuclear Structure	1.40	1.43	1.48	1.34	1.48	0.4
Community						
Village Conflict	1.12	1.15	1.10	1.08	1.13	0.2

* significant at .05 level ** significant at .01 level

to these results, our findings do not seem disproportionately small.

All in all, it seems that the R.D.R.P. survey was done quite carefully, and while a certain amount of error is inevitable, it appears highly unlikely that it would be of a magnitude to greatly alter our findings.

5.5 Subgroup Analysis

A final possibility may be entertained before concluding. That is, would we have found stronger relationships had we looked at some subgroup of the village population rather than the entire village population. It is logical to predict that the segment of the population most likely to be influenced by the presence of a factory would be the young, educated male. In order to test whether the factory had greater impact among this group, a subsample was created consisting only of males, aged 16-29 years with 3 or more years of education. There are 100 persons in this category living within 30 kilometers of a factory. Looking at "distance from factory" by the dependent variables, we find that, indeed, the relationships are stronger for this subsample than those using the entire village sample. Table 5.13 shows the mean scores on the various dependent variables for the subgroup and the eta's

TABLE 5.13

DISTANCE FROM FACTORY BY
DEPENDENT VARIABLES FOR YOUNG, EDUCATED MALES
AND THE TOTAL SAMPLE

	Distance from Factory (in kilometers)				
	Young Males With 3 or More Years of School				Total Sample
	20-29kms (N=33)	10-19kms (N=42)	0-9kms (N=25)	% of Variance Explained	% of Variance Explained
Poverty					
Poverty Index	4.76	4.10	5.72	10.9 **	1.7 **
Perceived Inequity	2.00	2.05	2.52	7.8 **	1.0 **
Citizen Responsibility					
Innovation					
R. Sees Ideas From City Improving Village Life	1.42	1.43	1.76	4.4	0.5 *
Opinion Formation					
# of Don't Know's	2.12	1.50	1.00	3.6	1.2 **
Empathy	1.88	2.45	2.28	6.3 *	0.8 **
Efficacy	.94	.79	1.16	4.4	0.4

TABLE 5.13 (con't.)

	20-29kms (N=33)	10-19kms (N=42)	0-9kms (N=25)	% of Variance Explained	% of Variance Explained
Integrative Institutions					
Religion					
Religiosity	6.76	6.48	6.68	0.8%	0.6%*
Family					
Nuclear Structure	1.30	1.29	1.44	2.0%	0.04%
Discrepancy Between Education R Sees Necessary for Male & Female	2.27	2.33	2.48	1.0%	0.1%
Female Participation in Decision-Making	1.06	1.19	.88	8.4%**	0.2%
R. Feels Young People are Less Respectful of Elders	1.12	1.33	1.48	6.3%*	0.0%
Community					
Village Conflict	1.12	1.07	1.08	0.4%	0.8%**

* significant at .05 level

** significant at .01 level

for both this group and for our total sample. The results, as we have found previously, are often not monotonic, and because of the small number of cases involved, are less likely to be significant. However, the results do provide evidence that the impact of the factory is stronger among some segments of the population than others. Had we limited our sample to a more "relevant" population, we would probably have had stronger findings. However, it should be emphasized that while the correlations have increased considerably, the proportion of variance explained is still generally less than 5%.

There are a couple of outcomes with the young educated males which are particularly interesting. First, we find that, contrary to our original hypothesis, poverty is highest among those who live <u>closest</u> to factories. This gives even clearer evidence than that we obtained through the use of controls that there is no clear relationship between distance from factory and poverty. Our initial finding that perception that wealth differences in the village are getting greater is supported among this subgroup.

Once again, we find no clear evidence in this group that living close to a factory reduces religiousity. However, we do find the first indication that persons

near factories are the most likely to live in nuclear families. While the scores on the extent of female participation in family decision-making are not linear, it is disturbing to note that such participation is perceived to be lowest among young educated males who live closest to factories. The same trend (a deteriorating position of women relative to men as we move nearer to the factory) is evident in the question concerning the difference between the amount of education needed by males and females. This suggests that rather than equalize the position of women and men, the effect of the factory among young, educated males is to enhance the position of men. It is also important to note that among this group, there is a relationship between distance from factory and a perception that "young people are less respectful of elders than they used to be."

Our initial impression, that the rural factory has no effect on family structure, is changed by these results. When we look only at the portion of the population which is most likely to be influenced by the factory, we do find evidence of change in family structure. Among young, educated males, we find a greater liklihood of nuclear family structure, a decline in the position of women, and decreased respect for elders as we move closer to a factory.

While our initial finding concerning village conflict, that people in villages close to factories get along better than those further away, is upheld with this subset, the relationship is very weak. This in no way negates the conclusion that the factory does not disrupt village relations. Instead, it makes us less certain that it improves them.

Summing up, then, had we looked only at young, educated males, rather than the entire population, we would have found stronger relationships. The results of the analysis with this subgroup are generally consistent with our earlier ones, with the one exception being that we do find evidence of change in family structure. We conclude that the factory does not effect all groups of the population equally. It is important that when we evaluate the results of other research in this area, we look closely at the characteristics of the population sampled. Results from one subgroup of the population cannot be automatically generalized to an entire population.

5.6 Summary

This chapter has addressed the possibility that the factory has a stronger effect than the one we found initially. We found no evidence that our small relationships

were caused by characteristics of the study design, or that they were obscured by regional variation. However, we do find that factories do not influence all parts of the village population equally. Young males with some education seem to be more affected than others.

We cannot conclude, then, that the rural factory has a dramatic, or even a particularly important, influence on the surrounding population. On the other hand, we do not find its effect disproportionately small when compared with either alternative development strategies or with individual characteristics. Relatively, then, "distance from factory" emerges as an important tool for "modernization."

One practical implication that comes out of this discussion is that we should not expect miraculous results from rural industrialization programs. Rather, we can expect some change, unevenly distributed in the surrounding village population. While this type of conclusion is not particularly exciting, it may lead to the development of more realistic expectations than those extrapolated from an especially vulnerable population subset. Programs based on modest but realizeable expectations are clearly preferable to those where high expectations followed by severe disappointment lead to a pattern of jumping from one fashionable strategy to another.

Footnotes to Chapter 5

[1]For example, we find "proportion of villagers who work in the factory" to be a weak variable in both data sets. Urbanization is related to "citizen responsibility" in both data sets. With both aggregated and individual data, agricultural development is related to poverty, but in neither case does this explain the relationship between "distance from factory" and poverty. The two data sets are also consistent on the impact of social services.

[2]For example, the relationship between "distance from factory" and R.'s willingness to use birth control is much stronger with the aggregated than the individual data.

[3]As this analysis was done in hindsight, I was limited to variables which I had in my small data set and for which I had frequency distributions for the R.D.R.P. data set.

[4]This is sensitive information as school attendance is compulsory in Turkey. Thus we might anticipate some exaggeration on this question.

[5]Frederick W. Frey, Regional Variations in Turkey, Rural Development Research Project, Cambirdge, M.I.T. Center for International Studies, 1966; R. Koles, "Regional Disparities in Turkey," Ekistics, vol. 15, no. 91, 1963.

[6]In other words, we do not find a consistent pattern of more villages near factories in the west than in the east.

[7]See F. Andrews, J. Morgan and J. Songuist, Multiple Classification Analysis: A Report on a Computor Program for Multiple Regression Using Categorical Predictors, Ann Arbor, Survey Research Center, Institute for Social Research, 1967.

[8]Frederick W. Frey, "Surveying Peasant Attitudes in Turkey," Public Opinion Quarterly, vol. 27, Fall 1963, p. 339. Actually, 461 villages were surveyed.

[9]Ibid., p. 341.

[10]Ibid., p. 344.

[11]Ibid., p. 344.

[12]Kurdish is an unwritten language.

[13]Frey, op. cit., p. 348.

[14]Ibid. It should be noted that the words which proved problematic - 'loyalty,' 'problem,' and 'prestige' aren't used in our analysis.

[15]Unfortunately, this can be done only for similar questions, which are few in number.

[16]Frey, op. cit., p. 354.

[17]See the discussion of male and female roles in Turkish Villages in Paul Stirling, Turkish Village, New York, John Wiley and Sons, 1965, Chapter 6; Joe E. Pierce, Life in a Turkish Village, New York, 1964; Ibrahim Yasa, Hasanoğlan: Socio-Economic Structure of a Turkish Village, Ankara, 1957.

[18]For further discussion on the role of women in "modernization," see Bernard C. Rosen and Anita Raia, "Modernity in Women: An Index of Social Change in Brazil," Journal of Marriage and the Family, vol. 34, no. 2, May 1972; Ester Boserup, Woman's Role in Economics, New York, St. Martin's Press, 1970.

CHAPTER VI

SUMMARY AND POLICY IMPLICATIONS

6.1 Summary

We began our study by setting out three goals by which development programs for the poor nations might be evaluated: they should reduce poverty and create a responsible citizenry without causing widespread social disruption or disorganization. We found considerable research support for the proposition that a development strategy of rural industrialization would meet these goals. It is generally accepted that industrialization is the major wealth-generating process. Recent research has shown that factory work experience has a "modernizing" effect on the individual. On the other hand, it is urbanization, rather than industrialization *per se* which seems to generate much of the disorganization associated with the industrial nations.

We argued, however, that these research results could not be easily generalized to rural areas, or to populations other than those sampled, which have not been representative. Also, we were interested in examining the

effect of the factory, not on the relatively small numbers who actually work in factories, but also on the large majority who merely live near them. We hypothesized that since the "modernizing" effect of the factory was based on modeling, it would be found in those who were merely exposed to factories as well as those who worked there. This would be particularly true in a society with a close-knit family and community structure.

As this is an essentially sociological study, we have not examined the economic impact of the rural factory carefully. However, the evidence we do have on "subjective poverty" shows no clear relationship to rural factories. This is the case when we use 'distance from factory' as well as 'proportion of villagers who work in the factory' as measures. This could be because the rural factories have no local economic impact, or because the economic impact does not reach down to the lowest levels of the society. It is also possible that there is a complex relationship here that we cannot examine carefully with our crude measures. In any case, our results do not support the common assumption that industrialization is automatically economically beneficial. This conclusion is supported by the frequent evaluation of rural industrialization programs as economically disasterous, not only

because they are expensive to operate, but also because instead of stimulating further development, they end up as "colonial islands."[1]

Another point in this area can be made. That is, rural industrialization programs are generally advocated as a tool to combat inequity. However, a distinction must be made between regional inequity, where resources are distributed unequally among the regions of the nation, and personal inequity, where resources are distributed unequally among individuals. Our conclusion here suggests that a program such as rural industrialization may very well reduce regional inequity, while at the same time have no effect, or even increase[2], personal inequity.

Our second goal was that a "modernization" program should increase the ability of people to make personal decisions which are compatable with the goal of world survival; i.e., they must limit population size, preserve natural resources, and refrain from the use of modern weapons. We have called this "citizen responsibility," and have measured it by looking at innovation, opinion formation, empathy and efficacy.[3] In this area, we find a consistent, although modest, relationship with 'distance from factory.' Thus the rural factory does appear to have some "spread" effect in this area. However, we found this

to be unrelated to whether or not villagers worked in the factory. This could mean that persons living near factories have a pretty good idea what goes on there, even if they have no contact with factory workers. The results in this area suggest a need for further research to explore the nature and extent of such 'knowledge.'

Finally, we examined the extent to which rural factories are socially disruptive by looking at religiosity, family structure and community conflict. We do find evidence that when villagers work in the local factory, there is a slight decline in religiosity. However, there is no change in religiosity among those who live near factories. We find no evidence of change in family structure, the position of women or the relations between generations in the general population. However, when we look only at the young, educated male population, we do find a slight tendency toward the nuclear family, a deteriorating position of women, and increasing strain between the generations among those living closest to factories. This suggests that some change in the family may be detected only after a rural factory has been in an area for some time. We find no evidence that rural factories are associated with increased conflict in the village. On the contrary, there is some suggestion in the

data, although not conclusive, that people get along better in villages near factories. In fact, one of the most consistent results of this study is the decline in village conflict with increased "modernization." This suggests that the image of the traditional village as a close, well-functioning "community" may be highly idealized, ignoring the many sources of conflict in an agrarian society.

In sum, when we look at the impact of the factory on a rural population, we find no evidence of dramatic or revolutionary changes. While we don't find the rural factory to be socially disruptive, we do not find it to be particularly effective in bringing about desired changes either. We do find rather consistent evidence that living near a factory increases levels of "citizen responsibility," supporting the hypothesized "spread" or "demonstration" effect. The fact that "whether or not villagers worked in the local factory" turned out to be an even weaker variable than "distance from factory" is interesting and deserves further exploration.

6.2 Policy Implications

As the findings have generally been both inconsistent and weak, it would be deceptive to draw firm policy

recommendations. However, there are a couple of points which can be made. First, the very weakness and inconsistency of the results suggests that our expectations for rural industrialization programs should be toned down to more realistic levels. It would be a mistake to extrapolate the results of studies on factory workers, for example, to an entire rural population.

A second point that can be made is that different components of "modernization" have different types of social impact. Agricultural development seems to be the most effective in reducing poverty. Social services and mass media may have some effect on recipients, but they appear to have no "spread" effect. Urban access appears to have a more conservative influence, increasing religiousity and strengthening the patriarchical family.

Finally, while we have stressed the modest level of our results, it should be noted that relative to the alternate strategies for development we have examined (agricultural development, social services, and mass media) the rural factory appears to be the most promising for achieving the goals we have expressed. It has often been said that when a poor nation allies itself with the United States, it gets a community development program, while alliance with Russia yields a steel factory. It is ironic

that a steel factory may turn out to be a better tool for "community development" than a program designed for this purpose.

Footnotes to Chapter 6

[1]Gunnar Myrdal, Asian Drama, An Inquiry into the Poverty of Nations, New York, The Twentieth Century Fund, 1968, vol. 2, Chapter 24.

[2]In fact, we did find a positive relationship between perceived inequity in the village and whether or not villagers worked in the factory.

[3]Obviously, this quality closely resembles Inkeles concept of the "Modern Man." However, the idea of 'citizen responsibility' avoids the problem of circularity. Inkeles and Smith, for example, derive the characteristics of the modern man from the "requirements of running a factory." (Chapter 2, p. 7-8) They then go on to show that factory work is highly correlated with "modernity." In other words, the factory develops in men attitudes and behaviors which are required for successful factory work! Alex Inkeles and David H. Smith, Becoming Modern; Individual Change in Six Developing Countries, New York, Basic Books, (forthcoming).

APPENDIX I

INDEX OF URBANIZATION

First, we will want to determine the location of the villages in our sample. Are those villages located near large cities actually satellites or suburbs of the major urban centers, not really accurately classified as villages at all? It will be remembered that Istanbul was the only major city in Turkey at the time of the revolution, with Izmir (see figure A.1.1 for the location of these cities), following a far second. In an effort to counter this "prime city" tendency, intensive development was concentrated in Ankara, the capital. Growth figures for these three cities are presented in table A.1.1. Looking at the province of those sample villages (N=12) which are located within 20 kilometers of a city of 50,000 or more, we find the following distribution:

City	# of sample villages within 20 kilometers
Kocaeli	1
Bursa	1
Sakarya	1
Kayseri	1
Adana	2
Gaziantep	2
Malatya	1
Trabzon	1
Diyarbakir	2

FIGURE A.1.1.

CITIES WHICH HAVE SAMPLED VILLAGES WITHIN 20 KILOMETERS

Turkey: 1960

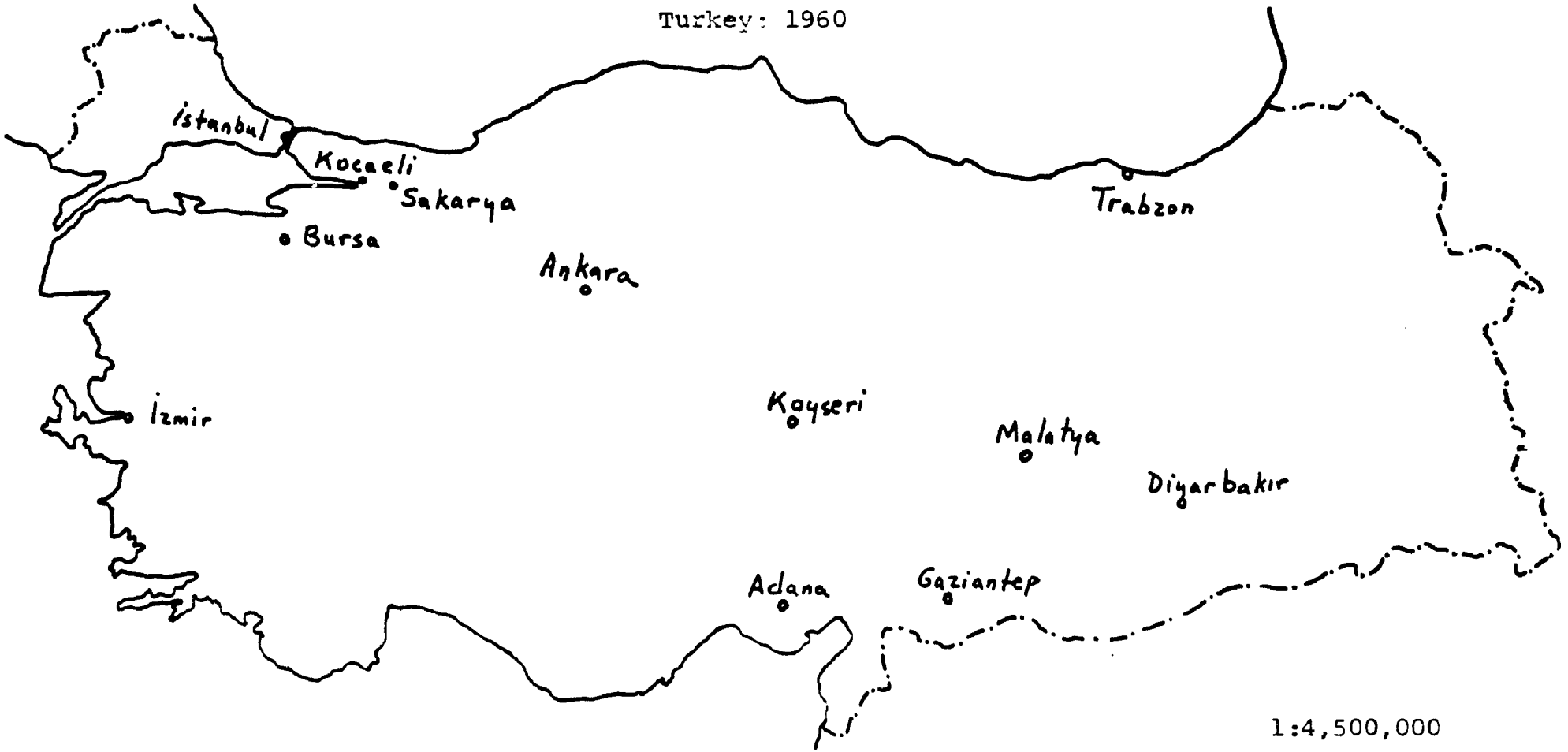


TABLE A.1.1

POPULATION OF MAJOR TURKISH CITIES, 1927-1960

City	Year		
	1927	1950	1960
Istanbul	690,000	983,000	1,460,000
Izmir	155,000	240,000	396,000
Ankara	75,000	289,000	646,000

Source: Malcolm R. Rivkin, Area Development for National Growth, the Turkish Precedent, New York, Praeger, 1965, p. 100.

There is no evidence, then, that those villages in our sample which are close to large cities are satellites or suburbs of the country's major cities.

Among sample villages closest to cities, is the local factory actually located in the nearby city? Table A.1.2 shows, in spite of the slight difference in category limits, that this is the case. Of the 26 villages within 50 kilometers of a large city, 19 (73%) are equidistant from factory and city. The case is equally clear when we answer the same question with regard to the Kaza center (table A.1.3). Here, 49 (67%) villages of the 73 for which we have data, are on the diagonal of the table. Table A.1.4 shows that the city and the Kaza center may well be one in the same for over half of the villages near (< 50 kms) cities. We judge, then, that for at least half of the villages in our sample, the local factory is in either a Kaza center or a large city.

A single index of urbanization was constructed by combining the two measures; distance from Kaza and distance from city. As we felt that the influence of a large city would be greater than that of a small Kaza center, we wanted to weigh it more heavily. The following values were assigned:[1]

Distance from Kaza Center (in kilometers)	Points
20+	1
10-19	2
9 or less	3

Distance from City of 50,000+ (in kilometers)	
100+	1
50-99	2
20-49	3
10-19	4
9 or less	5

Adding the two scores for each village, and then transferring the value of his village to each individual gives us the following distribution:

Value on Urbanization Index	Frequency
2	144
3	251
4	438
5	142
6	81
7	13
8	42
Total	1111

TABLE A.1.2

VILLAGE DISTANCE FROM FACTORY AND CITY
FOR VILLAGES WITHIN 50 KILOMETERS OF A CITY OF 50,000+

Distance from City of 50,000+ (in kilometers)	Distance from Factory (in kilometers) 9 or less kms (N=5)	10-19kms (N=6)	20-29kms (N=14)
9 or less	80%	16%	0%
10-19	0	67	21
20-49	20	16	79
Total	100%	99%	100%

TABLE A.1.3

VILLAGE DISTANCE FROM FACTORY AND KAZA CENTER

Distance from Kaza Center* (in kilometers)	Distance from Factory (in kilometers) 9 or less kms (N=18)	10-19kms (N=28)	20-29kms (N=27)
9 or less (N=20)	73%	14%	11%
10-19 (N=30)	9	72	30%
20+ (N=23)	18	14	59%
Total	100%	100%	100%

* Information on distance from Kaza is missing for two villages.

TABLE A.1.3

VILLAGE DISTANCE FROM KAZA CENTER BY
DISTANCE FROM CITY OF 50,000+
FOR VILLAGES NEAR (< 50kms) CITIES

Distance from City of 50,000+ (in kilometers)	Distance from Kaza Center (in kilometers)		
	9 or less kms (N=4)	10-19kms (N=7)	20-29kms (N=12)
9 or less	75%	0%	17%
10-19	25	43	8
20-49	0	57	75
Total	100%	100%	100%

APPENDIX II

INDEX OF AGRICULTURAL DEVELOPMENT

From information on the first and second occupation of each village, it was possible to determine whether and to what extent the village was involved in the production of cash crops. A scale was constructed where villages that were coded "farmers"[1] were considered to have no cash crop (N=20), those in which a cash crop was mentioned only on the secondary occupation question were considered to have some cash crop (N=42), and those where cash crops were listed for both questions were considered to be all cash crop villages (N=11). This measure, while giving us some idea of what is grown in the village, probably underestimates the extent of the village's tie-in with market networks.[2] It is probable that a village reporting on occupation of tea cultivation is selling this tea on the market. However, those recorded as "farmers" may also sell their produce.

A different measure of agricultural development is provided by a series of questions which determined the amount of modern agricultural machinery present in the village. The team leader asked how many horsecarts,

tractors, tractor-trailers, water pumps, jeeps and generators were in each village. A scale was formed by simply counting the number of different types of agricultural implements in the village.[3]

Number of Agricultural Implements	Frequency
0	27
1	18
2	8
3	13
4	8
5	0
6	1

Before going on to explore the relationship between these two measures, it would be interesting to know to what extent the agricultural implements form a meaningful "scale." This is both to gain a better understanding of our measures and to better understand the process of agricultural development. We might think of the levels of the scale being located along a time continuum such that a village would be likely to get first one implement, then another. It would not get the second without the first.[4] Table A.2.1 shows the number of different implements a village has, and which ones it has. If the items formed a perfect scale, all of the cases would be found in the upper right half of the table. Examining the table, we see that by and large these items do form a scale[5] and that the water pump is the one implement which scales least well.[6]

TABLE A.2.1

PERCENT OF VILLAGES
WHICH HAVE A PARTICULAR AGRICULTURAL IMPLEMENT BY
THE NUMBER OF IMPLEMENTS IN THE VILLAGE

Agricultural Implements	Number of Agricultural Implements in Village						
	None (N=27)	One (N=18)	Two (N=8)	Three (N=13)	Four (N=8)	Five (N=0)	Six (N=1)
Horsecart (N=42)	0	94% (N=17)	75% (N=6)	85% (N=11)	88% (N=7)	--	100% (N=1)
Tractor (N=25)	0	0	38% (N=3)	100% (N=13)	100% (N=8)	--	100% (N=1)
Tractor trailor (N=22)	0	0	25% (N=2)	92% (N=12)	88% (N=7)	--	100% (N=1)
Waterpumps (N=16)	0	6% (N=1)	63% (N=5)	8% (N=1)	100% (N=8)	--	100% (N=1)
Jeeps (N=5)	0	0	0	15% (N=2)	25% (N=2)	--	100% (N=1)
Generators (N=1)	0	0	0	0	0	--	100% (N=1)

We now want to examine the relationship between the two measures of agricultural development - cash crop and agricultural implements. We might well expect that villages which grow cash crops also use modern machinery. Table A.2.2 shows no significant relationship between the two measures. In order to better understand why this might be so, we will examine the two measures within each of Turkey's regions. (see figure A.2.1) Most regions have about equal scores for the two measures, with a slightly higher number for cash crop. However, there are two deviant cases: the Marmara and the Black Sea. The Marmara region, which is dominated by the city of Istanbul, has a much higher score on implements than on cash crop. This suggests that the feasibility of modern agricultural machinery may be heavily dependent on a large urban center for distribution and repair services. The Black Sea deviates from the general pattern in that there is a gap between the two measures, with the 'implements' measure unusually low. This is not surprising, however, when we consider the topography of the Black Sea region. It is described in Rivkin as follows: "Black Sea is the littoral from Marmara to the Russian border and the Pontic mountains that separate it from the plateau. This is the most heavily-forested area of Turkey, with the highest rainfalls

FIGURE A.2.1

MEAN AGRICULTURAL IMPLEMENTS AND CASH CROPS BY REGION

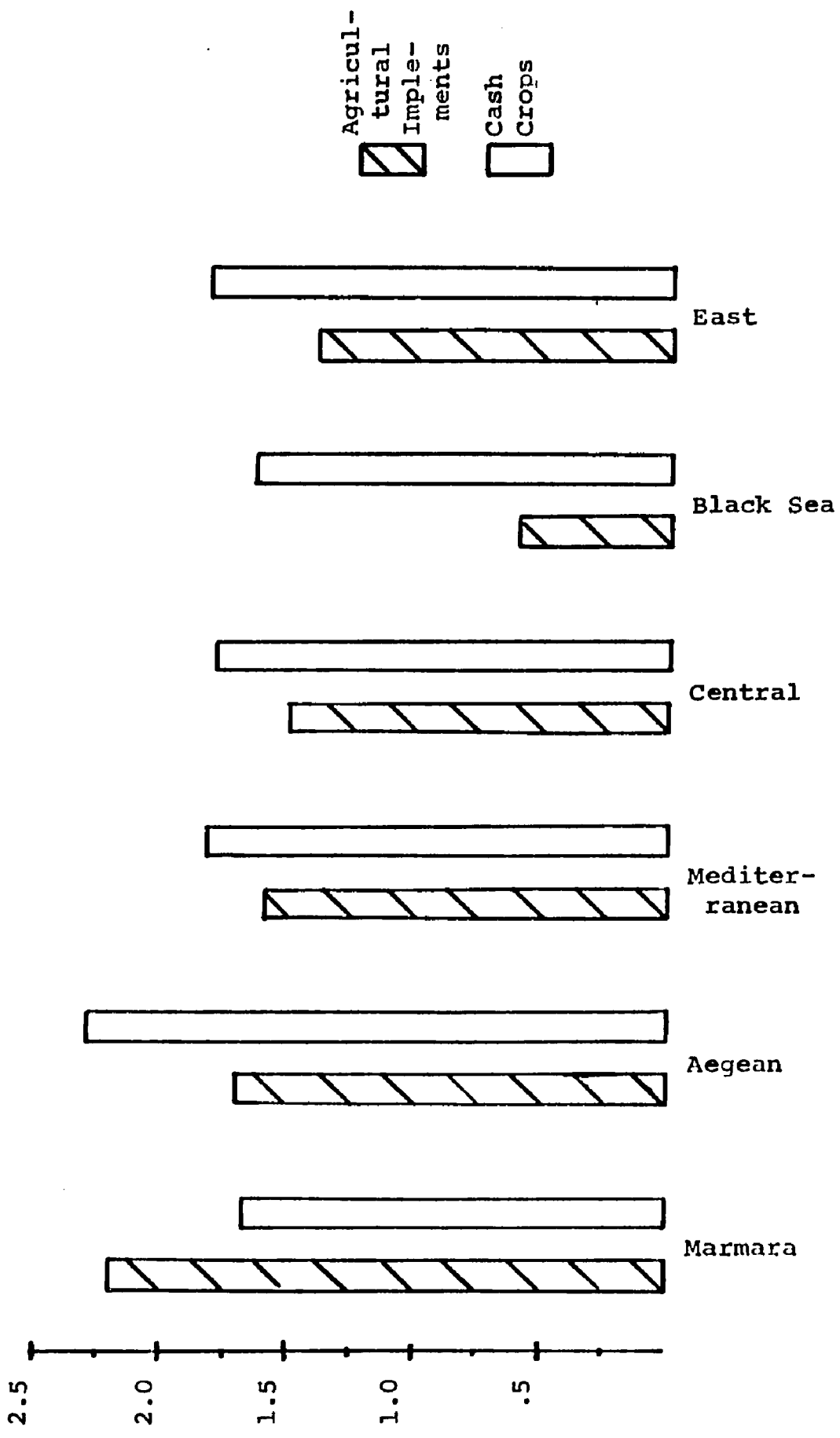


TABLE A.2.2

NUMBER OF AGRICULTURAL IMPLEMENTS IN VILLAGE BY EXTENT OF CASH CROP USAGE

Extent of Cash Crop Usage	Number of Agricultural Implements in Village			
	None (N=27)	One (N=17*)	Two-Three (N=21)	Four-Six (N=8*)
None (N=20)	30%	29%	29%	12.5%
Some (N=42)	59	59	57	50
All (N=11)	11	12	14	37.5
Total	100%	100%	100%	100 %

gamma = +.18

* One (1) case is missing.

and the densest rural population."[7] Rugged, forested mountains represent the kind of area where the ox is superior to the tractor - an area largely unsuited to Western agricultural implements. From these two exceptions, it appears that the use of modern 'implements' is particularly sensitive to ecological factors such as topography and urban proximity.[8]

Since both "extent of cash crop usage" and "agricultural implements" are important components of agricultural development, we will combine them in an overall measure of agricultural development in spite of the lack of relationship between them. The composite index of agricultural development was made by scoring the villages on cash crop (1-3), and adding this to the number of kinds of implements in the village. The index ranges from 1 (no cash crop and no implements) to 8, with the following distribution:

Agricultural development score	Frequency
1	9
2	21
3	14
4	13
5	10
6	4
7	3
8	1

The village score is then transferred to the individuals who live in that village.

APPENDIX III

SOCIAL SERVICE INDEX

A part of the Village Information Sheet was made up of a list of social services. The team leader was to determine for each whether such a service existed within 10 kilometers of the village or not.[1] By counting the number of such services near the village, we were able to make an index of social services. Looking first at educational facilities, the following services were listed: school, teacher, vocational course, evening course, and library. In order to determine whether these items form a scale, we have constructed a table where the rows are the services and the columns are a variable which shows how many services each village has. (table A.3.1) We see here that the first two items scale quite well. Three villages, 75%, have a school and no teacher; one village, 25%, has a teacher and no school. However, once a village has a teacher and a school, the third thing it gets could be either a library or evening courses. And again, once a village has a school, a teacher and a library, it is almost as likely to get a vocational course as an evening course for the fourth. In all, there are 16 villages

TABLE A.3.1

EDUCATIONAL SERVICES BY NUMBER OF SERVICES IN VILLAGE

Educational Services	Number of Services in Village				
	One (N=4)	Two (N=22)	Three (N=20)	Four (N=9)	Five (N=20)
School (N=74)	75% (N=3)	100% (N=22)	100% (N=20)	100% (N=9)	100% (N=20)
Teacher (N=72)	25% (N=1)	100% (N=22)	100% (N=20)	100% (N=9)	100% (N=20)
Library (N=37)	0	0	45% (N=9)	89% (N=8)	100% (N=20)
Evening Course (N=34)	0	0	40% (N=8)	67% (N=6)	100% (N=20)
Vocational Course (N=27)	0	0	15% (N=3)	44% (N=4)	100% (N=20)

which deviate from a perfect scale. It is clear that the school and teacher come before the other items, but beyond this the items do not "scale" well.

A second type of social service that is usually provided by the factory is medical care. As in the case of the educational services index, we will examine how many medical services a village has access to and see whether these form a scale. Table A.3.2 looks at four types of service: midwife, health official, doctor and hospital, clinic or dispensary. Here, the items scale quite well, with only 3 villages off the pattern. Of these, two have a health official and no midwife, and one has a midwife and a doctor but no health official.

We now have two indexes of social services facilities, and some feel for what each means (i.e., a village scored 3 on the medical index most likely has a midwife, a health official and a doctor within 10 kilometers; a village with the same score on the educational index probably has a teacher, a school and either a library or an evening course.) It is useful to examine how the two types of services are related. Table A.3.3 shows us that the two measures are so closely related that in measuring one, we are automatically measuring the other. Of the 20 villages which have all five educational services,

TABLE A.3.2

NUMBER OF MEDICAL FACILITIES NEAR VILLAGE
BY PARTICULAR SERVICES

Medical Service	Number of Medical Services in Village				
	None (N=4)	One (N=7)	Two (N=14)	Three (N=14)	Four (N=36)
Midwife (N=69)	0	71% (N=5)	100% (N=14)	100% (N=14)	100% (N=36)
Health Official (N=65)	0	29% (N=2)	93% (N=13)	100% (N=14)	100% (N=36)
Doctor (N=51)	0	0	7% (N=1)	100% (N=14)	100% (N=36)
Hospital, Clinic or Dispensary (N=36)	0	0	0	0	100% (N=36)

TABLE A.3.3

NUMBER OF EDUCATIONAL AND MEDICAL SERVICES

Number of Medical Services	Number of Educational Services				
	One (N=4)	Two (N=22)	Three (N=20)	Four (N=9)	Five (N=20)
None (N=4)	75%	0%	5%	0%	0%
One (N=7)	0	18	10	11	0
Two (N=14)	25	50	10	0	0
Three (N=14)	0	27	30	11	5
Four (N=36)	0	5	45	78	95
Total	100%	100%	100%	100%	100%

19 have all four medical ones. Of the 4 villages with 1 educational service, 3 have no medical service at all. In light of this close relationship, it is worthwhile to combine the two measures into one overall index of social services. Again, we want to see to what extent the nine items form a scale. From Table A.3.4 we have some knowledge of what any particular score means, although hardly a perfect one. For example, if a village has four services, we would expect to have a teacher, a school, a midwife and a health official. However, there are three villages which do not. The scores on this scale are transferred to the individuals living in each village, giving the following distribution:

Score	Frequency
1	45
2	0
3	88
4	191
5	125
6	104
7	147
8	120
9	291

TABLE A.3.4

NUMBER OF SOCIAL SERVICES AND TYPE OF SERVICE

Social Service	Number of Social Services in Village								
	One (N=3)	Two (N=0)	Three (N=6)	Four (N=13)	Five (N=9)	Six (N=7)	Seven (N=10)	Eight (N=8)	Nine (N=19)
School (N=74)	67% (N=2)	0	100% (N=6)	100% (N=13)	100% (N=9)	100% (N=7)	100% (N=10)	100% (N=8)	100% (N=19)
Teacher (N=72)	33% (N=1)	0	83% (N=5)	100% (N=13)	100% (N=9)	100% (N=7)	100% (N=10)	100% (N=8)	100% (N=19)
Midwife (N=69)	0	0	67% (N=4)	92% (N=12)	100% (N=9)	100% (N=7)	100% (N=10)	100% (N=8)	100% (N=19)
Health Official (N=65)	0	0	33% (N=2)	85% (N=11)	89% (N=8)	100% (N=7)	100% (N=10)	100% (N=8)	100% (N=19)
Doctor (N=51)	0	0	0	8% (N=1)	67% (N=6)	100% (N=7)	100% (N=10)	100% (N=8)	100% (N=19)
Library (N=37)	0	0	17% (N=1)	8% (N=1)	11% (N=1)	14% (N=1)	60% (N=6)	100% (N=8)	100% (N=19)
Hospital, Clinic, or Dispensary (N=36)	0	0	0	0	0	14% (N=1)	90% (N=9)	88% (N=7)	100% (N=19)

TABLE A.3.4 (con't.)

Social Service	Number of Social Services in Village								
	One (N=3)	Two (N=0)	Three (N=6)	Four (N=13)	Five (N=9)	Six (N=7)	Seven (N=10)	Eight (N=8)	Nine (N=19)
Evening Course (N=34)	0	0	0	8% (N=1)	33% (N=3)	43% (N=3)	30% (N=3)	63% (N=5)	100% (N=19)
Vocational Course (N=27)	0	0	0	0	0	29% (N=2)	20% (N=2)	50% (N=4)	100% (N=19)

APPENDIX IV

MASS MEDIA INDEX

Using the same series of questions which we used to determine education and medical services, we were able to identify villages which had telephones, telegraph, cinemas, weekly postal delivery and daily postal delivery. These appear to scale roughly in the following order:

1. telephone
2. weekly postal delivery
3. telegraph
4. daily postal delivery
5. cinema

We did not make this into a scale for several reasons. First, two items on the list automatically scale perfectly (if you have daily postal delivery, you also have weekly delivery). Also, the villages in our sample scored very high on this scale, with 36 of the 75 villages being near all five types of mass media. Finally, this list omits two very important forms of communication - radios and newspapers. Both of these items were measured on the Village Information Sheet in a more thorough way than those we have discussed thus far. In the case of the radio, the number of radios[1] in the village was ascertained and for newspapers, frequency of delivery.

Tables A.4.1, A.4.2 and A.4.3 show the relationships between our three measures of mass media exposure of the village. These tables demonstrate no strong relationship between the various types of mass media and communication services. However, since they are all components of mass media, and since we do not know very much about how the different media operate, we will create a composite index of mass media from these three measures.[2] The resulting index has the following values:

Score	Frequency
4	2
5	4
6	6
7	7
8	4
9	13
10	7
11	8
12	8
13	5
14	4
15	5
16	1
18	1
Total	75

TABLE A.4.1

MEAN NUMBER OF RADIOS IN VILLAGE BY
NUMBER OF COMMUNICATION FACILITIES

	Number of Communication Facilities*					
	None (N=4)	One (N=5)	Two (N=9)	Three (N=8)	Four (N=13)	Five (N=36)
Mean # of Radios in Village/ Thousand	3.00	3.80	4.78	2.75	3.46	3.67

* made up of telephone, weekly postal delivery, telegraph, daily postal delivery and cinema

TABLE A.4.2

MEAN NUMBER OF RADIOS IN VILLAGE BY
FREQUENCY OF NEWSPAPER DELIVERY

	Less than Weekly (N=22)	Weekly (N=17)	Several times Week (N=10)	Daily (N=26)
Mean # of Radios in Village/ Thousand	3.14	3.41	4.70	3.81

TABLE A.4.3

NUMBER OF VILLAGES BY
NUMBER OF COMMUNICATION FACILITIES IN VILLAGE
AND FREQUENCY OF NEWSPAPER DELIVERY

Frequency of Newspaper Delivery in Village	Number of Communication Facilities in Village					
	None (N=4)	One (N=5)	Two (N=9)	Three (N=8)	Four (N=13)	Five (N=36)
Less than Weekly (N=22)	1	1	5	3	3	9
Weekly (N=17)	2	1	1	2	5	6
Several times a Week (N=10)	1	2	2	1	2	2
Daily (N=26)	0	1	1	2	3	19

Footnotes to Appendices

Appendix I

[1]It is likely that some villages are scored too high on this index. This would happen when the city and the kaza center are the same place. On the other hand, the villages with missing information on one item (N=2) are scored only on the basis of the other measure - thus they are scored too low. As the index is grouped into broad categories in analysis, it is doubtful that these problems will seriously alter our results.

Appendix II

[1]The Turkish word is çiftçilik

[2]The term "cash crop" implies that the produce is sold, rather than used for household concumption, as is a "subsistance crop."

[3]In other words, the actual number of horsecarts was ignored, and if there were any in the village, no matter how many, it was scored as having horsecarts.

[4]This is patterned after the work which forms a Guttman Scale from city services, such as, gas stations, grocery stores, drug stores and so on. See Donald J. Bogue, The Structure of the Metropolitan Community: A Study of Dominance and Subdominance, in George A. Theodorson, Studies in Human Ecology, Evanston, Illinois, Row Peterson, 1961.

[5]The Index of Reproducibility is .92.

[6]Of the 13 villages which do not score perfectly, 7 err in the waterpump category.

[7]Malcolm R. Rivkin, Area Development for National Growth: The Turkish Precedent, New York, Praeger, 1965, p. 204.

[8]It is possible that farmers in the Black Sea region use implements other than the ones measured. It would be interesting to examine the regional location of those villages which did not "scale." Perhaps a village in the Black Sea region which had only 1 implement might be most likely to have a water-pump.

Appendix III

[1]The question was coded as "in the village" or "within 10kms." Since there were very few cases where the services were actually in the village (with the exception of the school and teacher) we combined these two categories.

Appendix IV

[1]The number of radios in the village was first standardized by village population.

[2]Each communication facility within 15 kilometers of the village was weighted like a low frequency of newspaper delivery or a low number of radios per thousand villagers.

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