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THE PROPENSITY TO INNOVATE AMONG TURKISH PEASANTS

Report No. 7

Rural Development Research Project

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INTRODUCTION

Change and social development among the Turkish peasantry can be facilitated by several different sorts of actions. Development programs of various types may concentrate upon improving the opportunities for village education, upon the spread of mass media, upon the building of roads, increasing marketing possibilities, and so on. The human factor, however, remains a critical element in all these programs. It would seem probable that the responsiveness of individual villagers to change, plays a large part in determining how quickly a particular innovation is accepted and put to use. From an overall point of view, local development may be hastened if individuals in a given community psychologically have a high "propensity to innovate", that is, a generalized willingness to adopt new and useful ways of doing things. Conversely, a lack of interest in innovation can slow development and nullify large investments in time and manpower.

The justification for the study of villagers' propensity to innovate should be clear. Practical problems of operationalizing the concept of propensity to innovate remain significant and are not completely solved in this report. Nevertheless, the substantive analysis deals with a number of important points which should prove to be of interest to both the policymaker and the general student of Turkish local development.

Meaning of the Propensity to Innovate Index

The Propensity to Innovate Index to be used in this report is based on responses to three questions. Villagers were asked, "If a new and useful way of working were made known to you, would you be willing to be the first person in the village to try the new way?" They were also asked, "Suppose that such a new practice were learned by a son of yours, do you think it would be good to accept his recommendation of this

new practice, even though you are his parent?" Finally, the respondents were questioned as to the group they sided when there was innovational conflict within the village -- the old fashioned, or the modern group? Greater willingness to adopt the new practice in the first two questions, and inclination to side with those promoting modern ways were taken as reflecting heightened propensity to innovate.

Unidimensionality of the Propensity to Innovate Index

One basic problem concerning the Propensity to Innovate Index is its uncertain unidimensionality. Are the three items tapping a single underlying attitude toward innovation, or do there appear to be several different types of orientations subsumed under the "propensity to innovate" rubric? In this regard, several types of evidence indicate that the propensity to innovate is not a completely unidimensional concept. First of all, the associations among the three items making up the index are not uniformly high. Using the gamma statistic as the measure of association, the following table illustrates the correlations which were obtained.

Table 1

Interassociation of Items in Propensity to Innovate Index

	Willingness to be first in village to innovate	Willingness to accept inn's recommendation to innovate
Side chosen in village innovational conflict	.33	.08
Willingness to be first in village to innovate		.40

Gamma is a proportional reduction in error statistic of particular suitability for ordinal data. The item categories can be labelled as more innovative or less innovative, and thus, this statistic seemed appropriate. A further description of this statistic is provided in Herbert L. Cosiner, "Criteria for Measures of Association" American Sociological Review, 30, (June, 1965), pp. 341-353 and Leo J. Goodman and William H. Kruskal, "Measures of Association for Cross-Classification", Journal of the American Statistical Association, 49 (December, 1954), pp. 732-744.

The relatively low relationship between the respondent's reported choice of the modern or the traditional side in a village innovational conflict, and the respondent's willingness to accept his son's recommendation regarding a prospective innovation is indicative of the complex nature of attitudes toward change. Further evidence of this complexity is provided by an analysis of the most important predictors of each of the items making up the Propensity to Innovate Index. The predictors can be ranked in terms of their proportional reduction of uncertainty; this measure is described in detail on pages 53-54 of Report No. 4.²

Literacy and media exposure proved to be among the best predictors of both the index item, dealing with the side chosen in village innovational conflict, and that concerning the respondent's willingness to be the first in his village to innovate. Thus, of the top six predictors of side chosen in village innovational conflict, only the third best predictor - age- did not relate to literacy or media exposure. On the other hand, the three best predictors of willingness to accept the recommendations of one's son are such factors as language, the index of external mistrust, and the index of educational and occupational aspiration. For this index item, cultural differences related to language and the personal attitudinal characteristics of the respondent appear to be the critical factors. In short, response to this question seems to involve cultural interpretations of the parent-son relationship, as well as an attitude towards innovation per se. As a result, there appears to be some degree of multidimensionality in the Propensity to Innovate Index.

2

Essentially, "reduction of uncertainty analysis" is an analogue of correlational analysis without the assumptions of interval data and normal distribution that correlational analysis involves. Put most simply, reduction of uncertainty analysis involves quantifying the amount of predictive uncertainty regarding some dependent variable, knowing only its "marginal" distributions, and ascertaining how much that uncertainty is reduced by knowledge of designated independent variables. The statistic on which our analysis is based measures the percentage reduction in predictive uncertainty for a dependent variable associated with knowledge of arbitrarily designated independent, or predictor, variables.

Some other survey items are of direct interest here. These items are:

1. Are there persons in your village who are known as those who frequently introduce new ways of doing things?
2. If so, who are these people?
3. In this village is there much conflict between people who want to do things in the old ways and those who want to do things in new ways?
4. (If much or some conflict) Which group usually gets what it wants?

There is no clear pattern of correlations among these items and the items included on the index. Since the presence of village conflict is a prerequisite (i.e., "filter") for the index item concerning with whom the respondent sided, a high correlation for this comparison is necessarily produced. The following table gives the gamma coefficients between the items on the index and the other innovation-related questions.

Table 2

Association of Items in Propensity to Innovate Index with Other Items on Innovation

	<u>Side chosen in village innovational conflict</u>	<u>Willingness to be first in village to innovate</u>	<u>Willingness to accept son's recommendation to innovate</u>
Are there persons who frequently introduce new ways?	.029	.389	.096
Who are these people?	.126	-.105	.088
Is there much innovational conflict?	--	.280	.002
Which side usually wins?	.464	.055	.023

First of all, this table shows us that there is a strong relationship between a respondent's choice of side in a village innovational conflict and his perception of which side usually wins. Respondent's saying they usually choose the modern side

are disproportionately likely to say that the modern group usually wins; a similar pattern is seen for those choosing the traditional group. In the latter case, such feelings of confidence in victory when conflict arises may make resistance to change particularly tenacious.

Another relatively high correlation is seen between an individual's willingness to be the first person in his village to innovate and his report that there are people in his village who frequently introduce new ways. Respondents who report that there are persons who frequently introduce new ways in their village are more willing to be the first to innovate.

A third association is between an individual's willingness to innovate and the presence or absence of innovational conflict in a village. Individuals who are willing to be first to innovate tend to be in villages characterized by much, or some, innovational conflict. All these relationships seem plausible and tend to increase our confidence in the related items.

On the other hand, the table does point out a number of interitem associations which are quite low. These relatively low associations are distributed in such a way that it is difficult to eliminate any item as being generally irrelevant to problems of innovation; yet, it is equally hard to point to a particular item as one which should have been included in the index. In general, items used for the Propensity to Innovate Index appear to be the most appropriate, given the pool of items from which the index was to be constructed.

Location of the Innovators

If some people have a higher propensity to innovate than others, it is important to establish just who these people are. This location can be attempted in terms of the personal characteristics and status relationships of the innovators. The former are important to understand how differential propensities to innovate develop. The latter is important because one wants to know if potential innovators have sufficient

leadership status to influence other people to adopt new practices.

In the following table the basic relationships between the Propensity to Innovate Index and sex, literacy and media exposure are set out.

Table 3
Relationship between Propensity to Innovate and Basic
Characteristics of the Respondents

	Score on Innovation Index			
	High	Medium	Low	Nil
<u>Sex</u>				
Males	53%	50%	46%	35%
Females	47	50	54	65
	100%	100%	100%	100%
<u>Literacy</u>				
Literate	44%	30%	21%	12%
Illiterate	56	70	79	88
	100%	100%	100%	100%
<u>Media Exposure</u>				
High	45%	34%	29%	13%
Medium	31	32	31	23
Low	25	34	41	65
	100%	100%	100%	100%
"N"	792	3,191	1,837	586

Males, literates and those people highly exposed to the mass media contribute disproportionately to the higher innovational groups. Although we have not included the actual breakdowns in the above table, as Report No. 5 on age points out, young people are also more likely to score highly on the index than are older people. However, there are many variables which do not seem to be associated with this propensity to innovate. Those who are heads of households are no more likely to be potential innovators than are non-heads. Similarly, whether or not one owns his land does not

seem to be related to an individual's score on this index. (See also Report No. 6)

Rather than being related to such concrete things as land ownership and being a household head, the propensity to innovate seems to be more strongly associated with psychic measures. In Table 3 we demonstrated the importance of literacy and media exposure. If we turn to the actual indices which help describe the villager's cognitive structure, the importance of the psychic dimension is clear. Again and again, very strong and consistent relationships appear between having an open, imaginative mind and being willing to innovate, again lending support to the notion of a general innovativeness factor in addition to more specific factors.

Table 4

Propensity to Innovate and Measures of Cognitive Structure

<u>Indices</u>	<u>Villager's Score on Innovation Index</u>			
	<u>High</u>	<u>Medium</u>	<u>Low</u>	<u>Nil</u>
Community Don't Knows*	71%	64%	54%	35%
Personal Don't Knows*	73%	65%	55%	36%
General Knowledge	42%	33%	31%	11%
Political Empathy	29%	24%	19%	11%
Tolerance of Deviance	28%	28%	30%	34%
External Mistrust*	76%	77%	70%	53%
Parochialism*	58%	46%	41%	18%
"N"	794	3,200	1,850	592

*

On these indices those people scoring in the lowest category are presented in the table, since a low rather than a high score indicated greater cognitive flexibility.

In every case except one, the higher one's score on the Innovation Index, the more likely he is to have a relatively flexible cognitive structure -- one which can be considered "positive" from a developmental point of view. Innovators appear to be people who are generally knowledgeable about their community, who can project their thoughts and stretch their imaginations, who are not distrustful of strangers coming into the village environment, and who are not restricted by parochial loyalties. The only index for which this relationship between cognitive flexibility and propensity to innovate did not hold was that which measured the villager's tolerance of deviance. Here there was some tendency for those people with low innovational propensity to show more tolerance than was shown by people with a high innovational propensity. No convincing interpretation for this finding comes readily to mind.

Potential Influence Position of Innovators

As was discussed earlier, potential innovators tend to be young, and there seems to be no relationship between propensity to innovate and whether an individual is a household head or owns his own land. This would not seem to indicate that those people most willing to innovate are in a position where they are particularly likely to be able to influence others. However, when respondents were asked, "Is it easy or difficult for you to discuss your problems with village leaders?" those people scoring high on the Propensity to innovate index are consistently more likely to say it is "easy", than are people who score low on this index. This relationship holds even when one controls for sex and literacy.

Another characteristic which it would seem desirable for potential innovators to have is wide communications network. Extensive personal contacts among diverse sorts of people would seem to facilitate both the acquisition of knowledge about innovation and its conveyance to others. Several survey items tap this dimension

of the villager's experience, and have been used to make up the Index of Interpersonal Communication. If we look at the relationship of a respondent's score on this index to his propensity to innovate, it is clear that innovators are high communicators. Even with sex and literacy controlled, those who are more likely to innovate are also more likely to have a high number of interpersonal communications.

Geographical Location of Potential Innovators

It should be of primary interest to the policy-maker to know where potential innovators are located. If the potential innovators are concentrated among villagers, who are living in the most developed regions and in the most developed villages, it may be easy to accelerate development in these parts of the country, but difficult to reach other parts. On the other hand, if these potential innovators are located in many different types of villages, in rich ones as well as poor ones, in coastal and interior regions, the possibilities for a widespread development program would be much more promising.

As Regional Report No. 4 has suggested, potential innovators do not seem to be regionally concentrated. Although there is a high range from a high of 21 per cent of the villagers in the Northeastern Region who score high on the index, to a low 6 per cent of the villagers in the Southeastern Region who score high; most regions cluster around the national mean of 12 per cent.

This lack of association between having a propensity to innovate and living in highly developed areas is reinforced by our data on the kinds of villagers in which innovators are found. We have six separate indices which measure the type of environment in which the villager lives; two measures of the individual's socio-economic status are also available. In the following table, the data are presented so that we can determine whether people living in villages which score high on the village

Indices (indicating that they reside in more advantaged villages) and people who indicate that they are of a higher socio-economic status display a greater propensity to innovate than do those living in less advantaged communities or having a lower socio-economic status.

Table 5

Propensity to Innovate Among Those People Living in Most Advantaged Villages and Among Those Who Are of a High Economic Status

<u>Village Indices</u>	<u>Villagers' Score on Innovation Index</u>			
	<u>High</u>	<u>Medium</u>	<u>Low</u>	<u>Nil</u>
Village Development	30%	32%	31%	23%
Village Centrality	29%	29%	30%	28%
Village Establishments	27%	22%	24%	16%
Village Governmental Contact	44%	38%	41%	36%
Village Social Services	23%	27%	26%	18%
Village Mass Media Access	36%	37%	33%	25%
<u>Villager Indices</u>				
Subjective Poverty	33%	33%	35%	39%
Economic Status	19%	20%	17%	14%
"N"	794	3,200	1,850	592

There appears to be surprisingly little relationship between the type of village in which one lives, or one's economic status and his propensity to innovate. It is true in every case that a smaller percentage of those with a nil score on the index live in advantaged villages than do those with a high score. However, for three of the seven indices, people with a "low" score on the innovation index are more likely than people with a "high" score to live in the most advantaged villages. There is a

similar lack of relationship between an individual's score on the economic status indices and his propensity to innovate.

These findings raise more questions than they answer. Intuitively, one would expect to find that people with a high propensity to innovate, would seem more likely to adopt new and more productive practices and therefore would be more successful in raising their standards of living. Similarly, one would expect to find the higher prosperity of certain regions of the country linked to the open-mindedness of the regional residents towards new ways of doing things. Neither of these relationships is clearly found in our data. We shall probe more deeply into these relationships in subsequent analysis, planned but not yet executed.

Correlates of the Propensity to Innovate Index

If we compare determinants of an individual's score on the propensity to innovate, several points can be made. First of all, a number of items relating to literacy and mass media exposure are the most important correlates of scores on this innovation index. Literacy and schooling rank first and sixth among the predictors of index scores; the mass media exposure index, newspaper reading, cinema going and radio listening are the second, third, fourth, and fifth most important predictors from the standard set of 22 independent variables.

It is also interesting to note the independent variables,* which were particularly poor predictors of the Propensity to Innovate Index. The four poorest predictors of this index were village centrality, subjective poverty, village development, and the poorest of the group- household size. These variables were not negatively associated with the innovation index, but rather appear to be completely unrelated.

* A negative association is very unlikely in uncertainty analysis - if not impossible. Various correlations using a Pearson product-moment are given in Report No. 3 and support the findings noted here.

The meaning of these associations should be generally clear. Report No. 3, "Development in Turkey", presented several lines of evidence in support of the causal effects of media exposure; Report No. 9 will give similar information concerning the causal influence of education and literacy. The data on the predictors of the Propensity to Innovate Index emphasize the importance of literacy and media exposure in creating an attitudinal environment which will be supportive of change.

Although it is difficult to specify the causal relationships among attitudinal factors measured in a cross-sectional survey, it is worthwhile to mention the other indices associated with the Propensity to Innovate Index. In this case we are exploring what indices seem to go together to form a meaningful attitudinal complex. The following table presents the associations between the Propensity to Innovate Index and a number of other indices. (See Table 6 - page 13)

If we now consider these other indices in terms of their relative association with the Propensity to Innovate Index, several points can be made. First of all, the indices most highly associated with the Propensity to Innovate measure come from separate index groups. The Propensity to Innovate Index thus appears to be most related to a particular cluster of characteristics -- cognitive measures such as personal O.K.'s, empathy, and external mistrust, community perceptions such as Perceived Village Initiative, and a motivational measure like Communal Cooperativeness. Perhaps this group of indices reflects a certain ability to adapt to changing circumstances which one would expect to be associated with Propensity to Innovate.

Other interesting of the data contrast the relatively high correlations between the Propensity to Innovate Index and the respondent's aspirations and expectations with the weak relationships between this index and various measures of actual development. Thus, the gamma coefficient for the relationship between the Propensity to Innovate Index and the Government Services Wanted Index is .276; while the coefficient for the relationship between the Propensity to Innovate Index and the Index of Village

Table 6
Associations Between Propensity to Innovate Index and Other Indices

<u>Index Groups</u>	<u>Indices</u>	<u>Gamma Coefficient of association</u>	<u>Relative Ranking (Top 3)</u>
Community Orientation:	Communal Responsibility	.072	3
	Communal Cooperativeness	.357	
	Communal Efficacy	.094	
Personal Efficacy:	Personal Political Efficacy	.174	
Cognitive Dimensions:	Community Don't Knows (-)	-.285	
	Personal Don't Knows (-)	-.298	
	General Knowledge	.214	
	Political Empathy	.220	
	Tolerance of Deviance	-.019	
	External Mistrust (-)	-.210	
	Propensity to Innovate Cognitive Flexibility*	.719%	1
Aspirations and Expectations:	Educ. & Occup. Aspiration	.169	
	Govt. Services Wanted	.278	
	Favorable Urban Image	.018	
	Optimism	.160	
Village Perspectives:	Perc'd Village Initiative	-.468	2
	Conc. of Power and Wealth	.039	
	Headman Orientation (-)	.089	
Use of Economic and Social Services:	Use of Agric. Services	.071	
	Use of Social Services	.133	
Religious Outlook:	Religious Knowledge	.069	
	Religious Saliency	-.146	
	Religious Ritualism	-.067	
	Religious Strictness	-.090	
Political Posture:	Desire for Pol. Participation	.099	
	Voting Participation	.036	
	Pol. Party Knowledge	.188	
Mobility and Interpersonal Communication:	Geographical Mobility	.141	
	Interpersonal Communication	.148	
	Media Exposure	.239	
	Exposure to Change	.156	
Economic and Environmental Factors:	Subjective Poverty	-.054	
	Economic Status	.061	
	Village Development	.053	
	Village Centrality	.013	
	Village Establishments	.066	
	Village Govt. Contact	.025	
	Village Social Services	.035	
Village Mass Media Access	.090		

*
Not Independent

Development is only .053.

The meaning of these sorts of comparisons would seem to be that the Propensity to Innovate Index is more closely related to an individual's wants and desires than it is to the state of his village. Two initial comparisons can be made here. The low levels of association between the Propensity to Innovate Index and the Indices of Subjective Poverty and Economic Status indicate that an individual's actual economic situation is less related to his Propensity to Innovate than his wants and aspirations.

Finally, we can look at the villagers' several types of government services from a similar perspective. The associations between the Propensity to Innovate Index and the Indices of Use of Agricultural Services and of the Use of Social Services are .071 and .133, respectively. These statistics are somewhat less than the associations between Propensity to Innovate and the Indices of Educational and Occupational Aspiration and of Government Services Wanted. Here again there is a tendency for the association between the individual's wants and his Propensity to Innovate to be higher than other associations. Many factors would seemingly intervene between a generalized propensity to innovate and actual innovation - which is not to say that such a propensity is unimportant.

Since these associations between the Propensity to Innovate Index and aspiration, action, personal economic condition, and village development are of such basic interest, it was decided to carry the analysis further. Calculating the correlations between the Index of Propensity to Innovate and other variables helps in summarizing the material, but does not provide a view in depth of the indices and items associated with this Innovation Index. In particular, it seemed valuable to present some of the indices and items correlated with the Index of Propensity to Innovate when simultaneous controls for sex and literacy were employed. This technique permits us to consider the relationship between the innovation index and other questions in isolation from two variables (sex and literacy) which seem to be causally associated with a number of

Table 7 Propensity to Innovate and Various Items and Indices With Controls for Sex and Literacy

	<u>Male Literates</u>				<u>Male Illiterates</u>				<u>Female Literates</u>				<u>Female Illiterates</u>			
	Propensity to Innovate				Propensity to Innovate				Propensity to Innovate				Propensity to Innovate			
	<u>Hi</u>	<u>Med</u>	<u>Low</u>	<u>Nil</u>	<u>Hi</u>	<u>Med</u>	<u>Low</u>	<u>Nil</u>	<u>Hi</u>	<u>Med</u>	<u>Low</u>	<u>Nil</u>	<u>Hi</u>	<u>Med</u>	<u>Low</u>	<u>Nil</u>
<u>Aspirations and Expectations:</u>																
Index of Govt. Services																
Wanted (High Category)	65%	61%	55%	42%	72%	57%	53%	43%	62%	65%	53%	46%	66%	56%	42%	25%
Interest in Vocational Course	95	95	92	74	92	84	75	56	93	92	80	80	75	67	53	35
Interest in Learning to Read and write	-	-	-	-	79	64	58	41	-	-	-	-	56	41	33	21
Wish for Land, Equipment, Roads or Water	45	41	39	28	41	42	40	27	30	23	21	28	25	24	21	14
<u>Actions:</u>																
Has Used Govt. Credit	47%	46%	47%	38%	57%	51%	50%	47%	-	-	-	-	-	-	-	-
Has Received Govt. Supplies	31	36	31	29	40	33	30	20	-	-	-	-	-	-	-	-
Has Consulted With Agricultural Agent	33	31	27	20	29	19	21	9	-	-	-	-	-	-	-	-
Taught Self to Read and Write	16	17	21	16	-	-	-	-	3	6	0	4	-	-	-	-
Use Metal Plow	40	42	41	29	28	35	28	23	33	36	31	47	34	28	35	32
<u>Economic Factors:</u>																
Subjective Poverty (High Category)	38%	45%	47%	61%	26%	29%	32%	39%	51%	52%	53%	48%	27%	27%	30%	36%
Economic Status (High Category)	25	27	21	18	12	17	14	9	28	33	26	33	14	17	18	14
<u>Motivational Factors:</u>																
Index of Communal Cooperativeness (High Category)*	92%	89%	84%	62%	95%	88%	82%	65%	75%	79%	62%	58%	73%	66%	54%	36%
Index of Communal Responsibility (High Category)	46	47	40	32	44	34	36	20	35	55	47	48	34	38	36	29
<u>Environmental Factors:</u>																
Index of Village Development (High Category)	29	35	37	23	28	27	30	15	35	51	44	57	29	30	29	24
"N"	274	788	384	45	142	797	458	159	77	158	78	24	299	1448	917	358

*This index was dichotomized; all the others were trichotomized

of studies. Given the importance of literacy as a predictor of the score on this index, such a set of controls seems particularly important in dealing with sources of variation in the dependent variables.

Table 7 clearly indicates that the general findings based on the statistical measures of association hold up when controls for sex and literacy are present. The most regular differences among the categories of the Propensity to Innovate Index occur for the items under the Aspiration and Expectation heading. There are fairly regular differences among groups with regard to the use of government services, but the Propensity to Innovate Index is not associated with such behavioral items as teaching oneself to read and write or with the adoption of the water pipe. Propensity to innovate was negatively associated with subjective poverty among males, but the trend was less regular among the female respondents. Finally, the index of communal cooperativeness was by far the most important of the independent factors. It reflects the respondent's expressed willingness to cooperate personally in communal development projects.

In addition, it is worth noting that for many or most items the difference between the responses reported for the top categories on the innovation index and those reported for the mid-categories are greater than the differences derived from comparisons using other categories of the Propensity to Innovate Index. Those individuals who seem to totally lack or have just an incipient or barely perceptible innovation attitudes in other regards

SUMMARY

At the beginning of this report we discussed the multidimensionality of the Propensity to Innovate Index, and the fact that it appears to measure one's attitudes toward parent-son relationships as well as one's attitudes toward innovation per se. On the other hand, the existence of several plausible relationships between the Propensity to Innovate Index and other questions asking about innovational conflict in the village increases one's confidence in the general utility of this index.

Our analysis has also established that the propensity to innovate tends to develop disproportionately among males, young people, literates and those who are highly exposed to the mass media. In general, those who are willing to innovate tend to be people with open, imaginative minds.

We have also inquired about the status of innovators in their villages. They do not seem to be people who have the status of age, nor the power associated with living in a family of landowners. In spite of this, however, innovators do feel efficacious towards village leaders. They are also people with a side net of interpersonal communications, and this behavioral trait should contribute both to their acquiring of knowledge about innovations and to their opportunity to communicate new ideas to others.

The propensity to innovate also seems to be related more to aspirations and expectations than to the type of actions in which one has engaged. The potential innovator is not only very interested in receiving all types of services, but he also indicates that he would be more willing to cooperate in communal projects taken on in his village.

We found no relationship between the type of village region in which the respondent lived, or in his own economic status and his score on the Propensity to Innovate Index. In general, our findings indicate that many factors intervene between a generalized propensity to innovate and actual innovation, but that such a propensity may be meaningful in its own right.