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Education and Other "Human Factors" in the Economy of a Settlement Project (Sardinia), Italy

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The method of sociological analysis of the farm enterprise was probably applied for the first time in Italy in the course of the survey directed by the Cassa per il Mezzogiorno (State Fund for the Development of the South) with a view to identifying the human factors which characterize the management of the enterprises established by the Nurra region land reform project *. The method consists of the successive application of different sociological parameters to the same farm economy series. However, its application in the field is objectively conditioned by the need to make the differences in crop cultivation and the resulting income dependent upon human factors alone. Hence the need, for instance, to limit the scope of observations so as to take into account only pedologically uniform lands so that differences in their utilization will be determined not by the land but by the sociological traits of the farmer. This may account for the fact that sociologists still deplore the very restricted application of this analytical tool. The fact that a given farmer is a product of not one but several human factors means that it is only by subjecting the same series of farm balance-sheets to a number of sociological yardsticks that it is possible to identify the really decisive human factor and to discover its relationship to the rest.

The region of Nurra is a vast coastal plain in the western Sardinian Province of Sassari, which was cleared of malaria only a very few decades ago, and converted by a land reform project from wild pasture into what it is now.

Since plans for the Nurra project included irrigation with water to be provided by the Cuga Dam being built by the Cassa, a sociological survey was made an integral part of the technical project, thus setting

* Cassa per il Mezzogiorno: Nurra. Una societa rurale alla vigilia del irrigazione, Roma 1961. See also for the method: Pond, A. G. and Wilcox, W. W., A study of the human factor in farm management, *Journal of Farm Economics*, p. 474 (1932).

Table 1. Classification of Settlers on 120 Holdings According to Income, Crops, and Former Occupation

Previous occupation	No. of holdings	Net product per ha. (Lit 000)	Head of cattle	Irrigated area	Crops[a]						
					grains[b]	fodder[c] 1958/59	beans	beets	vine-yard	orchard[d]	fruit trees
					1958/59						
Tenant farmers	11	91.0	2.36	14.2	53.0	30.1	8.3	5.8	—	2.8	—
Sharecroppers	24	80.4	2.28	6.8	56.7	30.8	9.3	1.5	—	1.7	—
Farm labourers	61	72.7	2.05	5.9	56.5	32.2	8.7	2.1	—	0.5	—
Shepherds	14	60.6	2.43	5.3	59.8	30.3	9.2	—	—	0.7	—
Non-farming	9	51.3	1.67	4.1	60.1	31.2	6.0	1.4	—	1.3	—
					1962/63						
Tenant farmers	11	78.6	3.91	10.0	50.6	30.3	4.4	—	6.1	6.5	2.1
Sharecroppers	25	90.0	3.08	9.8	54.5	28.8	4.0	—	7.8	3.6	1.3
Farm labourers	61	70.1	3.54	8.1	48.8	33.2	4.2	—	9.7	3.2	0.9
Shepherds	14	70.7	3.79	10.6	48.4	36.9	3.2	—	4.5	5.1	1.9
Non-farming	9	68.5	3.78	7.2	46.6	32.7	1.7	—	10.2	7.7	1.1
					Differences[e]						
Tenant farmers	11	−13.6	+1.55	−4.2	−2.4	+0.2	−3.9	−5.8	+6.1	+3.7	+2.1
Sharecroppers	25	+11.9	+0.80	+3.0	−2.2	−2.0	−5.3	−1.5	+7.8	+1.9	+1.3
Farm labourers	61	−3.6	+1.49	+2.2	−7.7	+1.0	−4.5	−2.1	+9.7	+2.7	+0.9
Shepherds	14	+16.6	+1.36	+5.3	−11.4	+6.6	−6.0	—	+4.5	+4.4	+1.9
Non-farming	9	+33.5	+2.11	+3.1	−13.5	+1.5	−4.3	−1.4	+10.2	+6.4	+1.1

[a]Percent of total area under cultivation.
[b]Wheat, oats and barley for milling.
[c]Alfalfa.
[d]Mainly artichokes.
[e]Absolute values, except in the case of net product per ha.

up a type of teamwork without precedent in the history of Italian public work.

The results of the survey, already published, clearly show that the behaviour of the newly-settled farmers was firmly dictated by their earlier social conditions.

Observations covered some 120 unirrigated holdings, homogeneous in pedology and uniformly equipped (as their investments were initiated by the Land Reform Agency). They showed that:

(1) Net returns per ha. (Table 1) were strictly dependent on the position of the settler on the agricultural ladder before allocation of his new holding. The best results were in fact observed among those who, before land reform, had already reached a position of farm manager even if tenant farmer. They were gradually followed by sharecroppers, by workers on steady salary bases, and hired labourers, shepherds and persons who had no previous farming experience, in that order. Inversely, the incidence of costs on gross marketable production was seen to increase as the position on the ladder became lower.

(2) Not all groups of farmers classed according to their places of origin obtained the same results. As is only logical with a resettlement project based on field cultivation, the best results were observed among the farmers from Ittiri and Villanova, who had more experience of diversified cropping patterns, while the results among settler from Alghero were inferior owing to their being more accustomed to single specialized cultivation, such as olive growing, which was excluded from the new farm units. Although it must not be overlooked in land improvement schemes involving settlers from other regions, the influence of geographical origin seemed to be secondary compared with the effect of occupational background.

(3) The differing net returns per unit area recorded by groups of differing occupational and geographical background were not due to variations in the number of labour units (this series showed an altogether irregular behaviour as related to returns) nor to any specific variant of the cropping pattern which, in fact, was rather uniform across the various groups owing in part to the considerable unifying influence exercised by the Land Reform Agency, from a technical point of view. It was deduced from this that the *gaps separating the production results for the various groups were due more to differences in farming skill than to the application of managerial talent.*

On the basis of these data it was possible to establish the following:

(1) The cost to the Italian nation, owing to the fact that the reform was carried out in a climate of unrest or, at least, of political stress when the settlers were being selected, can be calculated as the difference between the average net product per ha. obtained by the settlers with the greatest

experience (Lit 91,000 for those who had been managers, as tenant farmers) on the one hand, and those with the least experience on the other, i.e. artisans and non-farm labourers (Lit 51,300). It can be assumed that allocations made to groups who had the least experience of farm management and to those with no experience was due more to political than to technical considerations.

(2) The limit of return on investment in technical assistance or, to be more precise, in vocational training, in view of the preponderance of manual skill in determining the results obtained by the new farmers. The funds necessary for such expenditure would conceivably be available from the Land Reform Agency or some other authority on the assumption that holdings having the lowest incomes would be raised to the same level as those with the higher incomes. This would be prompted by the conviction that investment in the so-called human resources would once again prove to be the most productive.

Four years after the first survey, the international symposium held in Madrid in October, 1964, on the economic development of Mediterranean countries*, moved the Cassa per il Mezzogiorno and the Società Italiana di Sociologia Rurale† to re-elaborate the farm economy series in order to compare the 1958-1959 results with those of 1962-1963. On this occasion the farm economy series were tested against two additional sociological criteria: age and educational level of the settlers. The correlation education/income, overlooked during the first survey, became the main objective of the second.

With few exceptions, due to death, eviction of data not amenable to comparison, the second survey applied to the same holdings as had been included in the first.

As irrigation is available at present on only some fifty farm units, and even there is sporadic and irregular, both irrigated and un-irrigated holdings were lumped together in a single category for the purposes of the survey. Table 1 gives a synoptic comparison of the data obtained in the two surveys with the four years' interval.

The relationship between farm income and the farmers' position on the traditional agricultural ladder prior to land reform had diminished considerably, mainly because those on the lower rungs, such as non-farm labourers and shepherds, had tended to cluster around the employed farm workers. Also, on the upper rungs the former sharecroppers had overtaken those who used to be tenant farmers.

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* The Symposium was directed by prof. Jean Cuisenier, Centre de Sociologie européenne, Paris. A French version of this research is in the book edited by Castel R. and Passeron J. C., Education, développment économique et démocratie, p. 121 Paris (1967).

† Now Instituto Nazionale di Sociologia Rurale, Roma, via Boncompagni 16.

Table 2. Classification of 120 Nurra Settlers According to Income, Crops and Place of Origin

Place of origin	No. of holdings	Net product per ha. (Lit 000)	Head of cattle	Irrigated area	Crops[a]						
					grains[b]	fodder[c]	beans	beets	vine-yard	orchard[d]	fruit trees
				1958/59							
Alghero	42	68.1	2.14	8.3	56.5	32.1	7,2	2.8	—	1.4	—
Ittiri	42	77.8	1.98	4.8	58.1	30.1	8.9	1.7	—	1.2	—
Villanova	27	79.5	2.48	9.6	57.3	31.0	8.6	2.3	—	0.8	—
Olmedo and other localities	9	51.4	1.89	—	52.4	34.2	13.4	—	—	—	—
				1962/63							
Alghero	42	66.5	3.48	9.9	48.6	31.5	3.8	—	9.2	5.3	1.6
Ittiri	42	83.0	3.21	9.7	53.9	31.1	3.4	—	6.1	4.2	1.3
Villanova	27	83.1	4.03	9.2	47.1	36.0	4.4	—	7.4	3.8	1.3
Olmedo and other localities	9	61.8	3.67	0.8	46.4	31.8	4.6	—	17.2	—	—
				Differences[e]							
Alghero	42	−2.3	+1.34	+1.6	−7.9	−0.6	−3.4	−2.8	+9.2	+3.9	+1.6
Ittiri	42	+6.6	+1.23	+4.9	−4.2	+1.0	−5.5	−1.7	+6.1	+3.0	+1.3
Villanova	27	+4.5	+1.55	−0.4	−10.2	+5.0	−4.2	−2.3	+7.4	+3.0	+1.3
Olmedo and other localities	9	+20.2	+1.78	+0.8	−6.0	−2.4	−8.8	—	+17.2	—	—

[a]Percent of total area under cultivation.
[b]Wheat, oats and barley for milling.
[c]Alfalfa.
[d]Mainly artichokes.
[e]Absolute values, except in the case of net product per ha.

This does not mean that the process whereby the low-income groups rose to higher levels had been completed, but that the trend in 1959 had been replaced by 1963 by a sort of reciprocal polarization between the incomes of formerly independent or associated farmers and those of the other social groups. The difference of 43% between the two extreme categories in 1959 had become less than 24%, which indicates that those with less experience were learning their trade.

It is significant and at the same time disturbing that the levelling off of the income groups should have been due in part to failure of the upper bracket to increase: the peak of Lit 91,000 reached by ex-tenant farmers in 1959 was only approached by the new top earners, the ex-sharecroppers, in 1963. This is less significant however when the expansion of cattle raising is taken into account. The former tenant farmers had come to own the largest head of cattle, with a margin of almost one head over the sharecroppers. However, even so the greatest increases were at the lower end of the scale, among the former non-farming settlers, which shows that the levelling-off process centred mainly around livestock.

This process can also be seen at work in connexion with expansion of irrigated areas. The superior economic performance of the ex-tenant farms in 1959 could be correlated in part with their larger areas under irrigation. Four years later, the coefficient of irrigation no longer followed the agricultural ladder and, in the levelling-off process, the ex-tenants not only failed to advance but actually lost some of the irrigated area. In the meantime, crop patterns among the various groups were still similar. The appreciable reduction in the area sown to cereals was less marked among the former sharecroppers who, in contrast with settlers with other backgrounds, increased their grain crops and decreased their fodder crops proportionately. Livestock also increased less in this group.

As beet cultivation was abandoned, since experiments showed it to be unsatisfactory, its place was taken over by vines and fruit trees together with an expansion of orchard crops. It must be pointed out that no correlation can be seen between these specialized crops and the previous cropping. In fact, as Table 1 shows, the highest figures for land devoted to these crops corresponded to those where formerly non-agricultural activities were carried on.

As regards the settlers' places of origin, it can be observed that income growth was slower among those from Alghero who, even in the first years after settlement, were not faring as well as those from Ittiri and Villanova. Those from Ittiri may have been favoured by increased irrigation, but this does not seem to hold for the Villanovans whose incomes rose even more sharply. Indeed, their income growth seems rather to be related to increase in fodder crops and stockraising, with a corresponding reduction in grains (Table 2).

Table 3. Classification of 120 Nurra Holdings According to Income, Crops and Labour Units

Labour units per holding	No. of holdings	Net product per ha. (Lit 000)	Head of cattle	Irrigated area	Crops[a]						
					grains[b]	fodder[c]	beans	beets	vine-yard	orch-ard[d]	fruit trees
				1958/59							
1.6–2.5	49	81.8	2.22	10.4	55.7	32.2	7.7	2.8	—	1.6	—
2.6–3.2	35	67.7	2.50	2.1	57.1	32.0	8.8	1.5	—	0.6	—
3.3–6.8	36	66.0	2.13	6.2	58.2	29.7	9.5	1.8	—	0.8	—
				1962/63							
1.6–2.5	23	88.2	3.26	11.2	49.3	33.4	3.3	—	8.6	4.3	1.1
2.6–3.2	44	72.4	3.88	6.9	49.6	32.9	4.4	—	8.6	3.8	0.7
3.3–6.8	53	72.9	3.33	9.6	50.3	31.7	3.7	—	8.3	4.3	1.7
				Differences[e]							
1.6–2.5	—	+7.8	+1.04	+0.8	−6.4	+1.2	−4.4	−2.8	+8.6	+2.7	+1.1
2.6–3.2	—	+6.9	+1.38	+4.8	−7.5	+0.9	−4.4	−1.5	+8.6	+3.2	+0.7
3.3–6.8	—	+10.4	+1.20	+3.4	−7.9	+2.0	−5.8	−1.8	+8.3	+3.5	+1.7

[a]Percent of total area under cultivation.
[b]Wheat, oats and barley for milling.
[c]Alfalfa.
[d]Mainly artichokes.
[e]Absolute values, except in the case of net product per ha.

Table 4. Classification of 120 Nurra Settlers According to Income, Crops and Age

Year of birth	No. of holdings	Net product per ha (Lit 000)	Head of cattele	Irrigated area	Crops[a]						
					grains[b]	fodder[c]	beans	beets	vine-yard	orch-ard[d]	fruit trees
				1958/59							
Before 1903	23	59.7	2.08	5.2	57.1	31.4	9.6	1.5	—	0.4	—
1904–1913	55	70.4	2.13	4.3	58.1	30.3	8.6	1.5	—	1.5	—
1914–1923	39	83.8	2.13	10.8	54.6	33.0	8.0	3.2	—	1.2	—
After 1924	3	84.6	3.00	16.6	62.4	27.8	4.5	5.3	—	—	—
				1962/63							
Before 1903	23	70.8	3.00	8.6	49.4	31.3	4.2	—	10.0	4.0	1.1
1904–1913	55	75.1	3.33	9.6	52.4	31.7	3.8	—	6.9	3.6	1.6
1914–1923	39	76.3	4.28	7.6	48.0	33.6	4.0	—	9.2	4.3	0.9
After 1924	3	115.5	1.33	15.1	31.1	38.0	—	—	12.6	15.8	2.5
				Differences[e]							
Before 1903	23	+18.6	+0.92	+3.4	−7.7	−0.1	−5.4	−1.5	+10.0	+3.6	+1.1
1904–1913	55	+6.6	+1.20	+5.3	−5.7	+1.4	4.8	−1.5	+6.9	+2.1	+1.6
1914–1923	39	−9.0	+2.15	−3.2	−6.6	+0.6	−4.0	−3.2	+9.2	+3.1	+0.9
After 1924	3	+36.5	−1.67	−1.5	−31.3	+10.2	−4.5	−5.3	+12.6	+15.8	+2.5

[a]Percent of total area under cultivation.
[b]Wheat, oats and barley for milling.
[c]Alfalfa.
[d]Mainly artichokes.
[e]Absolute values, except in the case of net product per ha.

The method employed by the Land Reform Agency for evaluating labour units by means of conventional coefficients may be as open to criticism as any other similar procedure. But the marked difference in productivity per hectare (per unit area and not per labour unit) found to exist between holdings with few conventional labour units and those employing a greater number cannot fail to cause surprise. In 1959, holdings with between 1.6 and 2.5 labour units had incomes of nearly Lit 82,000 per ha., as compared with Lit 68,000 and 66,000 for those with 2.6-3.2 and 3.3-6.8 labour units, respectively.

These differentials are seen to be nearly the same at the end of 4 years, Lit 88,000 per ha. for holdings with few labour units and figures in the vicinity of Lit 72,000-73,000 per ha. for the other two groups. It may be bold to assert that there is an inverse relationship between labour employed and yield per ha., in the sense that the higher number of labour units would indicate failure of the farm manager to marshal labour in the most rational manner. But there is no doubt that higher incomes are in no case to be accounted for by a correspondingly greater labour input, as is evident in Table 3.

An inverse relationship between farmer's age and income could be observed in 1959 and, in a way, even nowadays. Table 4 shows that in 1959, as the age bracket decreased, income rose from Lit 60,000 to 84,000, and in 1963 from 71,000 to 76,000. This would seem to indicate that the levelling-off process had come to include even the parameter of the farmers' ages.

The very young group (under the age of 40) was different. It embraced only three individuals and is, therefore, of scant statistical value. In 1959 it came only slightly higher than the one immediately preceding it, but disregarding the levelling-off trend it jumped to an income of nearly Lit 116,000 per ha. compared with an average of 76,700 for the two nearest age brackets. This sudden rise, without increased irrigation, is related to an expansion in vineyards, orchard crops, fruit tress and fodder crops, with a decrease in grain cultivation. This exceptional behaviour leads one to wonder whether it can be attributed to age to other factors such as education, since two of the three members in this group had more than elementary education.

The fact that no precise correlation could be established between scholarship and income is, perhaps, one of the more important results to come out of the second Nurra survey. At this point one is forced to doubt whether such a relationship can be established. A fact more difficult to determine than others is the level of a settler's education. Apart from verifying the true level of formal education attained by the holder of a school certificate it is also necessary to ascertain the true value of the certificate as regards the issuing authority, the year in which it was issued and, above all, relapses into illiteracy or, on the contrary, efforts at self-

teaching. All this can give a misleading impression of the relationship between education and income levels.

These reasons become all the more cogent when, as in the case of Nurra, 120 settlers can be classed according to seven different educational levels, from illiteracy to higher than elementary schooling. It would be too much to expect, however, that a straight linear trend should develop among such a small number of persons whose overall behaviour was consequently influenced and conditioned by the diverse human factors affecting every individual.

This having been stated, it must be added that the situation would not be much changed if the groups were classified more consistently. It can be seen in fact that toward the close of elementary studies, in 1959 and especially in 1963, an awkward inverse relationship arose between schooling and income growth owing to the combined effect of the economic decline of individuals who had received higher education and the success of those with less schooling. The gains made by illiterates in 1963 contrasted with the losses recorded by holders of elementary school certificates.

Rather similar conclusions apply to the increase in the numbers of livestock, where illiterates were ahead of all those with elementary education, and were second only to those with secondary schooling. The relative success of the group of illiterates and the increase in their livestock can be partly explained by the slight numerical preponderance of settlers from Ittiri and Villanova, who had more cattle-farming experience than the rest. The same does not hold for former shepherds, whose number was too low to affect the results. Moreover, the greater incidence of illiteracy among the higher age brackets, with slightly lower incomes, should have had an opposite effect.

Either because it is not technically possible to establish a true relationship between schooling and income, or because the influence of scholarship upon the exercise of a traditional activity such as farming is limted, or for any other reason, it cannot be affirmed scientifically that all money invested in the improvement of human resources by schooling are bearing fruit, and even less that these fruits are abundant.

These conclusions, based on this Sardinian experience, are realistic rather than pessimistic, and are subject to two considerations.

In the first place, a dynamic relationship between education and income would seem to assume a rather short lapse of time between the receipt of a school certificate and the time when the technical knowledge thus attested is translated into practical experience. This leads to the belief that it is only among a group of farmers of just over 20 years of age that differences in net product can be considered as the yield of the capital invested in education.

In the second, it may be that returns on capital invested in schooling become evident only above a certain scholastic level, for instance, a level higher than the simple elementary certificate. In fact, if it were permissible to assign any statistical value to a group consisting of only three individuals, it could be pointed out that in 1963 the highest unit yields were those of the three holders of secondary school certificates.

The fact that two of the three individuals with the highest schooling fell in the youngest age bracket, which also consisted of three members, once again raises the question whether it is youth or education which carries more weight in the increase of returns per unit area. On the basis of the Nurra series it can only be said that the net product obtained by the three younger farmers was higher than that of the three with the highest level of schooling.

What has been said about school education does not necessarily cover the importance of cultural background. Once the lack of correlation between schooling and income levels has been ascertained one is prompted to seek out the educational factors underlying any economic yield, quite apart from school records and report cards. From this point of view, it may be that the direct relationship established between vocational (and/or geographical) background and income becomes more telling and acquires its true meaning, that is, that in regions not yet pervaded by modern values, actual practice is still the best form of grammar, practical experience the most direct form of knowledge, life itself the only true school.

Future surveys may be able to define more sharply the influence of non-scholastic cultural factors, such as migration to the continent, etc. From the documentation so far compiled it can be observed on the basis of the parameters mentioned that, be he a native of Alghero or of Ittiri, an experienced farmer or a non-farmer, young or old, the Nurra settler shares in a certain cultural heritage which, at the level of the individual, is identified with his past, but which, at the group level, has the results achieved by its best elements as an economic ceiling.

The disappearance of the sharper differences between producer groups can therefore be attributed to cultural interaction within the collectivity in the sense given to this term by those who study migratory phenomena, that is, the gradual assimilation of the cultural characteristics and values of a given population by the newcomers in its midst. In the case of Nurra the objective was that the persons involved in this process of social mobilization, originally non-farmers and manual labourers, should absorb and assume the poductive models represented by the more prosperous groups, the farmers, who in a certain sense were to be the assimilating group.

The comparisons made between 1959 and 1963 bear witness to the fact that the transfer of cultural values from above downards takes place *pari*

Table 5. Classification of 120 Nurra Settlers According to Income, Crops and Schooling

School level reached by head of family	No. of holdings	Net product per ha. (Lit 000)	Head of cattle	Irrigated area	Crops[a]						
					grains[b]	fodder[c]	beans	beets	vine-yard	orch-ard[d]	fruit trees
				1958/59							
Illiterate	20	68.9	2.10	4.5	58.4	29.8	9.9	0.5	—	1.4	—
1st elementary	10	79.4	2.30	—	56.8	31.7	9.3	1.3	—	0.9	—
2nd ,,	23	70.6	2.13	8.2	58.8	29.5	8.6	2.2	—	0.9	—
3rd ,,	29	76.1	2.17	7.6	57.3	31.0	8.0	2.9	—	0.8	—
4th ,,	7	72.3	2.14	8.0	49.0	36.7	9.5	2.8	—	2.0	—
5th ,,	28	71.9	2.11	7.3	56.7	31.8	8.0	2.2	—	1.3	—
Higher	3	76.6	2.00	14.7	48.6	40.4	6.5	4.5	—	—	—
				1962/63							
Illiterate	20	71.6	4.30	9.3	52.0	32.5	4.0	—	6.9	3.7	0.9
1st elementary	10	81.1	2.30	8.5	49.0	31.1	4.7	—	10.1	3.8	1.3
2nd ,,	23	88.7	2.96	9.6	53.9	30.1	4.5	—	6.7	3.3	1.5
3rd ,,	29	75.5	3.28	11.1	48.8	33.6	3.0	—	8.8	4.4	1.4
4th ,,	7	73.4	3.29	6.7	44.9	36.4	2.9	—	10.9	4.2	0.7
5th ,,	28	65.6	4.07	6.9	49.0	32.3	4.4	—	9.2	3.9	1.3
Higher ,,	3	89.6	4.67	6.9	42.7	31.8	0.8	—	9.4	14.0	1.4
				Differences[e]							
Illiterate	20	+3.9	+2.20	+4.8	−6.4	+2.7	−5.9	−0.5	+6.9	+2.3	+0.9
1st elementary	10	+2.1	—	+8.5	−7.8	−0.6	−4.6	−1.3	+10.1	+2.9	+1.3
2nd ,,	23	+25.6	+0.83	+1.4	−4.9	+0.6	−4.1	−2.33	+6.7	+2.4	+1.5
3rd ,,	29	−0.8	+1.11	+3.5	−8.5	+2.6	−5.0	−2.9	+8.8	+3.6	+1.4
4th ,,	7	+1.5	+1.15	−1.3	−4.1	−0.3	−6.6	−2.8	+10.9	+2.2	+0.7
5th ,,	28	−8.8	+1.96	−0.4	−7.7	+0.5	−3.6	−2.2	+9.2	+2.6	+1.3
Higher ,,	3	+16.9	+2.67	−7.8	−5.9	−8.6	−5.7	−4.5	+9.4	+14.0	+1.4

[a]Percent of total area under cultivation.
[b]Wheat, oats and barley for milling.
[c]Alfalfa.
[d]Mainly artichokes.
[e]Absolute values, except in the case of net product per ha

passu with land distribution. But they also demonstrate that it is extremely difficult to force a community to abandon its own deep-rooted cultural background.

It can be said that the community has apparently effected a better distribution of its own cultural heritage, but no sign can yet be discerned from the economic results that it has adopted a different heritage, which would give quite a different and more immediate importance to the relationship between school education and net economic returns.

In a community such as this one the need to compensate for a lack of schooling by intense technical teaching is felt instinctively. Measures taken in this direction brought about the satisfactory results shown by the 1959-1963 comparison, and should be fostered, all the more so as the settlers' children grow up and begin to take part in farming activities.

In remains to be seen whether technical training is capable not only of raising the performance of the less gifted elements to that of the more proficient, within a given cultural and farming context, but to carry forward the whole community in a move towards adoption of new cultural values. On this score, the examination of the comparative values of technical training (and assistance), on the one hand, and of academic education, on the other, becomes a subject of lively interest.

CONCLUSION

In the case of Nurra, it would appear that the impossibility of determining the effect of schooling on income can be compensated for by reasoning *a contrario:* that the best school marks are won by students from farms with the highest incomes. As a matter of fact, the grades received by the children of the farmers of the 120 holdings studied, attending the third, fourth and fifth elementary classes during the second semester of the 1963-1964 school year, averaged 5.7 (maximum grade 10). This disappointing average, considering that it is below the promotion mark (6.0), is made up of the differing grades obtained by children growing up on holdings with incomes of more than Lit 600,000 (average 6.0) and those in the lower income brackets (average 5.5).

Boys appear to be more sensitive than girls to the effect of farm income and scholastic achievement.

The correlation between farm income and scholastic achievement (both in marks and number of failures) seems to be more operative among boys than girls. On the whole, taking boys and girls together, over half the children (54.3%) had to repeat at least one year; the percentage was lower for the higher income brackets (40.0%) and vice versa for the lower brackets (68.3%), as shown in Table 6.

Table 6. School Record of Children from 120 Settlers Families According to Net Farm Income (1962/63) and Grades Received in Second Semester 1963/64

Net income (Lit 000)	Average grades						Percent both income groups repeating at least one year school		
	2nd elementary			3rd, 4th, 5th elementary					
	boys	girls	total	boys	girls	total	boys	girls	total
Up to 599	5.2	6.6	5.9	5.3	5.6	5.5	90.0	47.6	68.3
Over 600	6.1	6.3	6.2	6.2	5.9	6.0	38.1	42.1	40.0
Total	5.7	6.4	6.0	5.7	5.8	5.7	63.4	45.0	54.3

Is it a necessary conclusion that wealth engenders intelligence? Without going so far, it is reasonable to suppose that the more comfortable surroundings of a prosperous farm family offer a child the requisites for more normal and regular school attendance, and therefore opportunities for deriving greater profit from his studies. Then again, to what extent is scholastic achievement dependent upon school itself or on a child's family surroundings? To what extent, in other words, do the higher marks of the children from the more prosperous farms, whatever may be the formal scholastic levels of their parents, reveal a better "intrinsic education" on the part of the parents which, in turn, has a telling effect on farm productivity?

A hypothesis that cannot be dismissed is that the superior "intrinsic education" of a farmer results at once in better students and higher incomes.