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# **An Economic Evaluation of the Bank of North Dakota's Beginning Farmer Loan Program**

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## *Highlights*

*This paper reports an investigation of the economic performance of beginning farmers who have obtained real estate loans at subsidized interest. A statistical analysis, using survey data and financial records from the Bank of North Dakota, compares the economic performance of beginning farmers in the program with beginning farmers who did not participate in the program.*

*For most variables, the study found no major differences between the two groups of beginning farmers. However, program participants own more acres, rent less acres, and have more long-term assets and long-term debts than non-participants.*

*An opportunity cost method also compares the economic performance of beginning farmers in the program with existing farmers in the state. Existing farmers could increase profits per acre by \$12.30 more than loan participants.*

*Based on the results of both approaches, the program is of marginal economic value. However, the program possesses desirable social advantages such as establishing young people in farming, supporting local communities, and developing social activities in rural areas.*

## An Economic Evaluation of the Bank of North Dakota's Beginning Farmer Loan Program

Doudou Mane and Cole R. Gustafson\*

Agriculture is a sector of the U.S. economy with very few barriers to entry. It is the domain of pure competition because agriculture is comprised of a large number of producers. Therefore, single producers are not large enough to create obstacles to entry because they do not produce sufficient quantities to influence prices.

However, significant barriers to entry still remain. High capital requirements and high interest rates are obstacles young people face when they enter farming. A survey conducted by the North Dakota Crop and Livestock Reporting Service (January 1985) showed that the average financial position of young farmers in the state was \$200,000 of assets, of which \$120,000 is debt and \$80,000 is equity. Brown states that farming requires large capital investment. "A business of sufficient size to fully employ a farmer's labor and managerial skills requires a minimum of \$100,000 and in some types of enterprises the capital requirements may exceed a half million dollars" (Brown 1975, p. 47). Of course, the amount of capital required to begin farming is contingent on the types of enterprises selected and the geographic location of the farm.

To ease the entry of beginning farmers into agriculture, the state of North Dakota has initiated two beginning farmer programs: the Beginning Farmer Loan (BFL) program and the Beginning Farmer Revolving Loan Fund. Both programs are financed by the Bank of North Dakota (BND). However, the revolving loan fund program is significantly smaller than the BFL program and will not be analyzed in this study.

The objectives of this study are to (1) compare the economic performance of beginning farmers who do and do not participate in the BFL program and (2) estimate the opportunity cost of BFL program funds. Primary data for the study consist of financial records of farmers who participate in the program and recently collected survey data which quantifies the economic characteristics of beginning farmers in North Dakota. These data are used to compare the economic performance of farmers who do and do not participate in the BFL program and to estimate the opportunity cost of program funds. Following sections of this report describe the BFL program; discuss the individual benefits, public benefits, and costs of the subsidized credit programs; summarize the study's source of data; and present the results of this research effort.

### Bank of North Dakota's Beginning Farmer Loan Program

Beginning Farmer Loan program consists of low interest loans to those who are buying land for the first time. "The Beginning Farmer Real Estate Program was established to assist the farmer and rancher, who has previously owned agricultural real estate, in the purchase of real estate"

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(Bank of North Dakota). Mortgage loans to beginning farmers are limited to a maximum of 25 years. Loans are priced at 2.5 percent below the Bank's base rate for the first three years. After three years, a variable rate is set at the Bank's base rate, with increases limited to 200 basis points per year and a maximum increase of 550 basis points over the life of the loan. Loans are limited to \$100,000 each and cannot exceed 65 percent of the appraised value of the real estate to be purchased with the borrowed funds. No borrower can get more than one loan under the program.

To be eligible for the program, the applicant must be a North Dakota resident, the funds received must be used for the purchase of land to begin farming, half of the applicant's income must come from farming, and the applicant must have a net worth of less than \$150,000.

This objective is obviously to encourage and ease the entry of beginning farmers into agriculture. This is achieved by subsidizing the rate of interest applicants pay. The lower interest rate reduces debt servicing needs. Thus, small farms and medium size farms have a chance of succeeding despite low rates of return on assets from a farm operation.

The Bank of North Dakota defines beginning farmers as individuals who have been farming for less than seven years and receive loans to purchase land for the first time. It should be mentioned that some recipients are not necessarily beginning farmers since farmers who have been farming previously are eligible to participate.

#### Benefits and Costs of Subsidized Credit Programs

Subsidized credit programs like North Dakota's BFL program have a number of economic impacts. They directly affect the financial well-being of individuals who choose to participate in the program. Indirectly, the economies of communities surrounding program participants are influenced because of "spill-over" effects. Finally, state citizens are affected because program funds are obtained from taxes. Following parts of this section describe debt use and program impacts to individual farmers, public impacts, and costs of subsidized credit programs.

#### Debt Use in Farm Business

An important part of the financial capital used by beginning farmers is constituted by debt. Debt use allows farmers to acquire resources, but it also increases farmers' financial obligations, since the loan must be repaid with interest to the lender sometime in the future. That is why debt should be used efficiently to generate income that can be used to repay the loan. The repayment of the loan includes a cost to the farmers in the form of interest payments. Since many beginning farmers start farming with significant levels of borrowed funds, one problem they face is the interest rate on the loan. The higher the interest rate, the longer it takes for a beginning farmer to get established in a farm business because interest payments decrease profits and delay the accumulation of equity capital. A profit equation in a farm business can be written to include debt financing as follows:

$$\pi = P_y Y - C - iD$$



where  $\pi$  are farm profits,  $P_y$  is output price,  $Y$  is the level of output,  $C$  is total costs without interest costs,  $i$  is the interest rate, and  $D$  is the amount of debt. This equation shows that there is an inverse relation between profits and interest rates. The higher the interest rate, the smaller are residual profits. Small profits may in the long run jeopardize farmers' repayment ability and thus increase default risk.

Use of borrowed funds creates financial obligations and risk to the borrowers. Generally, when young people get into farming, their leverage is high because the amount of their personal assets is small. Leverage is the ratio of borrowed capital to equity capital. Capital is used efficiently when the rate of return of assets exceeds the cost of nonequity capital. Efficient use of capital increases the beginning farmers' repayment capacity, decreases the leverage, and accelerates the process of equity accumulation. As long as the rate of return on invested capital exceeds the costs of nonequity capital, beginning farmers may increase their level of income. The rate of return on equity capital, that is, the ratio of net return to equity capital, must be greater than debt costs.

Because of high capital requirements, debt financing is an important way of getting started farming. It enables beginning farmers to obtain the amount of capital necessary to get control over resources. Resource control is the key point in farm business in that a farm unit with sufficient resources is able to produce enough income for operating expenses, household needs, taxes, and debt servicing needs. Access to land is critical for beginning farmers since land is the most important resource in the farm industry.

#### Benefits of the Program to Participants

Loan funds provided by the Bank of North Dakota enable beginning farmers to get started farming and to get control of farmland, since the purpose of the program is to provide funds to beginning farmers for the purchase of farmland. It allows beginning farmers to avoid such other forms of land acquisition as renting, which might be costly and generally puts farmers in an unstable situation because the tenant is never certain that the landowner will accept a new contract or not change provisions, especially rent rate, after the term of the current contract.

Beginning farmers involved in the Bank of North Dakota BFL program get assistance in the form of a loan at a lower interest rate. Participating beginning farmers' cash outlays for operating costs are reduced because of the low interest on the loan. They then generate sufficient income to honor their financial obligations and still have enough income for living.

The program also allows beginning farmers to acquire capital assets such as machinery and equipment that is needed to expand their operations. The payoff is increased equity in the long run because accumulation of assets increases their income-generating capacity and maintains their loan repayment capacity. The impact of debt usage is that it can help beginning farmers become landowners and get established in farming.

### Public Benefits

Public benefits of a subsidized credit program are both monetary and intangible. In monetary terms, the farm sector is not isolated in the economy. Different sectors of rural economies are highly dependent on each other. Doll and Orazem indicate that the increasing complexity of highly mechanized farming has created greater and stronger linkages between the farm sector and the rest of the economy. The farm sector purchases off-farm inputs such as fertilizer, fuel, lubricants, and farm machinery such as tractors, combines, and other equipment as well as their maintenance, farm buildings, and seed. An increase in wealth in the farm business obviously spills over, since these expenditures result in the development of the agribusiness industry which, in turn, provides income and employment opportunities in other economic sectors. "All of the operations and their respective monetary transactions are reflected in the farm income multiplier. The farm income multiplier measures the impact of an increase in farm income on total income" (Doll and Orazem). For purposes of this study, the multiplier effect can be specified as follows:

$$\begin{aligned} dy &= (dy_{BF} * \mu) - (dy_n * \mu) \\ &= (dy_{BF} - dy_n) \mu \end{aligned}$$

where:

dy = change in income  
 dy<sub>BF</sub> = expenditures out of income by beginning farmers  
 Dy<sub>n</sub> = expenditures out of income that could occur if the program did not exist  
 μ = the multiplier

In this equation, dy<sub>n</sub> includes income which did not occur because someone else does not operate the land, plus the interest subsidy to beginning farmers.

The multiplier effect of beginning farmers consists of two components--consumer and farm sector effects. With subsidized credit, beginning farmers are able to increase their net incomes because financial obligations are lowered. This additional income may be spent by the households on consumption goods. Alternatively, farmers may use the additional income to expand the size of their businesses, leading to greater quantities of farm input purchases. Therefore, both consumer and farm sectors of a rural community may benefit from subsidized credit programs--depending on the preferences of program participants.

Intangible social benefits of the program may be even more important. The current trend of U.S. agriculture is from family farm operations to large scale farm operations, but many people still believe that farming is not only a business but also a way of life.

Many Americans hold a very favorable image of rural people. "Rural people are considered friendlier, healthier, more honest and hard-working, as getting more enjoyment out of life, and having fewer tensions and fewer pressures" (Knutson et al.). This belief originated from the Jeffersonian agrarianism ideal that rural life is morally superior to urban life. Thus,

many individuals feel family farm operations must be preserved. For that reason, they strongly support government programs that provide a level of assistance that allows small farmers an opportunity to stay in a farm business.

A family farm is a "farm unit where most of the labor and management are supplied by the family and at least a portion of the land is owned." The term 'family farm' has been associated with the "existence of an independent business and social entity sharing the responsibilities of ownership, management, labor, and financing" (Knutson et al.). The objective of the program is in line with the idea of preservation of the family farm. "The principal occupation and income is or will be the production of an agricultural commodity on a family farm" (Bank of North Dakota). By allowing the entry of young people into agriculture, this program may assure the initial survival of beginning family farm operations.

### Program Costs

BFL program costs include the amount of funds provided to each eligible farmer times the interest differential between the Bank's base rate and the subsidized interest rate, plus the Bank's administrative costs of funds, and the Bank's fixed costs related to the program. This can be specified in equation form as:

$$TC = \sum_{i=1}^n [L_i (m - b)] + nB_A + B_F$$

where TC is the total cost of the program, n the number of beginning farmers having received loans from the Bank,  $L_i$  is the amount of funds provided to each program recipient, m is the Bank's base rate, b is the subsidized rate,  $nB_A$  is the administrative costs for each loan in the program, and  $B_F$  is the fixed costs of the entire program.

TC is the total cost incurred to society because of the program. It includes the contribution of North Dakota taxpayers to the financing of the program and the costs incurred by the Bank for management of the funds.

m is the Bank's base rate or the Bank's current rate of interest to its borrowers. It is a variable rate which fluctuates with the market conditions. Without the program, this would have been the rate to beginning farmers.

b is the Bank's rate to beginning farmers. It is a subsidized rate set at 2.5% below the base rate. When a beginning farmer receives a loan, his rate is set at 2.5% below the rate of the day he receives it. For instance, if the base rate is 9% the day he receives the loan, the rate on that loan will be fixed at 6.5% for three years. After three years, it is aligned to the base rate for the rest of the loan's life.

The difference between the base rate, m, and the rate to beginning farmers, b, is the interest differential, which is equal to 2.5%. This differential times the amount of loan (L) provided to program recipients is the contribution of the state of North Dakota taxpayers to the financing of

the program. It is the costs incurred by the Bank when it extends credit below the base rate.

$nB_A$  is the administrative costs of each loan, the cost of managing the funds.  $B_F$  is the fixed costs of the program. It includes the costs incurred by the Bank for hiring personnel, and/or purchasing new equipment for the management of the funds. Data for administrative costs and fixed costs are not directly available at the Bank of North Dakota, and their estimation is beyond the scope of this study.

#### A Statistical Comparison of Program Participants and Nonparticipants

This section presents the results of a statistical analysis that compares the business and economic characteristics of beginning farmers who do and do not participate in the BFL program. Data for this approach were obtained from two sources: 1) a survey conducted by the Department of Agricultural Economics, NDSU, in March and April 1989 (Leistritz et al.); and 2) financial records provided by the Bank of North Dakota. Statistical t-tests were employed to test mean differences between characteristics of these two groups of beginning farmers.

#### NDSU Survey Data

A telephone survey of beginning farmers in North Dakota was conducted in March and April 1989 (Leistritz et al.). These data are unique in that part of the beginning farmers contacted by the survey were involved in the Bank of North Dakota Beginning Farmer Loan Program. This permits a statistical comparison of beginning farmers who did and did not participate in the program. The objective of the study was to describe the demographic and economic characteristics of individuals who began farming in North Dakota during the period 1984-1988. Beginning farmers were defined in the survey as individuals who have been farming since 1984. The survey incorporated a series of screening questions to determine if the respondents 1) had begun farming as a career since 1984 or had re-entered farming since 1984, 2) had farmed at least one year at the time of the survey, and 3) had considered farming to be their primary occupation.

Information elicited in the survey included: farm characteristics, including land and form of business; demographic characteristics of operator and household; financial characteristics, including balance sheet and income statement and source of capital; off-farm work by the operator and/or spouse; and participation in government programs.

Unfortunately, less than 8% of the survey respondents (14) participated in the BFL program. In addition, the characteristics of farmers who did participate varied considerably which limited the power of our statistical tests.

To improve the power of the tests, additional financial records on 31 program participants were obtained from the BND. These records included information on farm size, rental acreage, farm organization (i.e., sole proprietorship, partnership, or corporation), balance sheet and income statement components.

Table 1 summarizes the results of the statistical tests.

### Total Farm Size

Total farm size for beginning farmers who participate in the program averages 1,117 acres. Beginning farmers who do not participate in the program have an average farm size of 1,208 acres. Thus, the average farm size for the two groups of beginning farmers is nearly identical. Statistically, there is no difference between these two means.

### Land Owned and Rented

Even though total farm sizes may be equal, the number of acres that are owned and rented may vary. Since the results of the total farm size test shows no significant difference between the two groups of beginning farmers, the number of acres owned and rented are tested separately to see whether or not there are significant differences in the mix of these two components. On average, beginning farmers without the program own 248 acres while program participants own 461 acres. This difference is statistically significant at  $p = .05$ . This result was expected because the purpose of the BFL program is to enable land purchases.

Program participants rent significantly less land than beginning farmers who do not participate, 656 versus 960 acres, respectively. Therefore, it appears program participants use their additional credit to purchase land as opposed to increasing the total number of acres rented.

### Long-Term Assets

Program participants have a significantly higher level of assets. This result should be expected since the purpose of the program is to provide beginning farmers with loans to purchase land. On average, the participants' long-term assets are \$115,058 versus \$48,082 for nonparticipants.

### Long-Term Debts

As expected, the long-term debt of participant farmers is statistically higher than farmers who do not participate, \$86,632 versus \$33,329. Participants have more debt because they receive credit at a low interest rate.

### Gross Income

There is no statistical difference in the gross income of beginning farmers who do and do not participate in the BFL program. This is consistent with earlier tests in that beginning farmers who do and do not participate in the program have identically sized farms and income generating capacity.

### Net Income

The net income of program participants averaged \$7,824 while the net income of farmers who did not participate averaged \$12,032. This result was unexpected. With lower financing costs, participants were expected to have

TABLE 1. STATISTICAL COMPARISON OF BEGINNING FARMERS WHO DO AND DO NOT PARTICIPATE IN BANK OF NORTH DAKOTA LOAN PROGRAM, 1988

Variables	N	Mean	Standard Deviation	Standard Error	t-Value
Acres Owned					
1 <sup>a</sup>	45	361	511	76	2.33*
2 <sup>b</sup>	161	248	547	43	
Acres Rented					
1	45	656	568	84	1.74*
2	161	960	1,130	89	
Acres Owned and Rented					
1	45	1,117	879	131	-0.47
2	161	1,208	1,202	94	
Short-term Assets					
1	45	30,598	23,299	3,473	1.00
2	156	24,848	36,268	2,903	
Intermediate Assets					
1	45	54,276	35,446	5,284	-0.54
2	156	59,935	57,576	5,410	
Long-term Assets					
1	45	115,058	76,763	11,443	4.58*
2	156	48,082	88,874	7,115	
Short-term Debts					
1	45	9,375	15,558	2,345	0.05
2	157	9,185	23,313	1,860	
Intermediate Debts					
1	45	24,428	29,686	4,475	0.12
2	157	23,794	31,236	2,492	
Long-term Debts					
1	45	86,632	71,597	10,793	4.42*
2	157	33,329	79,249	6,506	
Gross Farm Income					
1	45	60,545	49,030	7,477	-1.50
2	151	76,886	66,023	5,372	
Government Payments					
1	45	10,568	12,281	1,895	0.01
2	153	10,528	12,761	1,031	
Interest Payments					
1	45	6,686	6,691	1,020	0.86
2	150	5,626	7,224	589	
Depreciation Expenses					
1	45	8,918	7,426	1,145	1.08
2	134	7,566	6,937	599	
Net Farm Income					
1	45	7,824	11,784	1,776	-1.26
2	150	12,032	21,107	1,723	

SOURCE: Bank of North Dakota.

<sup>a</sup>Beginning farmers in the program.

<sup>b</sup>Beginning farmers not in the program

\*Statistically significant at 0.05% level.

higher net incomes. Equal net incomes could have been expected if participants used additional profits to increase farm size--but this did not occur.

### Other Variables

Levels of short-term and intermediate assets; short-term and intermediate debt; government payments, interest payments, and depreciation expenses were not statistically significant between the groups.

Based on these results, the only major economic difference between beginning farmers who did and did not participate in the program is the amounts of land that are owned and rented. Therefore, the economic performance of the two groups of beginning farmers is nearly identical. Overall, program participants merely substitute purchased land for acreage that was previously rented; total farm size does not increase. The lower interest rate on debt does not lead to an increase in net income either.

### The Opportunity Cost of Program Funds

Rather than compare the characteristics of beginning farmers who did and did not participate in the program, an alternative method for evaluating the economic performance of loan recipients is the opportunity cost approach. This approach compares the economic performance of beginning farmers in the program with existing farmers who do not participate. The assumption here is that loans would be given to existing farmers at the same rate as to the beginning farmers if the program did not exist. This alternative use of loans is an indirect measure of the program's value.

Following parts of this section discuss how the opportunity cost method is employed and present the results of the method.

### Implementation of the Opportunity Cost Method

In order to implement the opportunity cost method, the first step is to quantify the amount of resources provided to participants of the Bank of North Dakota BFL Program. Then, the second step is to compare the economic value of these resources (i.e., opportunity cost) if they were given to existing farmers instead of to the actual participants of the program.

Based on the statistical tests shown in Table 1, the overall effect of the program is an increase in the amount of land owned by beginning farmers. Without this program, beginning farmers own an average of 248 acres, and with the program, beginning farmers own 461 acres--a 213 acre increase. The amount of land rented by program participants declines as more land is owned, although the relationship is only mildly statistically significant. For the remainder of this analysis, it is assumed that net effect of the Bank of North Dakota Beginning Farmer Loan Program is to allow program participants to own an additional 213 acres of farmland.

The opportunity cost of the program is the value of this farmland to existing farmers as opposed to program participants. In other words, how much could existing farmers increase their incomes if they were to receive

additional 213 acres of land at subsidized interest rates instead of the beginning farmers who participate in the program?

According to Gustafson et al., the average size of existing farms is 1,315 acres in North Dakota. An increase of 213 acres would enable existing farmers to operate farms of 1,528 acres. The value of this increase is comprised of two parts. The first part is the marginal increase in income produced by the additional 213 acres directly. The second part is the marginal increase in income produced on the original 1,315 acres stemming from the size economies that are realized by operating a farm of greater size.

However, if existing farmers expand, the size of farms operated by current program participants would return to their previous level--a decline of 213 acres. Likewise, their incomes would decline because fewer acres were operated and the remaining acres would be farmed at higher cost to reverse the economies of size effects. Thus, the potential increase in income that could be realized by existing farmers plus the decrease in income realized by program participants is defined to be the opportunity cost of the Bank of North Dakota Beginning Farmer Loan Program. The next sub-section estimates these variables.

#### Results of Opportunity Cost Method

Table 2 presents cost data which include land costs for various farm sizes in North Dakota. Total costs per acre for beginning farmers are the same whether they have the 213 acres or not because they are in the same farm size group, 1,051-1,500 acres. Thus, the overall effect of the program is the direct decrease in income that is proportional to decreases in land acreage. Size economies are minimal. Costs of production per acre for farms in this size group are \$78.98 per acre while income per acre is \$68.84. At this farm size, total costs per acre exceed income. Therefore, beginning farmers experience a loss of \$10.14 per acre.

If loans were given to existing farmers instead, their farm size could increase to 1,528 acres. With an additional 213 acres, existing farmers could benefit from both a direct increase in income as well as size economies. The costs of production for farms of 1,528 acres are \$82.44 per acre, and the corresponding income per acre is \$82.27 per acre. At this scale, losses amount to only \$0.17 per acre. Therefore, existing farmers would benefit more from the additional land than beginning farmers because they end up losing less per acre. The study had expected program participants to realize greater size economies than existing farmers.

The above analysis can also be performed excluding land costs. Table 3 presents the data which exclude land costs. In that case, total incomes per acre are greater than total costs per acre for all farm sizes. The total costs per acre for beginning farmers are again the same whether they have the 213 acres or not. At this farm size, costs of production per acre are \$56.01 while income per acre is \$68.94. Beginning farmers realize profits of \$12.93 per acre.

If loans were given to existing farmers, their farm size could increase to 1,528 acres. The costs of production per acre for farms of this size are \$57.14 while income per acre is \$82.27. At this scale, profits amount to



TABLE 2. INCOME STATEMENT PER FARM SIZE GROUP INCLUDING LAND COSTS, NORTHWEST CENTRAL, NORTH DAKOTA, 1978-79

Item	Farm Size Groups in Tillable Acres			
	600-1,050	1,051-1,500	1,501-1,965	1,966-6,000
<b>Income/Tillable Acre</b>				
Crops	\$56.94	\$63.50	\$71.93	\$77.52
Livestock	5.85	3.04	7.79	0.46
Other	<u>1.24</u>	<u>2.30</u>	<u>2.55</u>	<u>4.53</u>
Total Income	\$63.77	\$68.84	\$82.27	\$82.51
<b>Costs/Tillable Acre</b>				
Land	\$24.53	\$22.97	\$25.30	\$29.22
Labor	12.65	9.81	7.08	6.15
Management	4.52	.89	5.83	5.84
Capital	4.16	4.33	5.38	4.81
Machinery	16.83	17.97	17.11	15.26
Seed, Fertilizer	8.07	9.72	8.45	12.99
Livestock	0.66	0.35	1.21	0.14
Other	<u>9.41</u>	<u>8.94</u>	<u>12.08</u>	<u>10.10</u>
Total Costs	\$80.83	\$78.98	\$82.44	\$84.51
Profit or Loss	(\$17.06)	(\$10.14)	(\$ 0.17)	(\$ 2.00)

SOURCE: Johnson, Roger G., and Ditablan, Eustaquio C. "Farm Size Economies in Northwest Central North Dakota," North Dakota Agricultural Experiment Station, Reprint No. 1015 from September-October 1982 Farm Research, Vol. 40, No. 2.

\$25.13 per acre. Therefore, existing farmers could generate more returns from the additional land than beginning farmers. They could increase income per acre by \$12.30 (\$25.13 less \$12.83) more than beginning Farmers.

The results of the two situations lead to the same conclusion. Existing farmers could use loans more efficiently than beginning farmers. They could decrease losses or increase profits more per acre than beginning farmers. From an economic standpoint, we are again led to conclude that the program is of marginal economic value.

### Results Summary

Statistical t-tests were used to compare the business and economic differences between beginning farmers who do and do not participate in the BFL program. The results of the tests show that the difference between the means for most variables is not significant. However, for variables such as the number of acres owned, the number of acres rented, long-term assets, and long-term debts, the difference between the means is significant. Beginning farmers in the program own more land (461 acres) than nonparticipants (248 acres). This result was expected since loan recipients receive a loan at a lower interest rate to purchase land. Loan recipients rent fewer acres (656) than nonparticipants (960). They have more long-term assets (\$115,058) than nonparticipants (\$48,082). Finally, loan recipients have more long-term debts (\$86,632) than nonparticipants (\$33,329).

TABLE 3. INCOME STATEMENT PER FARM SIZE GROUP EXCLUDING LAND COSTS, NORTHWEST CENTRAL, NORTH DAKOTA, 1978-79

Item	Farm Size Groups in Tillable Acre			
	600-1,050	1,050-1,500	1,501-1,965	1,966-6,000
<b>Income/Tillable Acre</b>				
Crops	\$56.94	\$63.50	\$71.93	\$77.52
Livestock	5.85	3.04	7.79	0.46
Other	1.24	2.30	2.55	4.53
Total Income	<u>\$63.77</u>	<u>\$68.84</u>	<u>\$82.27</u>	<u>\$82.51</u>
<b>Costs/Tillable Acre<sup>1</sup></b>				
Labor	\$12.65	\$9.81	\$7.08	\$6.15
Management	4.52	4.89	5.83	5.84
Capital	4.16	4.33	5.38	4.81
Machinery	16.83	17.97	17.11	15.26
Seed, Fertilizer	8.07	9.72	8.45	.99
Livestock	0.66	0.35	1.21	0.14
Other	9.41	8.94	12.08	10.10
Total Costs	<u>\$56.30</u>	<u>\$56.01</u>	<u>\$57.14</u>	<u>\$55.29</u>
Profit or Loss	(\$ 7.47)	(\$12.83)	(\$25.13)	(\$27.22)

SOURCE: Johnson, Roger G., and Ditablan, Eustaquio C. "Farm Size Economies in Northwest Central North Dakota," North Dakota Agricultural Experiment Station, Reprint No. 1015 from September-October 1982 Farm Research, Vol. 40, No. 2.

<sup>1</sup>Land cost is excluded from total costs.

An alternative approach, the opportunity cost method, was used to compare the economic performance of beginning farmers in the program with existing farmers. Opportunity costs of the program were calculated to be the profits that could be generated by existing farmers if they could use loans at the lower interest rate instead of beginning farmers. The results of the opportunity cost approach showed that profits per acre increased by \$12.30 when loans were given to existing farmers than when they were used by beginning farmers.

The results of both approaches indicated that the economic performance of participating beginning farmers was not greater than that of nonparticipating beginning farmers and is less than that of existing farmers. The study therefore concluded that the program was of marginal economic benefit.

However, despite these results, the BFL program possesses a number of desirable social benefits. The opportunity given to young people to get into farming may have significant impact on the development of rural communities. The existence of the program could slow the exodus of young people out of rural communities. Beginning farmers' purchases of goods and services may contribute to the survival of local businesses in rural areas. As consumers, they spend part of their income for consumption goods in the local businesses. As producers, they purchase inputs from agricultural dealers in the rural areas. The development of businesses could bring about an increase in tax revenues to finance social programs in rural communities.

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