CHAPTER 6. EFFECTS OF EACs ON SMALL FARMERS

6.1 Introduction

Public policies which support EACs aim to make small-scale farming more profitable and to increase farmers' household income. To assess the effectiveness of these policies, therefore, we need to look at their impact at the farm and household levels.

Most of the EAC leaders and members to whom I talked agreed that the EACs were not an objective in themselves, but the means for improving their members' farming and living standards. This came out clearly, for example, when we talked about how to deal with the frequent tension between maximizing the performance of the EACs themselves, and transferring the benefits to the members. The almost unanimous opinion was that EACs should prioritize benefits to farmers, subject to the constraints necessary to assure the sustainability of associated businesses.

In this chapter I ask two questions: (a) Have the EACs contributed to increasing the profits for their members' farms?, and; (b) Does participation in an EAC contribute to higher income for members' households?

6.2 Method

The methods used in this chapter are described in detail in Chapter 3, Section 3.3.

Aim	Method/sources of information	Sample size
To analyze the perception by farmers of the costs and benefits of EAC membership.	Multiple choice questions included in a survey applied to farmers during case studies of 16 EACs (Case Study Survey).	223 small farmers who are members of 16 EACs, and 234 neighboring non-member small farmers (control group).
To test whether EAC membership has a statistically significant effect on: (a) a farm's net margin, and, (b) the household's annual income; controlling for the EAC's product orientation.	Heckman's Two-Stage Procedure, using data from the General and Costs Surveys.	298 farms and households with complete information.
To test the impact of EAC membership on total household income and its composition by sources of income, specifically for farmers in poor and marginalized areas.	Survey in 1996 and again in 2000, applied to the same farms and households in the dryland areas of 51 municipalities in five regions (Drylands Panel Survey). T-test comparison of means between EAC members and non-members	193 households and farms with complete information for 1996 and 2000.

6.3 Effects and impacts

6.3.1 Farmers' opinions

Table 6.1 summarizes the responses of 457 small farmers to 23 questions about the costs and benefits of being an EAC member.

Table 6.1 Costs and benefits of EAC membership

Benefits and costs	**Non-participants n = 234**		**Participants n = 223**		**Chi^2 test**
	Not true %	**True %**	**Not true %**	**True %**	
Benefits:					
Improved household income	43	37	23.8	21.8	**
Improved yield and production	43.7	44.7	17.6	65.5	**
Crop and livestock diversification	61.8	32.4	42.3	49.8	**
Improved marketing of products	61.8	28.4	38.7	35.7	**
Improved prices of products	72.5	17.6	57.1	25.6	**
Lowered production costs	56.4	24.8	41.8	38.5	*
Farm improvements	52	38.2	33.9	58.9	**
Improved quality of life of family	37.6	48.5	24.4	56.3	**
Improved quality of live of women	36.7	53.1	30.3	57.5	*
Improved quality of life of youth	41.2	47.4	34.4	47.6	ns
Optimistic view of the future	40.6	39.6	21.1	56.9	**
Improved relations with government agencies	45.1	31.4	31.9	45.6	*
Improved relation with municipal government	50.5	34.7	38.9	39.7	*
Improved relations with neighbors	35	52	12.7	70.5	**
Doing better as a small farmer	35.6	42.6	18.8	61.1	**
Costs:					
Has to incur in debts	45.5	42.4	17.6	72.7	**
Has to pay membership fees	49.5	40.6	21.3	76.2	**
Greater risks in agriculture	58.6	27.3	30.9	51.1	**
Loss of time in meetings	52	28.4	41.4	38.5	*
Share of product prices taken by organization	60.6	25.3	34.8	59.9	**
Worsened relationships with neighbors	82.4	5	82.8	5	ns
Some take advantage of the rest	39	48	38.7	49.3	ns
Less trust in the future	54.5	30.3	48.9	31.6	ns

* = Chi^2 test significant with p > 5%; ** = Chi^2 test significant with p > 1%; ns = Chi^2 test not significant.

Difference between 100% and the sum of 'Not true' and 'True', is due to answers of *"More or less"* and *"No opinion"*

The most striking result is the significant difference of opinion between participants and non-participants. EAC participants are consistently more optimistic than the non-participants about the

benefits of EAC membership.

A clear majority of participants agree that working with an EAC leads to improved yields and production, to being able to make improvements to the farm, to improved quality of life for the family and for women in particular, to having better relations with their neighbors, to having a more optimistic view of their future as small farmers, and to doing better as a small farmer.

When it comes to the costs of EAC participation, members are more aware of the direct economic costs: higher debts and higher risks, membership fees, and the fee charged by the EAC (a percentage of the products' prices) to cover its services.

In contrast, most non-participants do not think it is true that EAC participation can result in crop and livestock diversification, improved marketing, better prices for their products, or lower production costs. All of these issues relate to the economic benefits of participation; thus, non-participants do not think that working with an EAC can improve their performance or results as small farmers.

A majority of both groups agree that EAC participation is unlikely to help them obtain better prices for their products. But most agree that EAC participation improves the quality of life for women, as well as relationships with their neighbors.

In short, participants recognize economic and non-economic benefits, while non-participants foresee few benefits and only of a non-economic nature. As regards costs, participants stress the economic costs of participation, while most of the non-participants do not realize the types of costs that a small farmer would face if he/she joined an EAC.

6.3.2 Effect of participation on a farm's net margin

In this section I test the hypothesis that EAC participation increases member farms' net margins (i.e., gross value of production, whether sold or consumed by the household, minus direct and fixed costs). As explained in the methods chapter (Chapter 3, Section 3.3), I analyzed small farms engaged in milk, potato and wheat production separately (Tables 6.2, 6.3 and 6.4).

In all cases the test using Heckman's Two-Stage Procedure confirms that there was a selection bias for product, and that using standard regression techniques would have yielded biased results. This result supports the hypothesis that the effect of EAC participation is influenced by the specific product.

Controlling for product, EAC participation increased net margins for milk producers, but not for potato or wheat farmers. This result is consistent with Chapter 5, where we observed that the percentage of organized milk producers was much higher than the national average EAC membership among small farmers, while those of potato and wheat producers was around the average (potato) or lower (wheat). As we will see in detail in the discussion of the case studies of specific EACs (chapters 8, 9, and 10), this result is also consistent with the opinions of the members of the case study milk and potato EACs.

Let us now examine the effect of other factors on a farm's net margin:

- *Location*. While location has a significant effect on a farmer's choice of production, it has less impact on the farm's net margin, with the exception of milk producers. This may be because the productivity of small-scale potato and wheat farming tends to be low to very low throughout the country, including a very large number of farms where these two crops are destined solely for household consumption.

- *Human capital.* The number of household members in the labor force has a positive influence on milk farmers' margins, but not for potato and wheat producers. This probably reflects prevailing production technologies: beyond a certain minimum level, increased potato or wheat productivity requires access to machinery, while there appears to be a greater potential for labor-based production in the case of milk. As expected, the farm's net margin is in all cases negatively related to the household head's age, but this effect is only statistically significant in the case of wheat production. For milk producers, the farm's net margin will be lower when the household head is a

woman; this probably reflects a lower availability of labor in female-headed households. The effect of the level of schooling is never significant, a fact that has been established by other studies in Chile (López, 1996; Ramírez et al., 2001); under present conditions, small-scale agriculture does not reward higher educational levels, and better educated individuals in rural households can expect to generate higher income only if they move to other types of employment.

- *Farm size and access to irrigation.* As expected, these two variables have positive and significant effects on the profitability of small-scale farming.

Table 6.2 Effect of EAC participation on the farm's net margin: milk producers

N= 298; censored obs. = 230; Uncensored obs. = 68 Wald Chi^2 (13) = 67.93 Log likelihood = - 180.160 Prob > Chi^2 = 0.0000				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of farm's net margin				
Participant in EAC? (1=yes)	0.498	0.170	2.930	0.003
Location North of X Region	2.069	0.688	3.006	0.003
Household members in labor force	0.269	0.111	2.470	0.016
Age of head of household	-0.001	0.009	-0.899	0.369
Square of age of head of household	-0.000	0.000	-0.550	0.582
Gender of head of household (0=female)	-1.974	0.408	-4.834	0.000
Primary education, incomplete (1=yes)	0.214	0.474	0.452	0.652
Primary education, complete (1=yes)	0.622	0.537	1.158	0.247
Secondary education, incomplete (1=yes)	0.124	0.545	0.228	0.820
Secondary education, complete (1=yes)	-0.509	0.594	-0.857	0.391
More than secondary (1=yes)	0.372	0.604	0.616	0.538
Farm size (hectares)	0.007	0.003	2.201	0.028
Percentage of farmland with irrigation	0.000	0.006	0.034	0.973
Constant	15.657	0.949	16.492	0.000
Dependent: Milk producer? (1=yes)				
Location in irrigated valleys V through VIII regions	-1.479	0.350	-4.220	0.000
Location in dryland areas VI through VIII regions	-2.152	0.373	-5.765	0.000
Household members in labor force	-0.062	0.083	-0.742	0.458
Farm size (hectares)	0.007	0.003	2.176	0.030
Percentage of farmland with irrigation	0.002	0.004	0.705	0.481
Constant	0.0178	0.244	0.073	0.942
Rho	-0.913	0.127		
Inverse Mill's ratio	-0.934	0.336		
LR test of independent equations (rho = 0): Chi^2(1) = 1.40 Prob. > Chi^2 = 0.237				

Table 6.3 Effect of EAC participation on the farm's net margin: potato producers

N= 298; censored obs. = 233; Uncensored obs. = 65 Wald Chi^2 (12) = 21.70 Log likelihood = - 241.603 Prob > Chi^2 = 0.041				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of farm's net margin				
Participant in EAC? (1=yes)	0.255	0.395	0.646	0.518
Location North of X Region	0.236	0.481	0.491	0.623
Household members in labor force	0.011	0.136	0.085	0.932
Age of head of household	-0.015	0.012	-1.184	0.236
Square of age of head of household	-0.001	0.001	-1.436	0.151
Gender of head of household (0=female)	0.359	0.391	0.920	0.358
Primary education, incomplete (1=yes)	0.432	0.540	0.800	0.424
Primary education, complete (1=yes)	-0.362	0.743	-0.487	0.626
Secondary education, incomplete (1=yes)	-0.114	0.804	-0.142	0.887
Secondary education, complete (1=yes)	0.046	0.937	0.050	0.960
Farm size (hectares)	0.015	0.006	2.304	0.021
Percentage of farmland with irrigation	0.012	0.004	3.070	0.002
Constant	12.910	1.903	6.782	0.000
Dependent: Potato producer? (1=yes)				
Location in irrigated valleys V through VIII regions	-0.515	0.273	-1.883	0.060
Location in dryland areas VI through VIII regions	-0.266	0.224	-1.187	0.235
Household members in labor force	0.087	0.061	1.420	0.156
Farm size (hectares)	-0.004	0.003	-1.504	0.133
Percentage of farmland with irrigation	0.000	0.002	0.168	0.867
Constant	-0.671	0.210	-3.189	0.001
Rho	0.132	1.432		
Inverse Mill's ratio	0.126	1.391		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 0.01 Prob. > Chi^2 = 0.933				

Table 6.4 Effect of EAC participation on the farm's net margin: wheat producers

N= 296; censored obs. = 167; Uncensored obs. = 129 Wald Chi^2 (15) = 82.44 Log likelihood = - 332.496 Prob > Chi^2 = 0.0000				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of farm' net margin				
Participant in EAC? (1=yes)	0.072	0.260	0.279	0.780
Location in irrigated valleys V through VIII Regions	1.117	1.103	1.012	0.311
Location in dryland areas V through VIII Regions	0.110	0.948	0.116	0.908
Location in rice-growing area VII and VIII Regions	-0.414	0.994	-0.416	0.677
Household members in labor force	0.005	0.056	0.092	0.926
Age of head of household	-0.019	0.008	-2.329	0.020
Square of age of head of household	-0.002	0.000	-3.171	0.002
Gender of head of household (0=female)	0.112	0.380	0.296	0.767
Primary education, incomplete (1=yes)	0.513	0.331	1.551	0.121
Primary education, complete (1=yes)	0.259	0.331	1.551	0.121
Secondary education, incomplete (1=yes)	0.259	0.379	0.685	0.493
Secondary education, complete (1=yes)	0.457	0.453	1.009	0.313
More than secondary (1=yes)	-0.660	1.005	-0.657	0.511
Farm size (hectares)	0.025	0.005	4.910	0.000
Percentage of farmland with irrigation	0.005	0.007	0.705	0.481
Constant	13.373	1.425	9.379	0.000
Dependent: Wheat producer? (1=yes)				
Location in irrigated valleys V through VIII regions	2.172	0.285	7.619	0.000
Location in dryland areas VI through VIII regions	1.783	0.230	7.737	0.000
Household members in labor force	0.007	0.060	0.122	0.903
Farm size (hectares)	0.003	0.003	1.017	0.309
Percentage of farmland with irrigation	-0.015	0.002	-5.592	0.000
Constant	-1.043	0.226	-4.603	0.000
Rho	0.033	0.865		
Inverse Mill's ratio	0.031	0.808		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 0.00 Prob. > Chi^2 = 0.970				

6.3.3 Effect of participation on a household's annual income

I used the same approach to test the effect of EAC participation on a household's annual income. The household's annual income is the sum of the on-farm income, plus other non-farm revenue, including off-farm wage labor in agriculture, non-agricultural employment, public subsidies, pensions and transfers. Tables 6.5 to 6.7 show the results for milk, potato and wheat producers respectively.

EAC participation does not have a positive and statistically significant impact on annual household income, although there is a somewhat stronger (but non-significant) positive effect on milk producers than on wheat and potato farmers.

This result is consistent with the findings of other researchers (Berdegué et al., 2001; Ramírez et al., 2001), who have established that for a very large proportion of rural households, on-farm income is only one (and sometimes, a rather low) component of the total household income. Households who choose to engage in small-scale farming usually receive a higher proportion of their income from that source, but show a lower share of income from other employment sources. The net effect on total household income therefore tends to be neutral and, in many cases, even negative if one considers that other livelihood strategies (such as permanent off-farm employment, particularly in non-agricultural jobs) could offer higher economic rewards.

As in the case of the previous analysis for the farm's net margin, farm size and access to irrigation also generally have a positive and significant impact on the household's net annual income. This result is consistent with the findings of Berdegué et al. (2001), who found that these assets had a positive impact not only on the economic returns from agricultural production, but also on non-farm income. This is because households with more agricultural assets can either extract capital to start other rural non-farm businesses in the services or manufacturing sectors, or can invest in labor-saving technologies and free up household members for other employment.

6.3.4 Effect of EAC participation on households in poor regions

This section is based on data from the panel study for the years 1997 and 2000 of 193 households living in poor rural dryland areas of Regions VI to X. First of all, it is important to clarify that for these households there are no statistically significant (and almost no arithmetic) differences between EAC participants and non-participants in such characteristics as number of household members, age of the head of the household, number of household members in the labor force, number of children lagging in school with respect to the standard for their age, years of schooling of the head of household, percentage of the households headed by women, access to drinking water and electricity, farm size, or distance to the main road.

As shown in Table 6.8, the increase in total average annual household income between 1996 and 2000 for EAC participants was $756 (adjusted for inflation), and for non-participants was $635; the difference is not statistically significant. However, the differences are statistically significant when it comes to farm income (gross value of production minus direct costs); EAC non-participants lost an average of $158 between 1996 and 2000, while participants gained $344.

This difference between household and farm income is because those households who were not EAC members between 1996 and 2000 tended to be more reliant on working as waged laborers (mainly in the agricultural sector). The increased income from wage labor for the non-participants is $448, much higher than the $36 higher earnings by the EAC participants for wage labor. The non-participants' higher wages more than compensate for their lost farm income. As reported by Ramírez et al. (2001), in these poor areas of Chile livelihoods based on wage labor have generally been much more successful at improving total household income and getting these people out of income poverty than have livelihoods based on farming.

In summary, in these poor rural regions most small farmers increased their household income substantially between 1996 and 2000. Those who participated in EACs raised their farm income but

Table 6.5 Effect of EAC participation on a household's annual net income: milk producers

N= 298; censored obs. = 230; Uncensored obs. = 68 Wald Chi^2 (11) = 28.04 Log likelihood = - 185.365 Prob > Chi^2 = 0.0032				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of net annual household income				
Participant in EAC? (1=yes)	0.312	0.186	1.673	0.094
Location North of X Region	0.912	0.754	1.209	0.227
Household members in labor force	0.141	0.103	1.370	0.171
Age of head of household	-0.000	0.009	-0.020	0.984
Primary education, incomplete (1=yes)	0.427	0.448	0.953	0.341
Primary education, complete (1=yes)	0.742	0.501	1.479	0.139
Secondary education, incomplete (1=yes)	0.300	0.492	0.609	0.542
Secondary education, complete (1=yes)	-0.104	0.564	-0.185	0.853
More than secondary (1=yes)	0.423	0.579	0.731	0.465
Farm size (hectares)	0.008	0.003	2.410	0.016
Percentage of farmland with irrigation	-0.000	0.006	-0.077	0.939
Constant	13.143	0.794	16.543	0.000
Dependent: Milk producer? (1=yes)				
Location in irrigated valleys V through VIII regions	-1.384	0.344	-4.014	0.000
Location in dryland areas VI through VIII regions	-2.298	0.415	-5.533	0.000
Household members in labor force	-0.046	0.083	-0.555	0.579
Farm size (hectares)	0.006	0.003	2.060	0.039
Percentage of farmland with irrigation	0.001	0.003	0.493	0.622
Constant	-0.025	0.242	-0.105	0.916
Rho	-0.165	0.624		
Inverse Mill's ratio	-0.116	0.451		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 0.05 Prob. > Chi^2 0.825				

Table 6.6 Effect of EAC participation on a household's annual net income: potato producers

N= 298; censored obs. = 233; Uncensored obs. = 65 Wald Chi^2 (10) = 22.18 Log likelihood = - 230.745 Prob > Chi^2 = 0.014				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of net annual household income				
Participant in EAC? (1=yes)	0.268	0.333	0.804	0.422
Location North of X Region	-0.202	0.335	-0.603	0.547
Household members in labor force	0.065	0.099	0.653	0.514
Age of head of household	0.011	0.009	1.207	0.227
Primary education, incomplete (1=yes)	-0.086	0.431	-0.201	0.841
Primary education, complete (1=yes)	-1.130	0.605	-1.866	0.062
Secondary education, incomplete (1=yes)	-0.532	0.657	-0.809	0.418
Secondary education, complete (1=yes)	-0.200	0.763	-0.263	0.793
Farm size (hectares)	0.008	0.004	1.822	0.068
Percentage of farmland with irrigation	0.009	0.003	2.902	0.004
Constant	12.976	1.223	10.04	0.000
Dependent: Potato producer? (1=yes)				
Location in irrigated valleys V through VIII regions	-0.520	0.273	-1.899	0.058
Location in dryland areas VI through VIII regions	-0.267	0.224	-1.190	0.234
Household members in labor force	0.087	0.061	1.422	0.155
Farm size (hectares)	-0.004	0.003	-1.514	0.130
Percentage of farmland with irrigation	0.000	0.002	0.181	0.857
Constant	-0.671	0.210	-3.197	0.001
Rho	0.235	0.916		
Inverse Mill's ratio	0.194	0.788		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 0.05 Prob. > Chi^2 = 0.828				

Table 6.7 Effect of EAC participation on a household's annual net income: wheat producers

N= 298; censored obs. = 167; Uncensored obs. = 131 Wald Chi^2 (11) 48.58 Log likelihood = - 315.439 Prob > Chi^2 = 0.000				
Variable	**Coefficient**	**Std. error**	**z**	**P>z**
Dependent: LogN of net annual household income				
Participant in EAC? (1=yes)	0.188	0.204	0.924	0.356
Location North of X Region	-0.888	0.301	-2.945	0.003
Household members in labor force	0.032	0.057	0.565	0.572
Age of head of household	0.008	0.005	1.407	0.159
Primary education, incomplete (1=yes)	0.041	0.241	0.170	0.865
Primary education, complete (1=yes)	-0.302	0.287	-1.051	0.293
Secondary education, incomplete (1=yes)	0.329	0.340	0.969	0.333
Secondary education, complete (1=yes)	0.108	0.350	0.309	0.757
More than secondary (1=yes)	-0.915	0.727	-1.259	0.208
Farm size (hectares)	0.013	0.004	3.011	0.003
Percentage of farmland with irrigation	0.013	0.002	5.006	0.000
Constant	14.582	0.539	27.008	0.000
Dependent: Wheat producer? (1=yes)				
Location in irrigated valleys V through VIII regions	2.288	0.252	9.061	0.000
Location in dryland areas VI through VIII regions	1.586	0.224	7.053	0.000
Household members in labor force	-0.015	0.054	-0.276	0.783
Farm size (hectares)	0.004	0.003	1.386	0.166
Percentage of farmland with irrigation	-0.016	0.002	-6.397	0.000
Constant	-1.003	0.216	-4.641	0.000
Rho	-0.995	0.047		
Inverse Mill's ratio	-0.981	0.128		
LR test of independent equations (rho = 0): $Chi^2(1)$ = 10.02 Prob. > Chi^2 = 0.0016				

tended to stay away from the wage labor market. Those who didn't participate in EACs have experienced a drop in farm income on average, but have made significant gains in income from wage labor.

The conclusion is that in these regions EAC participation makes economic sense for rural households whose livelihoods depend on small-scale agriculture.

Table 6.8 Changes in average household income and income composition (1996-2000) for small farmers in the dryland areas of the VI, VII, VIII, IX and X Regions ($)

Item	Participants	Non-participants
Change in household income	756	635
Change in farm income	**344	- 158
Change in non-farm income, self-employment	24	41
Change in income from wage labor, permanent	* 43	359
Change in income from wage labor, seasonal	*- 7	90
Change in income from wage labor, total	** 36	448
Change in income from pensions and public transfers	354	303

* = t-test significant p > 5%; ** = t-test significant p > 1%

6.4 Discussion

At the start of this chapter I asked two questions (1) Have the EACs contributed to higher profits for their members' farms? and (2) Does EAC participation give members' households higher incomes?

The answers are:

(1) For a rural household whose livelihood is largely dependent on non-farm employment, EAC participation does not make much economic sense; in fact, these households tend not to participate in these organizations. This conclusion is common sense: EAC participation always involves some costs and risk; a household has little incentive to incur these when the financial benefits promise to be few.

(2) EAC participation does not seem to have an effect on total annual household income, regardless of the EAC's product orientation. Apparently, whatever gains can be made in on-farm income through EAC participation will be negated by reduced income from off-farm employment.

(3) For those households who continue to make their living from small-scale agriculture, the effect of EAC participation on their finances will depend on their product.

(4) According to 457 small farmers, EAC participation can bring important non-economic benefits, such as better relations among neighbors and improved quality of life for women.

Conclusions (1) and (2) together have important policy consequences. Despite the fact that rural public policies in Chile continue to assume that 'rural' equals 'agricultural', the truth is that rural non-farm income represents just over 40% of total rural income (Berdegué et al., 2001). Farm-based economic collective action is relevant only to those rural inhabitants who continue to base their livelihoods on small-scale farming.

The results of the statistical analysis for milk, wheat and potato producers are fully consistent with the views of the farmers I interviewed for the case studies reported in Chapters 8, 9 and 10. For potato marketing EACs, the leaders and managers complained that in most seasons their members would continue selling their produce to traditional traders and middlemen, and that only a small fraction of

the total production was marketed through the organization[27]. Only when there was a particularly bad season, with extremely low prices and lower demand, would the members demand that the organization buy their potatoes at a higher price!

The leaders felt that this conduct reflected a lack of "*compromiso*" (commitment) on the part of the members, or an individualistic attitude that favored individual over collective action. To them, this was an attitudinal, rather than an economic, problem that could be corrected by greater training and 'conscientization' efforts. Yet the grassroots members of a potato-marketing EAC explained to me that the prices the EAC paid were no better than those paid by the middlemen, and that often the net price was somewhat lower because: (a) the EAC discounted at least a fraction of the Value Added Tax (18%) from the market price, while the traders, who largely evade this tax, do not apply this discount; (b) the traders normally pay cash on the spot, while the EAC frequently paid up to 30 or 45 days later, after the potatoes had been sold; (c) the traders would normally take the whole year's production, while the EAC imposed stricter quality standards, and; (d) if farmers handed over their potatoes to their organization for marketing, then they would need to ensure that the transactions had been done in an efficient and transparent manner, and that the final costs and prices reported by the leaders were in fact the real ones.

This was never an issue for the Milk Collection Centers. Here, leaders and members had other problems and concerns, but in the many interviews I held with these farmers, they never questioned that the EAC was the best (or , at a minimum, the least bad) option for marketing their production. The discussions in these EACs were centered on how performance could be improved, but no one questioned that selling their milk through the organization was a better deal than the non-organized alternative.

Whilst I did not do a case study of a wheat-focused EAC, COOPEUMO, one of my vegetable case studies, has also operated as a wheat broker for many years. COOPEUMO leaders and members were clear on one point: COOPEUMO was just one alternative on offer to small farmers, but prices and conditions for wheat were essentially the same as those offered by any other medium or large broker working in the region.

As I have discussed before (Chapter 2), economic collective action through an EAC offers no advantages (but plenty of risks and costs!) when a farmer is operating in a market that approaches the concept of being 'perfectly competitive'. For example, in the case of potatoes and wheat, there are no barriers to market access, there are large numbers or buyers and sellers so there is no room for oligopolic or oligopsonic behavior, transaction costs are low or non-existent as most operations are conducted in the spot market. For these reasons, in this case a small farmer would usually be better off working directly through market channels when selling his produce. In fact, under these conditions an EAC imposes additional operational, financial and transaction costs. The members of the potato-marketing organizations arrived at the same conclusion, choosing to sell their produce to middlemen instead of channeling it through their organizations.

Milk producers, on the other hand, have important market incentives to organize and sell their milk collectively. The dairy industry will no longer buy milk that is not cooled soon after milking, and the prices they pay are directly and clearly linked to the quality of milk, which in turn cannot be maintained if the farmer has no access to a cooling tank. For most small farmers, purchasing a cooling tank is out of the question, due to cost and scale of production. Even if a farmer did have a cooling tank, many live in areas not reached by the trucks from the dairy firms, or would be charged a substantial transportation fee to collect their milk. The same problem applies to veterinary services and the supply of veterinary products. The Milk Collection Centers offer a convenient solution to these and other production and marketing constraints; the alternative for most non-organized farmers is to move

[27] An exception that corroborates these findings is that of small potato producers who live in remote and relatively isolated areas, where only one or two middlemen work. These farmers will sell a much higher share of their harvest through their EAC than those who live nearer rural towns or main roads.

out of this enterprise or to limit themselves to the informal market of the '*tarreros*[28]'.

One has to be very precise in stating that it is the market and not the product *per se* that makes the difference. For example, an EAC would make perfect sense for a group of small potato farmers wanting to access the supermarkets rather than the wholesale market. In the case of supermarkets, an individual small farmer working alone would face insurmountable barriers to selling his or her potatoes through that channel. Expensive equipment would be needed to clean, grade and package the produce; lots of time would have to be invested to obtain a contract and to enforce it against the much more powerful buyer; the supermarket would require constant delivery throughout the year of a large volume of potatoes; and the financial cost of marketing through supermarkets, who pay only after 60 to 90 days after delivery, would surely ruin a small farmer.

Summing up, we can conclude that economic collective action through EACs makes sense to only a fraction of Chilean peasant households: those whose livelihoods depend on on-farm income, and who operate in markets characterized by high economies of scale, strong market access barriers and/or high transaction costs.

Unfortunately, lack of data means I cannot calculate with any precision the size of this population relative to the total number of peasant households. However, at least two-thirds of subsistence farmers (25% of all peasant households in Chile) produce crops such as wheat and potatoes. For these farmers EAC participation is pointless so we can subtract them from the target population for public policies supporting EACs. Of the market-oriented small farmers, perhaps 50% or more primarily grow wheat, potatoes or agro-industrial fruit and vegetable crops[29]. Removing them from the target population leaves, optimistically, around 125,000 small-scale farming households, about 40% to 50% of the peasantry sector, who could potentially benefit from EAC participation.

Thus the assumption held by most policy-makers (including myself when I was in that position), that EAC participation is a pertinent and necessary strategy for most, if not all, peasant households, needs to be urgently revised. But while we must refine the targeting criteria of public policies, there is still a large number of peasant households who could potentially benefit from EAC participation who have yet to join.

Finally, there are the non-economic benefits identified by the 457 small farmers in my opinion poll. There is little doubt that in many cases, women EAC members place great value on some of the social and cultural consequences of participation. In one workshop I held with about 15 women EAC members, they were adamant that having the opportunity to generate income was of greater significance than the income itself. Participation in an EAC often opens a new dimension in the life of rural women; when they can obtain a loan to start a business, when they find that they can produce flowers that are of such quality that exporters become interested in them, this has an impact on their life and on their self-esteem that goes way beyond economic rewards. Perhaps this is why most of the extensionists, public officials and even farmers' leaders that I interviewed agreed that in general EACs that included a large proportion of women tend to be much more hard-working and more efficiently and rigorously run than those of their male counterparts. It would be worth studying in the future whether the gender of the members makes a difference to the institutional and economic performance of EACs.

[28] Middlemen who buy the milk on-farm to be sold in the informal markets in nearby towns and cities.

[29] In Chile, most fruit and vegetable agroindustries refuse to contract production to organized groups of farmers. This is not the case in other Latin American countries where there are many examples of group-based production contracts.