



## **Predicted Impact of Liberalisation on Dairy Farm Incomes in Germany, Vietnam, Thailand and New Zealand**

*Otto Garcia, Torsten Hemme, Arndt Reill and Juliane Stoll*

### **EXECUTIVE SUMMARY**

#### **Introduction**

The world-wide trend, underpinned by WTO and bilateral Free Trade Agreements (FTAs), is towards trade liberalisation. As a consequence, like for other sectors of their economy, countries should contemplate bringing the level of competitiveness of their dairy sector to international standards sooner rather than later. Raising farm competitiveness, however, is very likely to be easier for countries whose farmers receive little or no farm support and are efficient dairy producers. In other words, the ability of the bulk dairy farmers to cope with a more liberal trade environment is closely related to their current dependency on public support.

With this in mind, the main purposes of this study were (1) to analyse the farm economics of typical farms in Germany, chosen as a high support country, Vietnam and Thailand, representing countries providing intermediate levels of support, and New Zealand (no support) under their current policy framework; (2) to estimate the levels of support captured by typical dairy farms in these countries; and (3) to assess the farm economics of milk production once the policy distortions are eliminated.

More accurate estimations of public support to dairy farmers and the sources of this support would assist in identifying potential opportunities for dairy improvement, particularly through policy action, and in assessing the vulnerability of different farms to direct competition in a more closely interconnected world market. To this end, this study explores a PAM-based alternative to the OECD 'Producer Support Estimate'.

#### **Methodology**

The methodology applied for the economic analysis was developed by the International Farm Comparison Network (IFCN) and utilises the concept of 'typical' farms. IFCN identifies dominant farm 'types' through regional dairy experts taking into consideration (a) agro-ecology and location, (b) farm size in terms of herd size and (c) the production systems that make important contributions to milk production in the selected region/ country. For this study, the IFCN database for 2004 was utilized and farms from Germany, Vietnam, Thailand and New Zealand were selected (3, 2, 2, and 3 farms respectively) for comparison. More information about these farms is available in the 2004 IFCN dairy report.

The Policy Analysis Matrix (PAM) approach was used to evaluate the competitiveness of the selected dairy farms under their current policy framework and under an open market scenario for each country. Lastly, the PAM approach served to cross-check the 'producer support estimate' as monitored by the OECD.

## Results

### Comparison of Dairy Farm Economics

Comparison of the economic results at farm level, using private prices, shows that the Thai and Vietnamese dairy farmers achieve very lucrative levels of 'entrepreneurial profit' while the German dairy farmers make considerable losses and the New Zealand dairy farmers manage to almost break even.

The comparatively favourable situation in Thailand and Vietnam is mainly due to both countries' focus on promoting local milk production through setting high farm output prices and encouraging the use of local resources for food production. Closer scrutiny reveals that, for example, the Vietnamese dairy farmers have 1.15 to 1.25 times the production costs incurred by New Zealand dairy farmers, while these higher costs are more than counterbalanced on the return side, where they receive milk, beef and heifer prices that are 1.13, 1.55 and 2.15 times those obtained by their New Zealand counterparts. As a result, the 'cost of milk production only', which takes into account non-milk returns, of Vietnamese farmers is about 10 percent lower than that of New Zealand dairy farmers.

Despite the high profitability of Thai and Vietnamese dairy farms, their productivity levels are significantly lower than those achieved by dairy farmers in the other countries included in the study. Raising productivity may be discouraged by both the high profits these farmers are already making and the taxes on tradable inputs such as concentrate feeds, machinery, equipment, etc. (which are critical if productivity is to be improved). In contrast, for German and New Zealand farmers, finding feasible ways to raise productivity in order to increase farm-level profitability is by far more difficult.

For New Zealand dairy farmers, the entrepreneur's profits are slightly in the negative zone, with a tendency to worsen for larger farms. However, these farmers make a profit through the engagement of their cooperative further downstream in the dairy chain and abroad. This makes New Zealand dairy farmers very reliant on the world milk price. Therefore, for New Zealand the key question is: How well-positioned are New Zealand farmers to capitalize on rising world milk prices expected to result from the removal of market distortions?

### Policy Analysis: PAM Methods and Results

Under the current national policy frameworks governing the dairy sectors, the farms studied can be grouped into: (1) high profit farms, in Thailand and Vietnam, (2) break-even farms, in New Zealand, and (3) high loss farms, represented by the German farms.

In order to arrive at these profitability levels, Germany, Vietnam and Thailand channel generous support to their dairy farmers. But exactly how much support reaches a typical dairy farm in these countries is difficult to quantify. Results from this study using the PAM concept show that while German farms receive a net support of around 12 US\$ / 100 kg ECM produced, the Thai and Vietnamese farms receive about 6 US\$ / 100 kg ECM. Interestingly, German and Thai dairy farmers receive support through high output prices while being taxed for imported farm inputs whereas Vietnamese dairy farmers enjoy both high output prices (though lower levels than in Thailand) and low farm input prices (through subsidised loans and labour). In this analysis, New Zealand is assumed to have an undistorted dairy sector, which means that no support or taxation applies to milk production at the farm level.

One frequently asked question is what would happen if the policies favouring high profits in Thailand and Vietnam and keeping German farmers from making even bigger losses would be eliminated. This study estimates that in the absence of the existing policies dairy farming in these countries would be unprofitable. The levels of loss would range from 0 to -30 US\$ / 100 kg ECM for the larger Vietnamese and smaller German farms, respectively, while Thai farmers would make a loss of about 2 US\$ / 100 kg ECM. As expected, given the assumption of no policy distortion, New Zealand farmers would not experience major changes, except those stemming from an increasing demand for imported dairy products in countries where dairy farmers may leave the sector due to the loss of their farm support.

## Producer Support Estimates (PSE): OECD versus PAM Approach

OECD reports a PSE level of 51 percent for the EU dairy sector, which is being interpreted by the media as 51 percent of the returns of German dairy farms coming from policy support. However, an alternative PAM - PSE concept applied in this study produces different results suggesting that the OECD PSE provides potentially misleading information as it does not deduct 'non-visible' policy effects that negatively impact the balance sheet of German dairy farmers. Applying the PAM concept to the PSE this study finds that when these 'non-visible' policy effects are taken into account, the OECD's PSEs are 2.0, 2.15 and 1.4 times as high as the PAM-PSEs for the three German farms. This means that German dairy farmers typically have PSEs between 23 and 37 percent instead of PSEs between 50 and 55 percent as calculated by the OECD.

## Conclusions

### 1. Under current domestic policy frameworks:

- a. In countries where production resources are becoming increasingly scarce and global competition is pressing, dairy farms must increase efficiency of resource use and competitiveness. To achieve this, they need to increase 'biological productivity' and find economy of scale effects (increase herd size).
- b. Increasing herd size, usually seen as the best strategy to reduce production cost, seems to have a positive effect in Germany and Vietnam while in Thailand and New Zealand the result is negative. It seems that, under prevailing conditions, the optimal herd size in Germany, New Zealand, Thailand and Vietnam is in the order of 650, 250, 20, and 5 dairy cows respectively (see IFCN Dairy Report 2004). More research on this topic is needed.

### 2. Under conditions of a global liberalised market:

- a. Once the existing policy effects are eliminated, all of the study farms, except those in New Zealand, are unprofitable and therefore very vulnerable to competition. Their costs of milk production become too high, resulting in economic losses.
- b. Considerable opportunities to improve farm competitiveness through cost reduction remain in Thailand and Vietnam. Although high producer prices in and taxation of farm inputs required for intensification discourage the pursuit of cost efficiency, at the end of the day, farmers will be pressed to reduce production costs to maintain their income levels.
- c. The small Vietnamese and Thai dairy farms currently have a profit margin, which is likely to fuel further growth of their dairy sector. Such growth may occur through increases in productivity, farm number or farm size. However, in each case, dairy sector expansion in Vietnam and Thailand faces several obstacles. Due to financial constraints, Asia's smallholder dairy farmers are often unable to increase their herd size or improve their technology levels without support. They will continue to raise local breeds using labour intensive technology. It would appear to be justifiable, both on social and efficiency grounds to provide adequate support to them so that

- they can increase herd size, adopt higher yielding breeds and technology, and thereby improve productivity and economic efficiency.
- d. Their undistorted dairy market and export focus places New Zealand dairy farmers in a strong position to capitalize on expanding market opportunities in those countries in which dairy farmers would be heavily challenged by a new global trade environment. One may thus expect that dairy imports into Vietnam and Thailand would increase during the adjustment phase of their dairy sector to an open global market.
  - e. In the absence of distorting policies, systems which are currently socially unprofitable may become socially profitable due to rising world milk prices resulting from increasing demand.