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TRADE AND STRUCTURAL ADJUSTMENT

This document is one of three annexes to TD/TC(2005)2/CHAP1/FINAL and TD/TC(2005)2/CHAP2/FINAL, and contains sectoral case studies on agriculture and fisheries.

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1. AGRICULTURE

Key points emerging

1. The relative emphasis given to the key policy messages emerging for trade and agricultural adjustment requires separate consideration of the different economic and policy context in different countries – especially the differences between highly developed protectionist countries and less protectionist, less developed countries. That said, some more general conclusions do come to light. An important example concerns the role of government in agricultural markets. In several of the case studies focusing on adjustment in agriculture and agro food sectors the policy reform package featured reducing the direct role of government in the production, acquisition, marketing and pricing of farm commodities. In none, did the role for government in facilitating adjustment include such direct intervention. That is to say, direct government participation in agricultural markets was frequently seen as part of the problem, never as part of the solution.

2. On the other hand, all the studies pointed to the important contribution of government in providing an enabling environment for successful adjustment to occur. That enabling environment included both policies of an economy-wide nature as well as some sector specific nurturing. Stable but accommodating macro policy – especially exchange rate policy, was seen as an essential ingredient in the adjustment successes achieved in the agricultural economies of New Zealand and Chile. Contrastingly, in the Mexican avocado and Kenya cut flower cases government played a key role in fostering the development of private and sector specific marketing infrastructure.

3. The relative importance of agriculture in economic activity inevitably declines with economic growth and development. The salient feature of the induced adjustment in agriculture is a reduction in the number of people employed in farming. Further reducing trade protection and domestic support for agriculture might add some, but not very much, to these ongoing pressures for downsizing the sector in highly developed economies of the OECD. In particular, the expected employment adjustments needed to accommodate such reforms are small when compared to trend changes in agricultural employment. Putting it the other way around, efforts to resist liberalisation would have only a limited impact on the underlying process of adjustment.

4. Of course, reducing agriculture trade protection and support may engender other kinds of adjustments to the structure of the sector. Implementing reforms to trade distorting policies typically requires much more than simply tweaking the trade and domestic support policy instruments that are the most obvious and immediate cause of the problem. This seems to be so whether the need is to fully exploit the benefits flowing from improved access to a market, as illustrated in the Mexican avocado study or to accommodate loss in farm income and write-offs of asset values as illustrated in the Australian dairy study.

5. Agricultural trade policy rarely exists in isolation. In most cases the trade intervention is an essential complement to a domestic price support programme. Reforming or dispensing with the trade intervention may be the easy part. Dismantling or mantling the regulatory arrangements and figuring ways

to assist the adjustment process of the losers and equitably share benefits amongst the winners is the hard part.

6. In some cases the need for structural adjustment can be accommodated using instruments of general social policy: unemployment insurance, education and training for displaced workers, relocation assistance and so on. In other cases, however, as for example when there is to be a sharp write-down of the value of farm fixed assets such as land or a production quota, sector specific mechanisms may be needed.

...Australian dairy study

7. Until July 1, 2000 the package of Australian federal and state government intervention in milk pricing and production resembled, in kind if not in detail, government interventions in dairy markets in most other OECD countries. Though the regulatory mechanisms differ from country to country their economic consequences are similar. Domestic milk producers receive and domestic milk consumers pay higher than otherwise prices, exports of dairy products are higher/imports lower than otherwise and the domestic dairy industry, usually taxpayers as well, pay the costs of administering the programmes and disposing of surpluses on world markets.

8. Government intervention in dairy pricing also inevitably creates or enhances the value of assets used in dairy production, constituting a kind of "windfall profits" for the asset holder as an unintended side effect. The price and rental rates paid for land used to pasture and grow feed for dairy cattle, the value of buildings for housing and milking cows and the economic value of the entitlement to produce within a quota are all higher within a system of milk price regulation than without it. Those higher asset values can pose a political impediment to reforming agriculture trade and domestic support policy. The main political questions remain how to assist the adjustment process in the reformed sectors and how to avoid sudden income losses of the target group. That this decline in “windfall profits” can remain an issue in further agriculture trade policy reform discussions is hinted at in land price results in the intersectoral effects study.

9. How to compile an assistance package for enhancing the restructuring process was a main challenge to reforming Australian dairy policy. Australian policy makers adopted an approach that may offer important policy lessons for other countries contemplating dairy policy reform. Important elements of their approach included: advance warning of the inevitability of reform, cost/benefit analysis to quantify potential losses and a participatory political process leading to the development of an acceptable assistance/compensation package.

10. In July 2000 all dairy price support mechanisms were eliminated and Australia became one of the few dairy-producing countries to fully link producer returns to world market prices. The pain of adjusting to the new situation was eased by an assistance package amounting to about AUD 2 billion nationally and funded by a levy imposed on domestic sales of drinking milk. Eligibility for payments was based exclusively on whether an individual was a dairy farmer in a specific past year. The rate of payment varies among producers in different states depending mainly on the share of their production that went to fluid versus manufacturing uses in the base year. Annual payments to milk producers under the programme are expected to terminate in June 2008.

11. The over-night removal of all dairy price support measures caused an immediate and substantial decline in market returns especially for producers of milk destined for fluid milk consumption. The industry has adjusted rapidly to the effects of deregulation. In the main however these adjustments have been revealed in increases in the pace of ongoing structural adjustments in the sector. There was initially some increase in the number of retirements, especially among producers formerly specializing in production for the fluid milk market. Correspondingly, there have been increases in milk output per cow

and per farm and national milk production has continued to increase in line with the continuing growth in domestic and export demand.

12. Eliminating dairy price regulation in Australia has led to a dairy industry that is undoubtedly more market oriented, efficient and less trade distorting than before. Similar to related reform attempts in other commodity sectors in other countries, the reform package included an assistance arrangement to *inter alia* enable industry players to improve farming techniques, diversity or exit the industry. The innovation in the Australian case is in the simplicity and apparently finite life of the payments and associated institutional arrangements.

...*Mexican avocado study*

13. From 1914 until 1997 the United States imposed a phytosanitary ban on all fresh Mexican avocado imports to protect Californian orchards from the avocado seed weevil found in some Mexican orchards. That ban was lifted beginning in 1997 and access has been gradually expanded since. Today, there are over one thousand Mexican avocado growers exporting to the US. The structure of the industry has evolved in some demonstrably favourable directions: the quantity and quality and prices of Mexican avocadoes have improved. At the same time the share of small avocado producers has grown signalling possibly some improvement in income distribution.

14. Opening the US market fostered two kinds of institutional developments that might be worthy of emulation in other contexts. The first involved cooperation between the US and Mexico's national regulatory agencies to form a collaborative cross-border SPS regulatory agency. The other was the creation of a producer marketing organization to promote orderly marketing of Mexican avocadoes into the US market and to allocate access among producers.

15. The first of these innovations constitutes an excellent example of how OECD countries with strict SPS standards can actively collaborate with developing-country trade partners, helping them to develop stronger regulatory institutions. The example also shows that there are potential gains for developing countries in adhering to rigorous SPS standards and that the process of attaining them is an opportunity to upgrade their own institutions and foment their capacity to be robust long-term trade partners.

16. The second of the institutional innovations, the producer marketing organization undoubtedly did help to ease the transition after trade liberalization, protecting and equitably distributing the benefits of access to the higher price US market to both small and large producers. Undoubtedly, regulating market access in this manner resulted in smoother flows of exports and higher returns for eligible Mexican avocado producers. Of course such arrangements are more easily justified on second-best economic arguments as transitional.

…*New Zealand agriculture*

17. In 1984 and following several years of pervasive intervention in agricultural markets by the New Zealand government, the domestic agricultural policy framework was largely dismantled and associated trade interventions were virtually eliminated. Specific reforms to deregulate the agriculture sector included the removal of nearly all producer, exporter and consumer subsidies. Complementing these reforms was the elimination of import licensing systems and import quotas as well as deep tariff reductions. Together these reforms at once reduced distortions in pricing information facing the domestic agricultural sector and strengthened incentives for better managing domestic agricultural resources in order to benefit from international trade.

18. Early in the reform period, complementary changes were introduced to stabilise the macroeconomic framework, which considerably reduced the burden of agricultural adjustment. Especially

important for the export oriented agricultural sector was the 20 per cent devaluation of the currency implemented in 1984 – a development that was followed by transition from fixed to floating exchange rates. To enhance transparency, confidence and the sustainability in the new macroeconomic policy regime, inflation targeting was explicitly adopted as the governing principle for central bank policy.

19. The enabling environment created for structural adjustment of the agriculture sector is revealed in the emerging success of a number of New Zealand's agriculture and agro-food export sectors including: manufactured dairy products, apples and wine. New Zealand's share of world trade in all these products greatly exceeds its share in world production of them.

…*Chile's Agro-Food Sector*

20. Chile's economy-wide reforms implemented progressively over the past three decades fundamentally altered the incentive structure in favour of the tradable sectors setting the stage for successful development of some agro-food exporting industries. The country has become one of the world's leading exporters of fresh and processed fruits and vegetables. More impressively, Chile's wine producers have benefited hugely from the rapid expansion of world demand for *new world*, but especially for wines produced in countries of the southern hemisphere.

21. The rise of the export-oriented agro-food sector can be attributed partly to the shift in macro-economic policy – especially the elimination of export biases due to an initially overvalued exchange rate. Sector-specific export promotion measures also played an important role however. These included duty drawbacks, public support through an export promotion agency as well as the extension of credit to smaller farmers to facilitate adjustment.

…*Kenya's Cut Flower Sector*

22. Kenya's cut flower industry constitutes one of the country's main sources of foreign exchange. Albeit relatively small in terms of its impact on overall employment, growth and poverty reduction, the sector is one of the rare success stories of non-traditional export development in Sub-Saharan Africa. Moreover, the industry has been able to thrive despite general economic stagnation and growing poverty in the country. That success illustrates the importance of the government's non-interventionist and facilitative approach in attracting FDI and foreign expertise, which has led to the emergence of non-traditional exports.

23. Economy-wide reforms conditioned the development of the industry, but their impact was probably less important than in other industries. The sector has benefited from a relatively liberal trade policy regime, characterised by low export taxes and no marketing or distribution control. A key decision by the government in the past has been to avoid direct intervention in production and sales, partly because of the diversity and perishability of the products. The authorities have actively promoted commercial horticultural production more generally but mostly acting as a facilitator and through the provision of extension services and research and development. This approach has proven to be most appropriate for an industry that has to adjust to rapidly changing market conditions.

1.1 CROSS-COUNTRY CASE STUDY: ADJUSTMENT IMPLICATIONS OF REDUCING AGRICULTURAL SUPPORT AND TRADE PROTECTION

Introduction

24. This study reports preliminary findings from an analysis of potential changes in relative prices and factor returns that might accompany widespread reductions in agriculture and non-agriculture trade protection. The study focuses especially on differences in adjustment challenges facing developed versus developing countries. Key policy questions for developed countries relate to potential implications for the net incomes and wealth of farm households. For developing countries policy concerns may also include implications for movement of labour among sectors within an economy as well as internationally.

25. Agricultural adjustment may be represented using a wide variety of different indicators of possible policy effects. Popular choices in past studies have included: the number, size and ownership of farms, agriculture's share in employment or in GDP and the composition of output by farm, by region or nationally. The analysis reported in this study focuses on the incidence of simulated reductions in support and trade protection in agricultural commodity markets on the prices and quantities of land, labour and capital employed in the sector.

Country coverage and importance of agriculture in the economy of study countries

26. The country coverage chosen for this study reflects several considerations. Paramount amongst them was the aim of comparing adjustment implications across countries each at a different stage of economic development: some where agriculture is a relatively large sector of the economy, some where it is not. Seven OECD regions and countries are distinguished individually: Australia/New Zealand, Canada, European Union (15), Japan, Mexico, Turkey and the United States. Among non-member countries: Brazil, China, Indonesia, India, Malawi, Russia, South Africa and rest of sub-Saharan Africa are treated individually.

27. The implications of further trade reform for intersectoral, perhaps international, employment flows constitutes an issue of special concern to this analysis. The magnitude of employment adjustments which might be expected from multi-sectoral trade reform depends not only on the initial structure of protection and the size of the cut in it but also on the initial levels of employment in the different sectors affected. Table 1 contains data showing the proportion of total civil employment accounted for by people classified as employed in agriculture for the study countries. The number of people employed in agriculture is shown for those countries for which recent data are available.

Table 1 Agriculture in employment and the economy[1]

	Agricultural employment		Agriculture in the economy
	1000 persons	Share in total	Ag. vallue added as a % of GDP
United States	3,367	2.5%	1.30%
Canada	416	2.6%	2.20%
EU15	6,478	4.0%	2.10%
Japan	2,660	4.2%	1.30%
Austalia/New Zealand	512	4.5%	4.20%
Mexico	6,282	15.8%	9.10%
Brazil	15,534	20.6%	8.40%
Turkey	7,152	33.8%	13.80%
South Africa	n.a.	10.9%	4.00%
Russia	7,900	11.8%	7.00%
China	312,600	42.0%	16.60%
Indonesia	n.a.	43.8%	12.20%
India	n.a.	66.7%	23.40%
Malawi	n.a.	n.a.	28.90%
Notes:			
1. In 2001 except: China (2000), Russia and South Africa(1999) and India (1995).			
Source: OECD Labour Force Statistics and national statistical yearbooks			

28. The data in Table 1 reveal striking differences among the study countries in the importance of agricultural employment. As is generally true, agricultural employment is far less important in highly developed countries such as the US and in the EU as compared with that in less highly developed countries such as Brazil, China, Turkey or Mexico. To drive this point home notice that the number of people employed in agriculture in Mexico, is nearly as high as in the EU15 region and nearly twice as high as that for the United States – two regions whose total working populations are, respectively, more than four and three times that of Mexico. It follows that employment adjustment resulting from agricultural trade liberalization is likely to be a far more serious policy concern in the developing than in the developed countries.

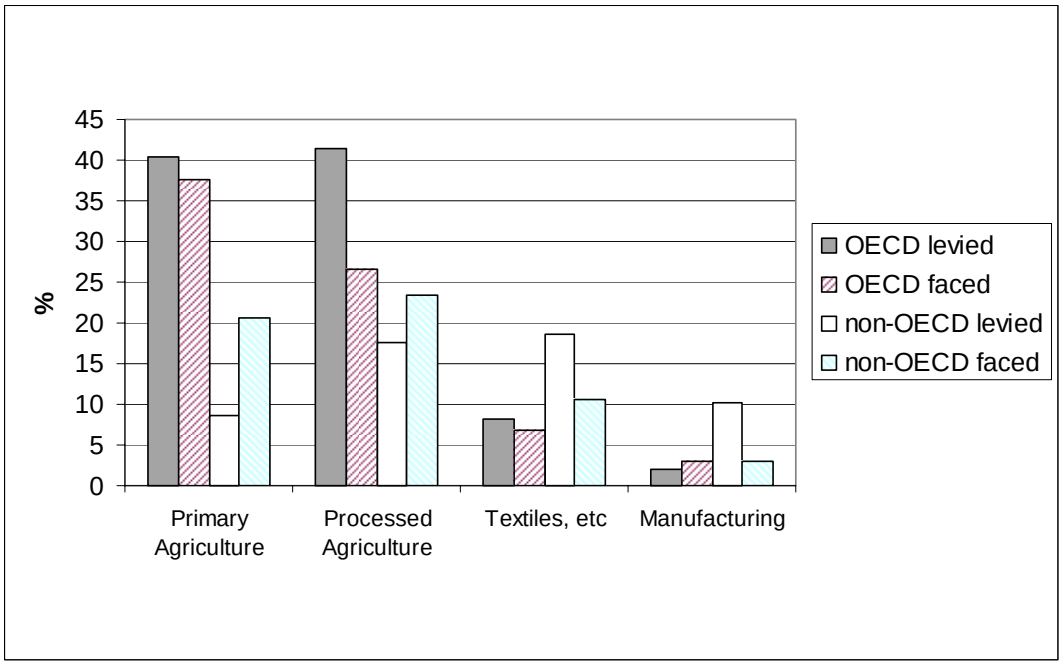
29. The last column in Table 1 compares the countries in terms of the share of GDP accounted for by agriculture. This share is consistently lower than the employment share, especially so for the developing countries. This finding is frequently cited as evidence of a relatively poor productivity of the agriculture sector. Undoubtedly however, some of the difference is due to bias introduced by the measurement errors in the employment data discussed above.

Model and policy simulation experiment

30. Quantifying adjustment implications of further agriculture and trade reform was undertaken with a modified version of a widely used applied general equilibrium model – GTAP. The model and further details of the policy simulation analysis are described fully in a paper done for the Joint Working Party on Agriculture and Trade OECD(2004d). The policy simulation experiment undertaken with the model comprised 50% reductions in all forms of domestic support to agriculture combined with 50% reductions in both agricultural and non-agricultural tariffs.

31. Figure 1 provides a summary view of the initial tariff landscape. It compares the average tariffs levied by a country group (on their imports) to the average tariff faced (by their exporters) in this country group. Two broad groups are represented: OECD and non-OECD countries.

Figure 1 Average tariffs levied and average tariffs faced by exporters



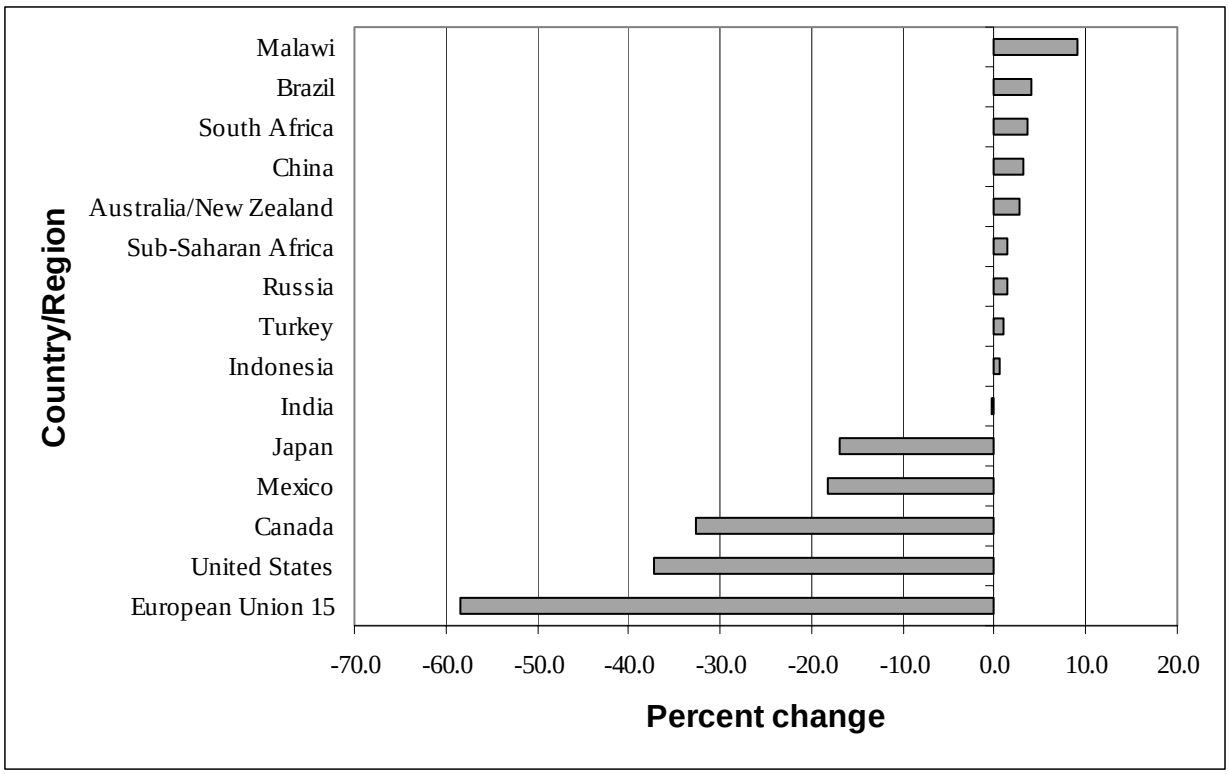
32. On average, the import tariffs on processed agricultural products are higher than those on primary products, providing some limited evidence of tariff escalation. This observation holds for both the OECD and the non-OECD regions. Average tariff rates applying to agri-food products are higher than those on textiles and manufacturing products. It is important to note however, as findings reported below will illustrate, that the effects of multi-sectoral tariff reductions depend both on the initial rates and on the size of the sector. Even when combined, primary and processed agriculture account for significantly less economic activity than do non-agricultural sectors in all developed countries and in most developing countries as well.

Results

Land prices

33. Figure 2 shows the pass-through effect of the policy reform shock on land prices. The magnitude of these effects is substantially greater than corresponding effects on unit wage rates or returns to capital (Figure 3). This is especially so for OECD countries currently providing high levels of support and trade protection for agriculture. Trade and agriculture reform in these countries must be accommodated by reductions in factor payments to land, capital and labour used in farm production. The pattern of such effects, *i.e.* how much of the reduction in the volume of payments will be accommodated via reductions in price versus quantity of factor use, depend on the ease with which factors can be shifted within agriculture and from agriculture to non-agricultural uses.

Figure 2 Simulated impacts on land prices



34. Obviously there is much smaller scope for moving land from agricultural to non-agricultural uses than for agricultural labour or capital. Although land may be shifted among crop and livestock activities, total supply is pretty much fixed, *i.e.* highly price-inelastic. This underlies the widely-held view that much of the benefits of government interventions in agriculture end up merely increasing the price and rental rate of land. This applies especially in the present case as a significant share of domestic support to agriculture in some of the OECD countries featured (US, EU, Mexico, Canada) comes in the form of direct payments per unit area of land. These area payment programmes are in fact designed to minimize their impacts on plantings and production, thereby maximizing their impacts on land prices and rental rates.

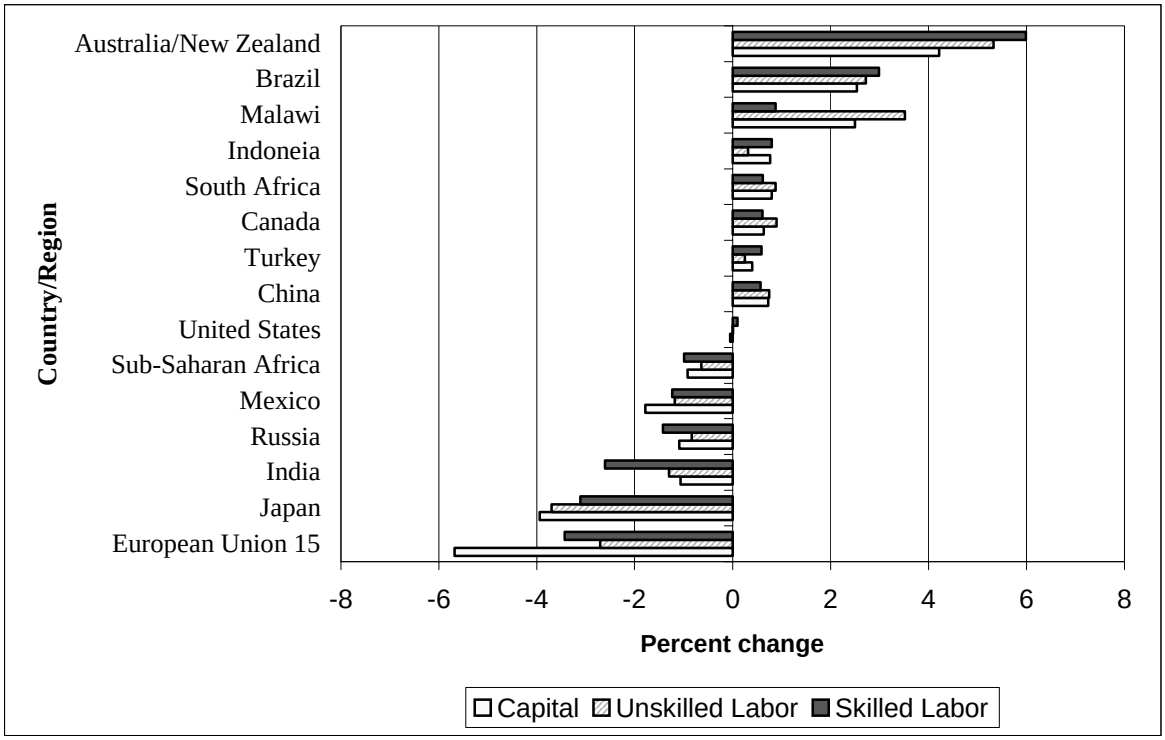
35. Indeed, results from a policy simulation of the effects of reducing all forms of agricultural support and trade protection *except* land subsidies show very modest impacts on land prices in most of the OECD countries where simulated land price impacts are shown to be negative in Figure 2. (An exception is Japan where land based payments do not feature significantly in the policy mix.)

36. The data in Figure 2 also shows simulated net increases in land prices in those countries where they go up are considerably smaller than are the decreases in those countries where land prices go down. Part of the explanation ties back to the importance and nature of area payment programmes referred to above. Part of it reflects the relative abundance of land in some of the countries, *e.g.* Brazil, Australia/New Zealand, experiencing simulated land price increases. But a part of it also relates to the fact that the induced increases in world commodity prices that drive the land price increases are themselves modest.

Labour and capital

37. Figure 3 shows the change in real returns to agricultural labour and to capital used in agriculture versus outside agriculture. As expected, when support is reduced, in most countries offering high support and protection to agriculture the factor returns in the sector evolve unfavourably relative to the returns that can be gained in non-agricultural activities. Keep in mind that the numbers shown in Figure 3 compare differences in the simulated percent changes in unit factor returns in agriculture versus non-agriculture uses. What matters here is not whether unit returns to labour and capital used in *e.g.* agriculture go up or down in an absolute sense but the magnitude of such changes relative to corresponding unit returns in non-agriculture.

Figure 3 Simulated impacts on *relative* returns to labour and capital used in agriculture



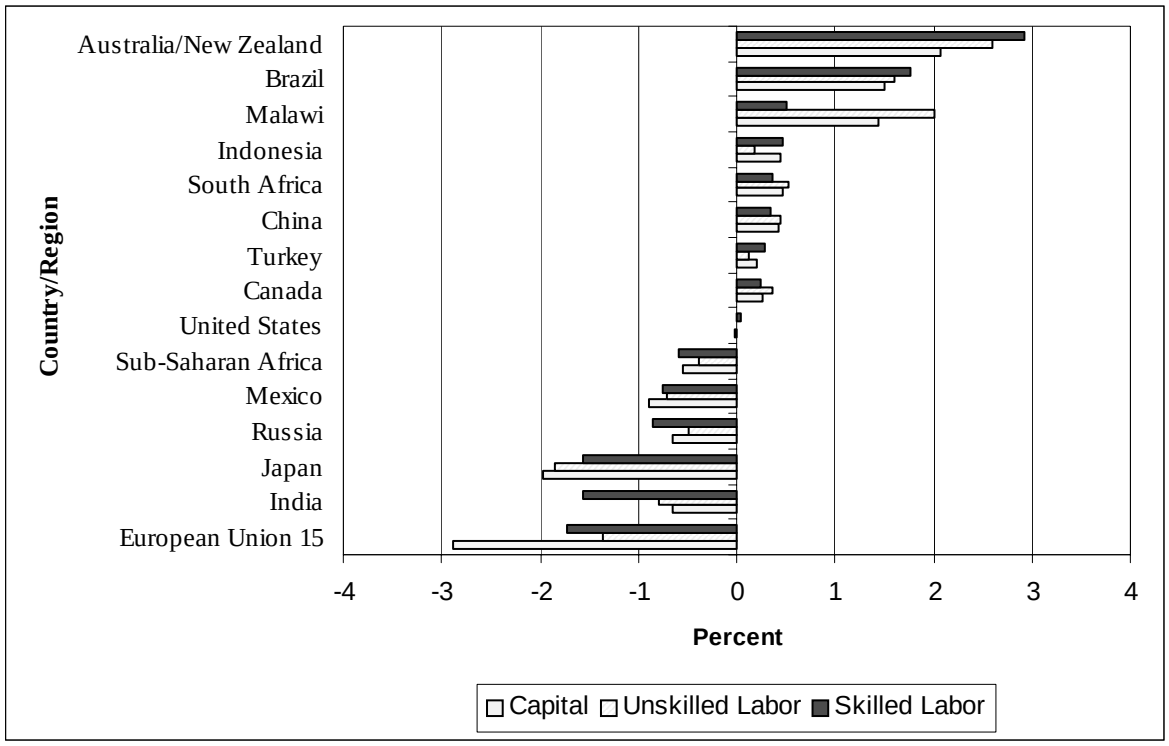
38. It may be interesting to note that the region experiencing the greatest simulated *increase* in relative returns to agriculture - Australia/New Zealand and the region experiencing the greatest simulated *decrease* in such returns - EU are both in the OECD. Among non-OECD countries Brazil and Malawi also see unit returns to labour and capital employed in agriculture rising to a significantly more than the corresponding rise in returns to labour and capital employed in non-agriculture. The reverse is true for India and, to a lesser degree, Russia.

39. Figure 4 contains estimates of factor quantity impacts reflecting the unit return results shown in Figure 3. The numbers in this and other figures refer to the percent changes relative to base values. The most interesting results are those measuring employment impacts – especially those indicating employment shifts out of agriculture. None of these negative impacts exceed 2% and on average for the countries shown is around 1%. Generally, skilled labour is more negatively affected than unskilled labour reflecting the relative importance of those two categories in agricultural employment for the countries shown.

40. We can obtain additional insight into the magnitude of some of these impacts by referring back to the data on employment levels shown in Table 1. First, and most obviously, note that while the percent changes in Figure 4 are mostly all less than 2%, the number of people this represents will be much greater in those developing countries where agricultural employment is high than in the developed countries in the list.

41. Consider, as a concrete example, results for the US and Mexico. Migration of labour from rural areas in Mexico to the US during the 1990's was at its highest of any decade of the past century. In a recent paper Philip Martin documents this trend and finds its cause in the rapid increase during the 90's of the gap in wage rates for unskilled workers in the US as compared to Mexico.

Figure 4 Simulated impacts on employment and capital used in agriculture



42. All other things the same, the approximately 1% simulated decline in unit returns to labour employed in agriculture in Mexico shown in Figure 3 could further increase such earnings gaps, adding to migration incentives. Note however that the simulated change in unit returns to labour in the US, whether in agriculture or not is near zero while *relative* returns to labour employed in non-agriculture in Mexico rise nearly 1% (the reflection of the 1% fall in unit returns to labour in agriculture). This suggests that the greater 'pull' on Mexican workers would perhaps be from agriculture to non-agricultural employment in Mexico itself.

43. The results in Figure 4 can now be used to assess the quantity implications of these simulated wage impacts. The simulated decrease in Mexican agricultural employment shown there is -0.8% or, using the data in Table 1, about 54,000 persons. The trend rate of decline in agricultural employment in the last ten years has been about -2.0% or 120,000 persons per year. Note however that the latter is an 'annual' rate of decline whereas the simulated impact due to trade liberalisation is a 'once-off' impact that itself could be spread over several years.

44. Similar analysis applied to the other countries leads to the same qualitative conclusion – the employment impacts of further trade reform do not appear large when compared to year to year trend changes in agricultural employment. While this may help to put the adjustment problem in perspective it does not deny the fact that some agricultural workers in some countries would be displaced and could suffer income losses.

Summary and policy implications

45. The purpose of the analysis reported in this paper was to examine the agricultural adjustment implications of further trade and agricultural policy reform. Results suggest that among the OECD countries studied, the most acute adjustment pressures would be those associated with reductions in farm asset values – especially land values. Contributing significantly to this result is the fact that some of the support measures being reduced are targeted directly to land. Typically, such payments are designed to minimize their impact on plantings and production, thereby maximizing their impact on land prices and rental rates. Accordingly, reducing them may not induce much of an increase in world commodity prices or farm incomes of other countries.

46. Among the developing countries further trade reform may add to ongoing 'downsizing' of the agricultural sectors in some of them, *e.g.* India, but may offset some of that pressure in others, *e.g.* Brazil. However, pressures for employment adjustment in the sector created by trade liberalisation may not add greatly to those associated with ongoing processes of economic development and growth. Undoubtedly, however some people currently working in agriculture in some of the affected countries will experience a reduced demand for their services.

1.2 MEXICO-US ADVOCADO TRADE

Background and historical context

47. Mexico is the world's largest producer and consumer and exporter of avocadoes (Graph 1).[1] From 1914 until 1997 the United States imposed a phytosanitary ban on all fresh Mexican avocado imports to protect Californian orchards from the avocado seed weevil found in some Mexican orchards. That ban was lifted beginning in 1997 and access has been gradually expanded since. Today, there are over one thousand Mexican avocado growers exporting to the US. This study presents a case of *adjustment to opportunity*—the process of overcoming technical trade barriers, which results in regional economic development.

Nature of policy reforms and industry response

48. Mexico's avocado industry is heavily concentrated in the state of Michoacán which accounts for over 40 percent of the world commercial avocado supply. Beginning in 1990, Michoacán's avocado sector underwent a substantial, largely self-initiated, institutional and economic transformation by overcoming obstacles, which had blocked export access to the US market. These changes include the creation of an SPS regulatory regime, which grafted American standards and technical know-how onto Mexican organizational structures, and the development of an equitable export market structure, which has increased the export-participation of small growers, while maintaining price stability.

49. Today's bi-national, collaborative regulatory framework commenced in 1990 with talks between the USDA's Animal Plant Health Inspection Service (APHIS), Mexico's Ministry of Agriculture and local phytosanitary control boards (JLSVs).[2] The Mexican government replicated APHIS' SPS standards. JLSVs, organized and operated at municipal level, implemented and managed all SPS campaigns, certifying orchards as pest free. APHIS inspectors oversaw the operations of local SPS campaigns and gained confidence in the ability of Mexican growers to meet strict SPS standards. In 1997 this institutional upgrade bore fruit. APHIS certified orchards in four municipalities as pest free. They were given a limited winter export season to 19 north-eastern American states, thus minimizing the infestation risk posed to Californian growers.

50. The policy of locally organized JLSVs complying with outside regulations initiated a virtuous cycle. Higher revenues to be earned from premium export prices increased the attractiveness of export certification and pest controls.[3] The export-certified area increased from 1,499 hectares in 4 municipalities in the first 1997-98 exporting season to 21,597 hectares in 9 municipalities 7 years later (Graph 2). Over this same period, exports increased from 50,000 MT in 1997 to 94,000 MT in 2003. Meanwhile, both the approved export area and the season were expanded.

51. The JLSVs and their producer members helped form export market regulation. As a condition for permitting Mexican avocado imports, APHIS required "growers, packers and exporters" to form an association that would be APHIS' liaison with JLSVs and pay all expenses incurred by APHIS.[4] As a result, the Association of Producers and Exporting Packinghouses of Avocado of Michoacán (APEAM) formed—an important organizational force in a previously fragmented and highly competitive avocado sector that balanced the interests of growers and exporters.

52. The first export season was characterized by high prices that benefited relatively few exporting growers. During the second season, however, the rush to export avocados led to excess supply and the price collapsed.[5] In response, producers used their influence in APEAM to limit US-bound exports to two tons per HA and to establish demand-linked controls limiting how many shipments could be exported weekly.[6] These agreements have stabilized export prices and allowed smaller producers to enter the export market even as the number of exporting producers increased.[7]

Structural adjustment

53. In the 1997-98 season 59 export-approved producers having a mean orchard size of 25 hectares dominated exports to the US. By the 2003-04 season, the number of export-approved producers had increased to 1,490 with a mean orchard size of 11 hectares (Graph 3). The proportion of small and medium-scale producers with 10 hectares or less has increased from 30% of producers participating in the export programme in 1998-99, when smaller producers first began to participate, to 49% in the 2003-04 season (Graph 4).

54. Export quantities and average market prices have all grown as well. Exports to the US increased from 50,000 metric tons in 1997 to 94,000 in 2003. Since 1997, avocado prices have increased faster than the Mexican Consumer Price Index, and a fruit and vegetable index (Graph 5). Although, since 1997, export prices have decreased, they are still higher than national market prices. Producers who export a portion of their crop and earn export rents are clearly better off than those who do not, but even domestic-market producers have seen welfare improvements as a result of higher domestic prices (Graph 6).

55. Although some Mexican consumers may have been negatively affected by higher prices, they are partially compensated by improvements in avocado quality. APHIS' export regulations, the introduction of superior technology, and better post-harvest management techniques have positively affected overall product quality for export and national consumption. Only a fraction of the production in exporting orchards is exported to the US, (a maximum of 2MT per hectare with an average production averages over 10), with some the remaining fruit being exported elsewhere in the world but most commercialized domestically.

56. Positive spillover effects include technology transfer and innovation. Technology transfer occurred through disseminating production techniques to low-income and small-scale producers[8] and foreign direct investment in American-owned packinghouses, which have introduced superior post-harvest handling techniques and better packaging equipment. The dynamics of change have spurred innovation and specialization throughout the avocado value chain, including the harvesting process, and the industrialization of the fruit to provide higher-value products ranging from processed guacamole to cooking oil and beauty products.[9]

57. Overall, while producers have adjusted propitiously to their opportunity, some negative externalities and institutional deficiencies still hamper the industry. Mexican packinghouses face difficulty competing in the export market against American-owned packinghouses established in Mexico. American firms dominate the US export market thanks to strong linkages with American distribution channels and cheaper capital.[10]

58. Due to fiscal constraints, municipalities cannot directly benefit from the wealth generated by avocados; thus, losing opportunities to enhance development through needed government services. Inadequate credit facilities prevent small producers from upgrading their orchards for export certification and packinghouses from improving their technology and processes. Lastly, the environmental sustainability of pesticide usage and deforestation from the use of wooden packing crates and cutting down established forest in order to plant avocado orchards are causes for concern.[11]

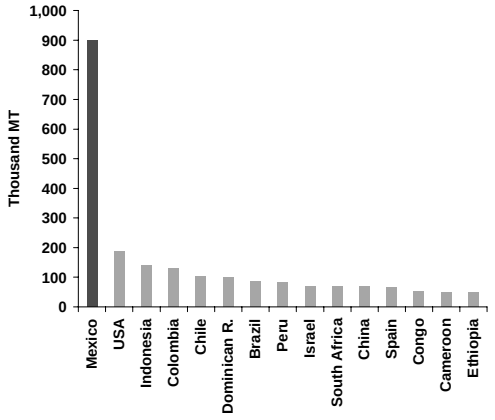
Policy lessons and implications

59. Cooperation between the US and Mexico's national regulatory agencies to form a collaborative cross-border SPS regulatory agency is a policy innovation that should be emulated elsewhere. Mexico's accession into NAFTA did not eliminate SPS barriers against its avocados; however, it provided a context for resolving the matter. In order to promote development, developed countries with strict SPS standards could actively collaborate with developing-country trade partners, helping them to develop stronger regulatory institutions. In this way, SPS standards can catalyze economic development rather than impede it. Likewise, developing countries could recognize that rigorous SPS standards are a desirable goal and that the process of attaining them is an opportunity to upgrade their own institutions and foment their capacity to be robust long-term trade partners.

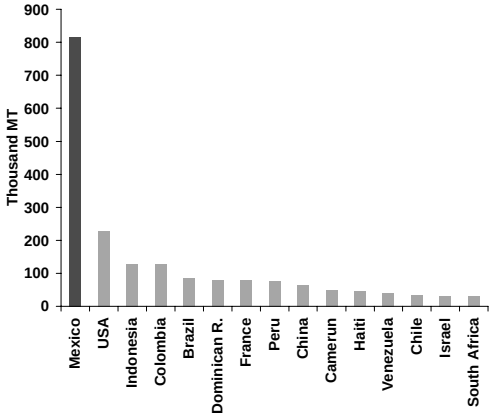
60. Collaboration and organization among the different actors in an economic sector, even among competitors, to access developed-country markets should be encouraged. In this context, non-orthodox policies, such as APEAM's quota and market regulations, can be employed as a means to the ease the transition after trade liberalization by allowing both small and large producers to enter the market. Properly managed trade liberalization has the potential to promote economic development.

Graph 1

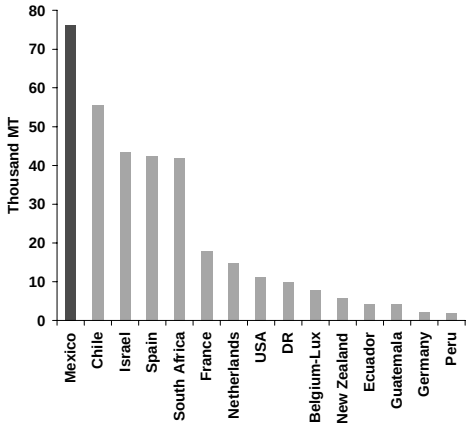
Largest Avocado Producers (1998-2002)



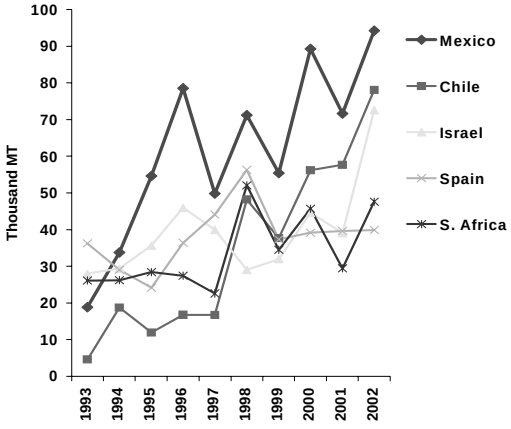
Largest Avocado Consumers (1998-2000)



Largest Avocado Exporters (1998-2002)

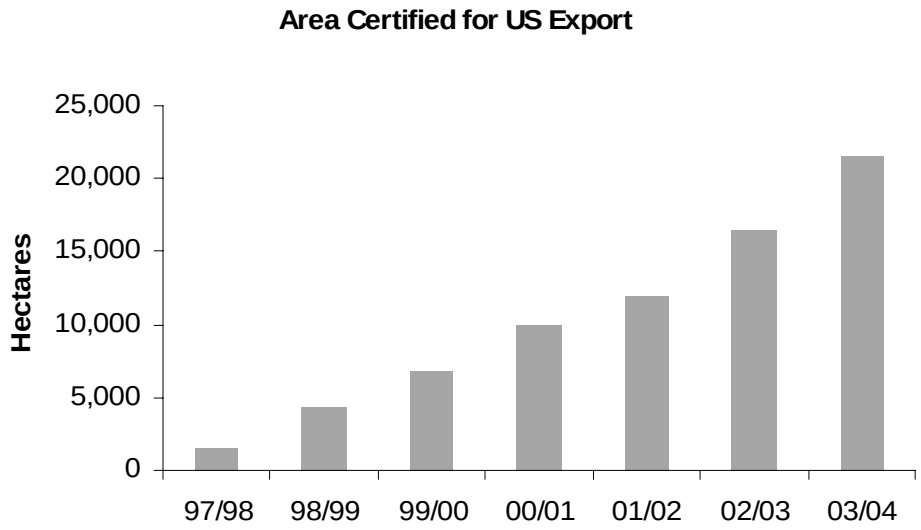


Main Avocado Exporters (1998-2002)



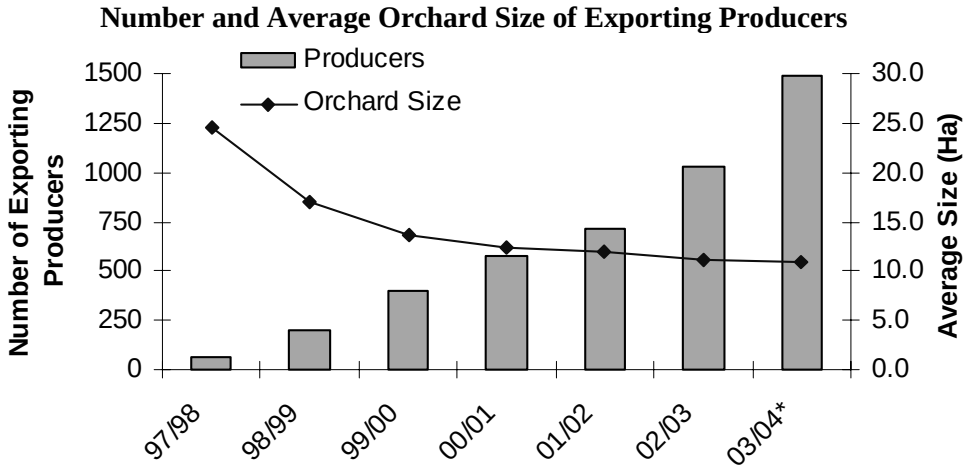
Source: FAOSTAT

Graph 2



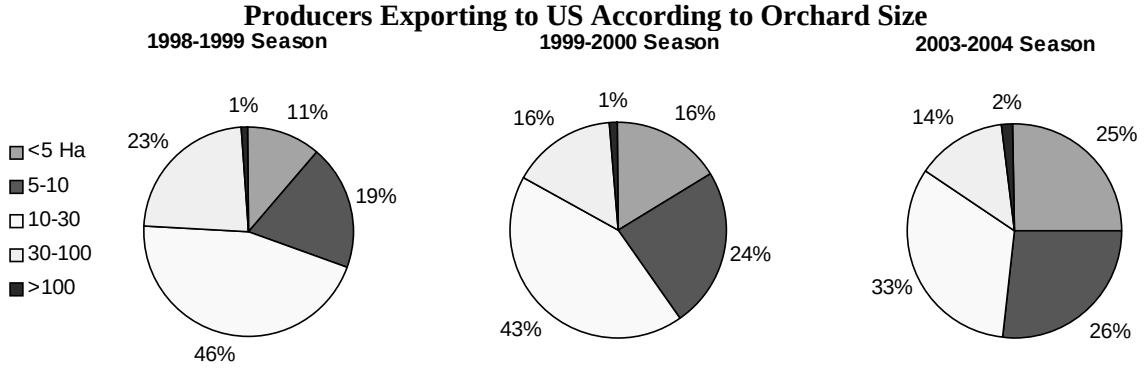
Source: SAGARPA

Graph 3



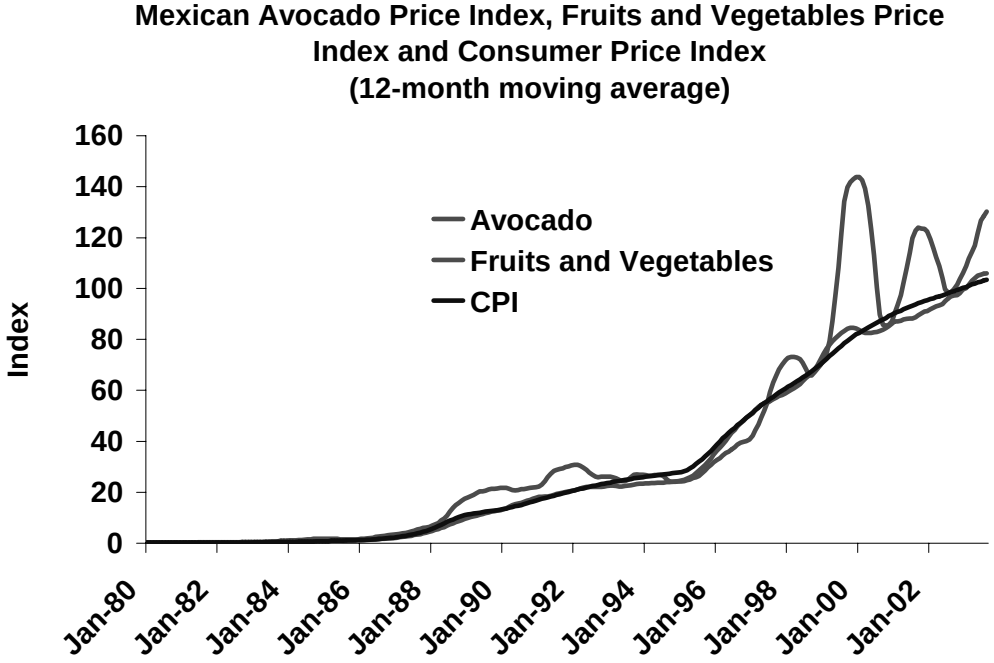
Source: SAGARPA

Graph 4



* Estimate
Source: Authors' calculations, APEAM and SAGARPA data

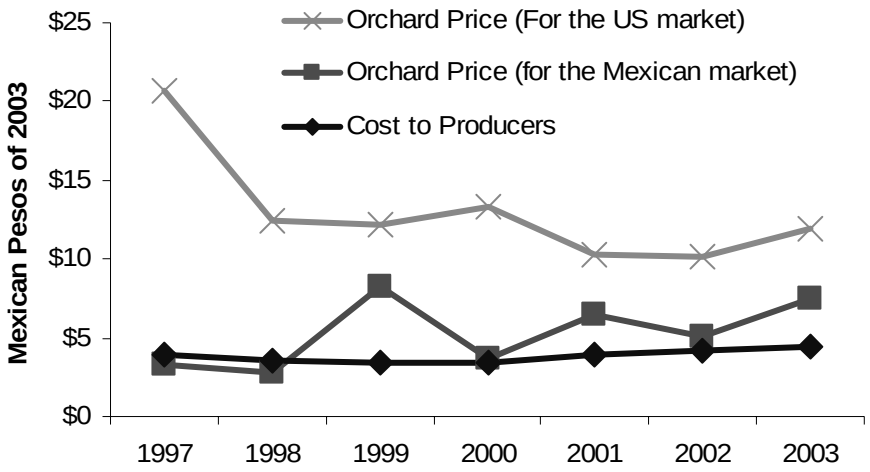
Graph 5



Source: Banco de Mexico

Graph 6

Real Export and Mexican Price to Producers with relationship to cost to the average producer



Source: Authors with data provided by APEAM, AALPAUM and UPEFU-UDECAM

[1] Vega, Ricardo. Integración de la cadena de valor de la empresa Comercial Aguacatera, S.A. de C. V., para la producción y comercialización de aguacate variedad hass. Thesis ITESM Campus Toluca, 2003.

[2] García Guzmán, Miguel Ángel. "Exportación de Aguacate hacia Estados Unidos." El Aguacatero. November 1997.

[3] SAGAR Cumplimiento del Plan de Trabajo de la Exportacion de Aguacate Hass de Mexico a los Estados Unidos de Norteamerica 1997-1998. Delegacion Estatal de la SAGAR en Michoacán,1998.

[4] Federal Register, S319.56-2ff, p. 341. APHIS. "Work Plan for the Exportation of the Hass Avocado from Mexico to the United States of America." Jan. 30, 2003.

[5] Salgado Bedolla, Ricardo. APEAM, Manager. Personal interview. January 14, 2004.

[6] Méndez Sánchez, Jesus. Personal interview. January 15, 2004.

[7] Under its APHIS mandate, APEAM can not refuse export certification to qualifying growers, but can require growers and packinghouses to respect market stability and deny with those who do not respect APEAM's regulations their export privileges, as a consequence.

[8] Flores Estrada, Martha Xochitl. Fundación Produce, President. Personal interview. January 13, 2004.

[9] Arceo García, Francisco. AVOLEO S.A. de C.V. General Director. Personal interview. January 12, 2004.

[10] López Ceja, Efraín. Fresh Directions Mexicana S.A. de C.V., CFO. Personal interview. January, 16 2004.

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1.3 AUSTRALIAN DAIRY INDUSTRY

Introduction

61. Australian dairy policy has had a long history of price support from various assistance measures. The industry benefited from import protection and support policies that allowed producers to earn higher returns on sales to the domestic market. The industry's development has been shaped by the policy arrangements and the effect of changes in global market conditions on market returns.

62. In July 2000 a major policy reform was introduced with the over-night elimination of all dairy price support mechanisms. The reform involved an immediate, substantial reduction in support for many dairy farmers. Industry adjustment pressures increased considerably. Australia became one of the few dairy-producing countries to fully link producer returns to world market prices.

63. Dairy deregulation was an unusual experience in policy reform and industry adjustment. Policy reforms in Australia have generally been phased-in and farmers have shown they can adjust to the new market environment. The decision to end of all dairy price support measures over-night was announced 9 months before it was implemented, and producers had to consider their situation in a relatively short time period. However, assistance measures provided by the government sought to provide for an orderly adjustment process by ensuring 32 consecutive quarters of adjustment assistance.

Background to dairy policy reform

64. A national market for fluid milk did not exist in Australia before the industry was deregulated. Government regulations created an artificial market separation between fluid milk sales and milk used for dairy products. State Governments had created six separate markets for fluid milk. The Commonwealth maintained a price support scheme for manufacturing milk.

The policy environment

65. In the fluid milk sector producer prices were regulated by State Marketing Authorities. There was no commonality in prices between the States. Prices were about double the price paid for identical milk used for manufacturing purposes. Some States used production quotas to ration access to the fluid milk market. Other States had pooling arrangements where farmers received a price premium for a fixed proportion of their annual milk output.

66. In the manufacturing milk sector producer prices were supported by policy measures that required domestic consumers to pay higher prices for dairy products. It raised the price of manufacturing milk above export parity. In the mid 1980's policy reforms designed to encourage manufacturers to focus on export markets for sales growth.

67. Trade considerations were the driving force behind the initial policy reforms. The pooling of export returns was abolished. Manufacturers charged higher prices on the domestic market but the level of support was limited to the landed price of imports. The reforms required support to be phased down from around 40% of average export prices to 10% by 2000.

68. Most dairy producers gained some assistance from both sets of policy arrangements. In lead up to deregulation market price support for manufacturing milk declined due to strong growth in manufacturing milk production. The fluid milk pricing controls continued to provide substantial levels of assistance. The nominal rate of assistance was in the order of 20-25% (Table 1). This reflects the average rate of market price support across all States.

1. Pre-deregulation price support for the Australian dairy industry #

	Manufacturing milk price *	***Fluid milk price *****	***Average milk price ******		***Market support rate: Maximum ^***	***Adjusted ^***
Year ending 30 June	*Ac/litre*	*Ac/litre*	*Ac/litre*	*% change*	*%*	*%*
1995-96	28.0	45.0	31.7	..	*22.9*	*17.8*
1996-97	26.0	45.9	30.2	*-4.7*	*26.8*	*21.6*
1997-98	24.8	46.2	29.1	*-3.7*	*26.2*	*21.3*
1998-99	25.0	45.5	28.9	*-0.9*	*23.4*	*18.9*
1999-00	22.1	45.5	26.3	*-9.0*	*24.2*	*19.9*
5 year average	25.2	45.6	29.2	..	*24.7*	*19.9*

 # Indicative average prices paid at factory door. *Source: Dairy Australia.*

** State weighted average price based on manufacturing milk production - includes market support (DMS) payments.*

*** State weighted average price based on fluid milk sales - net of levy payment (1.9 Ac/litre) for DMS Scheme.*

**** Weighted average price based on manufacturing milk production and fluid milk sales.*

^ Estimate of weighted average nominal rate of assistance at factory door.
Maximum rate assumes no commercial price premium for fluid milk on factory price of manufacturing milk.
Adjusted rate assumes a 20% commercial price premium for fluid milk on factory price of manufacturing milk.

69. The rate of market support varied considerably between each State. This is because the regulated prices for fluid milk were set at different levels in each State. In 1999-00 Queensland had the highest rate of assistance – 53 to 67%. It reflects a stronger focus on fluid milk production relative to the other States. Industry assistance was lowest in Victoria (9-11%) because fluid milk sales accounted for about 6% of Victoria's milk production at the time of deregulation.

Structural change in the dairy industry

70. In the lead up to deregulation the industry faced continual adjustment pressures from changes in world market prices. Policy reform also contributed to the adjustment pressures. The effects were strongest in south-eastern Australia where producers focused on manufacturing milk production. In Victoria around 3,500 farms left the industry between 1984-85 and 1999-00.

71. Despite the substantial fall in farm numbers there was strong growth in milk supplies. Production increased by about 80% to 10.8 billion litres. The growth in milk supplies was almost entirely used for manufactured dairy products. By 1999-00 fluid milk sales were less than 18% of total output. In Victoria the fluid milk market share had declined to less than 7% while in Queensland it remained largely unchanged at 45%.

72. The growth was strongest in the export sector with Victorian production almost doubling to 6.9 billion litres during this period. The industry expansion was driven by strong growth in export sales of butter, cheese and milk powders. By 1999-00 exports of these products had reached 700 kt an increase of almost 150 per cent on export sales in 1984-85.

73. Milk output per farm is an indicator of farm level adjustment. Between 1984-85 and 1999-00 average milk output per farm increased by 170%. The gains partially came from herd expansion. Over the same period the average herd size increased by 80%. There were also substantial gains in livestock performance. In 1984-85 milk yields averaged around 3,340 litres per cow. By 1999-00 yields were almost 5,000 litres per cow.

2. Effect of pre-deregulation policy reform on market returns #

	*Regulated price of fluid milk **	*Manufacturing milk price: Market effect*	*Net effect ***	*Average milk price: Market effect ^*	*Net effect ^^*
Year ending 30 June	*% change*	*% change*	*% change*	*% change*	*% change*
1996-97	*2.0*	*-7.5*	*-7.1*	*-4.8*	*-4.7*
1997-98	*0.5*	*-3.3*	*-4.8*	*-2.8*	*-3.7*
1998-99	*-1.5*	*1.4*	*0.9*	*-0.8*	*-0.9*
1999-00	*0.1*	*-9.6*	*-11.6*	*-7.6*	*-9.0*
Average effect	*0.3*	*-4.8*	*-5.7*	*-4.0*	*-4.6*

 # Indicative average prices paid at factory door. *Source: Dairy Australia.*

State weighted average prices based on manufacturing milk production and fluid milk sales.

** Average price before deducting levy payment (1.9 Ac/litre) for DMS Scheme.*

*** Average price after adjusting for market support (DMS) payments.*

^ Average price before deducting fluid milk levy payment - excludes DMS payments for manufacturing milk.

^^ Average price after adjusting for levy deduction and market support (DMS) payments.

74. The effect of market forces on manufacturing milk prices was an average annual price reduction of around 5% for the four years (1996-00) (Table 2). The policy reforms had an additional negative impact of around 1%. In the year before deregulation, manufacturing milk prices declined by almost 12% after adjusting for the reduction in the support payments for manufacturing milk.

75. The effect of reduced assistance for manufacturing milk on average milk returns was diluted by continued market support for fluid milk prices. In 1999-00 the effect of market forces was a 7.6% fall in the average milk price. After adjusting for levy deductions and reduced support payments the net effect was a fall of 9%.

76. The structural change and on-farm adjustments in the lead-up to deregulation were largely caused by market forces. The industry response to the fluctuations in returns demonstrates the capacity of producers to adjust.

Dairy industry deregulation

77. By the late 1990's there were pressures for further policy reform. Legislation for manufacturing milk price support (the Domestic Market Support (DMS) scheme) was due to terminate in June 2000. The industry was heavily dependant on export sales and the growth in manufacturing milk supplies had diluted the value of the support payments. Revenue raised by the industry levies was being spread over larger supplies of manufacturing milk.

78. In the late 1990's all dairy support policies were subjected to a National Competition Policy (NCP) review. This was a key trigger for dairy deregulation. In mid 1999 the Victorian NCP review found there was no public benefit from fluid milk price controls and the State Government announced the

regulations would terminate on 1 July 2000. The industry, which had felt constrained by existing regulatory arrangements, became concerned that differing state-to-state arrangements may eventuate and therefore approached the Federal Government and pushed for industry-wide deregulation.

79. In September 1999 the Government announced the DMS scheme would terminate and an A$1.78 billion restructuring package would be implemented. The package included the *Dairy Structural Adjustment Programme* (DSAP) which was designed to provide transitional assistance to manage the initial impact on farm incomes.

DSAP - adjustment assistance for dairy producers

80. The restructuring package was announced in advance of the date for deregulation. This was to ensure adjustment assistance was available as soon as possible after the removal of the support measures. The DSAP component of the package was developed in early 1999. It was based on estimates of the value of the support measures in 1998-99. The objective was to provide a restructuring grant for all producers affected by deregulation.

81. The restructuring grants had two payment components of 46.23 Ac/litre for fluid milk and around 8.96 Ac/litre for manufacturing milk. This ensured DSAP assistance was targeted according to the loss of support under each policy arrangement. The size of the grant for each producer reflected the level of assistance they had previously obtained from the two sets of regulations.

82. DSAP accounted for A$1.63 billion of the package funding. It was broadly equivalent to the estimated loss of income from three years of regulated market returns. DSAP grants were considerably higher in States where fluid milk sales were a high proportion of total output. On a per farm basis the grants were worth AUD 196,000 in NSW compared with AUD 97,000 in Victoria.

83. DSAP entitlements were calculated on a farm enterprise basis and were fully decoupled. The grants were based on historical milk production for the 1998-99 season. This ensured the level of assistance was fixed. Anyone with an economic interest in a dairy farm enterprise on the 28 September 1999 was eligible to apply. DSAP entitlements were divided into 32 quarterly instalments and a fixed payment right was issued for an 8 year period commencing in 2000-01.

Supplementary adjustment assistance

84. In late 2000 the Government was concerned about the extent of the decline in fluid milk prices. In May 2001 the *Supplementary Dairy Assistance* (SDA) package was announced. It included A$100 million in supplementary payments for producers that were heavily dependant on fluid milk sales. Producers with an existing DSAP entitlement and had an economic interest in a dairy enterprise on the 21st of May 2001 could apply for an SDA supplementary payment.

85. Producers could take a lump-sum or 32 quarterly instalments over the same 8 year period that applied for DSAP payments. The assessment criteria effectively excluded producers focused on manufacturing milk. They were mostly distributed to producers of fluid milk in Queensland and NSW. On a per farm basis SDA payments were worth about AUD 23,000. The extra payments increased assistance for the fluid milk sector to AUD 995 million.

86. The total cost of Government assistance was about AUD 2 billion with AUD 1.75 billion in direct assistance. The packages are funded by a *Dairy Adjustment Levy* imposed on domestic sales of drinking milk. The consumer tax of 11 Ac/litre will terminate when the cost of both packages are fully covered. Final programme payments will be made in June 2008 but it is expected the levy will remain in place until June 2010.

Industry adjustment to deregulation

87. The effect on manufacturing milk prices was cushioned by a strong rise in export returns. In 2000-01 world prices for skim milk powder increased by 70% in Australian dollar terms. Whole milk powder prices rose by 53% and cheddar prices increased by almost 30%. The improved export returns caused Victorian producer price to rise by 33% in the first year of deregulation.

88. There was a further rise in manufacturing milk prices in 2001-02 due to a substantial devaluation of the Australian dollar. Two years of strong export returns off-set the loss of assistance from terminating the DMS scheme. The unexpected rise in manufacturing milk returns was a complete contrast to market conditions in the lead up to deregulation:

- in 1999-00 manufacturing milk prices declined by 10% and many producers in the export sector were under significant financial pressure;
- the adjustment assistance package was developed in this market environment.

89. These price rises were unusually strong and in 2002-03 export returns declined in line with changes in global market conditions. In Australian dollar terms cheese and milk powder prices fell by 25-30%. The average price received for milk in Victoria declined by about 25%.

90. There was a substantial fall in fluid milk prices. In 2000-01 average milk prices fell by 12% in NSW and 17% in Queensland. There is a stronger focus on fluid milk sales in these States. As manufacturing milk returns increased by about 30% this suggests the initial fall in fluid milk prices was around 35-40%. Milk prices recovered in 2001-02. Manufacturing milk returns were about 10% higher which suggests fluid milk prices may have increased by 10-15%.

91. The changes in producer prices for fluid milk are broadly consistent with the changes in retail milk prices. In 2000-01 the average price of a litre of milk declined by 16% for supermarket sales of generic house brands. This price fall occurred despite the introduction of the 11 Ac/litre *Dairy Adjustment Levy*.

Structural change since deregulation

92. Deregulation accelerated the industry adjustment process that had been evident for some time. After three years 2,234 farms had left the industry, a decline of 17%. Initially farm retirements were limited in Victoria but the adjustment accelerated in the second year. The increased exits occurred despite good seasonal conditions and strong export returns. Improved farm asset values may have encouraged some older farmers to retire rather than initiate new farm developments.

93. Adjustment pressures were stronger for producers focused on fluid milk sales. In NSW almost 20% of the State's dairy farms left the industry in the first year of deregulation. In Queensland 15% of farms retired from the industry. By 2002-03 most of the adjustment to deregulation had occurred. Retirement rates returned to levels that were typical of the pre-deregulation period.

94. In 2000-01 milk production declined by 3%. This was the first reduction in output since 1989-90. Although farm retirements played a role in the decline but poor seasonal conditions were a major contributing factor. Milk production fell 1% in Victoria, 10% in Queensland and 5% in NSW.

95. Production recovered in 2001-02 with supplies rising by 7%. The growth in output was driven by developments in the export sector with milk supplies rising by 9% in Victoria. Improved seasonal conditions and higher export returns encouraged farmers to use more supplementary feed. The effects of

deregulation were still evident in the fluid milk sector. Milk production declined marginally in Queensland but rose slightly in NSW.

96. In 2002-03 farm retirement rates returned to pre-deregulation levels. Production declined by 8% but this reflected the severe drought conditions that affected all dairying regions. Victorian production fell 11%. The structural changes in response to deregulation largely happened over a two year period. Changes in the physical performance of the industry in 2002-03 were not an adjustment response to deregulation.

97. Australian exports of the major dairy products declined by 6% in 2000-01. Some of the decline can be attributed to the effects of deregulation. Poor seasonal conditions in Victoria also contributed to the reduction in manufacturing milk supplies. Exports recovered in the following year in line with the strong growth in Victorian milk supplies.

98. Australia is the third largest export supplier on the world market with a trade share of around 17% (milk equivalents). The strong rise in world prices in 2000-01 was mostly caused by reduced EU export subsidies for milk powders. Reduced export supplies from Australia would have had very little effect on world product prices. However, the 14% decline in SMP exports may have contributed marginally to the strengthening in international spot prices.

99. Changes in milk output per farm reflect the net effect of farm level adjustments to deregulation. There was an immediate response to deregulation. Milk output per farm increased by 6% in the first year and almost 14% in 2001-02. The change was especially evident in the fluid milk sectors. After two years of deregulation farm output had increased by 26% in NSW and 18% in Queensland.

100. The growth in average farm output was primarily driven by expansions in the scale of the farm enterprise. After two years of deregulation the average herd size was 192 head, up 14%. Average milk yields declined in the first year of deregulation by around 3%. This reflected mainly the poor seasonal conditions in 2000-01. In the second year milk yields increased substantially but there were large differences between the States.

Conclusions

101. The industry has adjusted rapidly to the effects of deregulation and the adjustment assistance has helped producers make the transition. The adjustment response of most interest is the reaction of producers who were focused on fluid milk sales. Some have retired from the industry. Those who remained in the industry experienced a substantial drop in average returns. These producers have made adjustments to their farming operations to off-set the decline in farm income.

102. In general producers reacted by increasing farm output. Farmers have expanded their milking herds and in some cases increased land areas. Changes in secondary input use have improved the productive performance of the primary inputs. Carrying capacity has increased through greater use of improved pastures, fertilizer and water inputs. Pasture management has improved and livestock productivity (milk yields) gains have come from more supplementary feeding. Herd genetics has also played an important contribution to higher productivity. Genetic evaluation of dairy cattle is conducted by the Australian Dairy Herd Improvement Services (ADHIS).

1.4 CHILE – THE AGRO-FOOD SECTOR

Introduction

103. Chile, the sixth largest country in terms of both GDP and population in Latin America, is one of the most open economies in the region with a volume of trade to GDP ratio above 50% and the highest share of FDI to GDP in the 1990s. The country has experienced the highest per capita income growth in the region since the mid-1980s (OECD, 2003c).[12] Chile is considered a showcase of a country that has successfully followed an outward-oriented development path (Agosin, 2002; Ffrench-Davis, 2002). The neo-liberal economic policies initiated by the Pinochet regime from 1973 led to a switch in the policy stance from import substitution to export orientation and posed the basis for a major transformation of the economy. Chile has managed to exploit to the fullest extent its natural resource endowment to achieve vertical and horizontal diversification. Besides the copper cluster, which has also spurred a rise in engineering and consultancy services, the agro-food sector has played an important role in this transformation, with success stories such as fresh fruits, wine, and salmon (Fisher, 2001). This case study takes the agricultural and food industry as a starting point for a review of the Chilean experience.

Economic and social developments

104. The structure of the Chilean economy has changed dramatically since 1973. Economy-wide reforms curbed state intervention, deregulated input and output markets, opened the country to international trade and fundamentally altered the incentive structure in favour of the tradable sector. A large part of the import-competing traditional manufacturing sector (*e.g.* textiles and machine tools) declined. New natural resource-based, export-oriented industries, mainly agricultural products, became an engine of growth. Between 1973 and 2000, the share of exports to GDP grew more than 2.5 times (from 14% to 36%), and the export basket was significantly diversified. Copper now represents less than 30% of exports, while vegetables and fruits, fish, forestry products and wine are among the most important export items (see Statistical Annex). Export markets have also been significantly diversified.

105. By 1970, Chile had attained one of the highest levels of social development in Latin America (French-Davies, 2002). While life expectancy, infant mortality, and literacy continued to improve, unemployment and income inequality worsened considerably during the military regime.[13] The governments in place since 1990 made systematic efforts to strengthen macroeconomic stability while widening access to the benefits of growth to improve the social situation. These efforts have resulted in reductions in poverty and unemployment, but have only marginally reduced inequality.[14]

Agro-food industry developments

Industry performance, structure and impact on the economy

106. Once a stagnant sector, the Chilean agro-food industry has become dynamic and diversified, accounting for around 11% of GDP and 43% of total exports.[15] It is estimated that approximately 14% of the labour force is employed in agricultural and fishery activities. Thanks to its backward (supply of inputs, including pesticides and machinery) and forward linkages (food-processing, distribution, and the service industry, including hotels) the agro-food cluster has a high employment creation potential, which has contributed to spread the benefits of growth and reduce poverty. At the same time, the jobs created in the

expanding commercial agriculture, in particular the fruit sector, were often temporary and with lower wages, and attracted a growing number of women Thus, the result of the structural adjustment seems to have been a shift from permanent rural employment to feminised temporary jobs (Belfor, 2000; Lavelle, 2003).

107. Exports, which are mainly processed in nature, concentrate in three products – fresh fruit, wine and salmon – which make up half of agro-food exports (Brooks and Lucatelli, 2004). Chile has been able to take advantage of the fact that its exports are to a large extent off-seasonal, or counter-seasonal *vis-à-vis* the major export markets (French-Davis, 2002).

108. The early reforms in land and water rights, labour regulation, import and export marketing, combined with tight macroeconomic policies and strategic exchange rate devaluation, unleashed the potential in the agricultural sector. Value-added in agriculture grew at more than 4% per annum over 1973-90, a twenty-fold increase with respect to the dismal 0.2 rate of the 1960s (Valdes, 1993; Belfor, 2000).

109. The success of the agro-food industry also rests upon the active role played by a wide range of public institutions and private organisations that participate in policy making (thanks to consultative policy mechanisms), collect and disseminate market information, deliver technical assistance and take part in export promotion.[16] The Ministry of Agriculture co-ordinates an extensive network of public agencies related to the agro-food sector (ODEPA, 2003a; WTO, 2003c).

Fruits and vegetables

110. Chile exports both unprocessed and processed fruits and vegetables (canned, frozen, dehydrated and juices). Exports totalled USD 1.6 billion in 2002, equivalent to over 10% of total export earnings. The country is currently the leading world exporter of fresh grapes and the fifth largest exporter of apples.

111. The foundations of the industry can be traced back to the mid-1960s, but fruit exports took off only in 1975, after the reforms enforced by the new regime and the ensuing real exchange rate depreciation. Production doubled and export earnings increased by 19 % a year up to 1983, when the economy entered in deep recession. Since then export growth slowed to around 10 % a year until 1989, and 4.6% a year between 1990 and 2002. Technology upgrading was facilitated by agricultural research, which was compounded by availability of know-how, crops and technologies from abroad, notably from California. The transfer was facilitated by the Corporación de Fomento de la Producción (CORFO), which is the government agency responsible for developing national productivity.[17]

Wine

112. Chile's wine industry dates back to the mid-19th century, when wealthy landowners created wine estates on the model of the French Bordeaux châteaux, importing French noble vines and French oenologists. The country has huge vineyards that are free from disease and enjoys ideal climatic conditions. After a good start, the industry floundered during the import substitution era, stymied by government regulations and taxes (Fischer, 2001).

113. At the beginning of the 1980s, regulations were eased and foreign investors were attracted by Chile's favourable environment. Investors brought capital and new technologies to the sector, which were assimilated by an increasing number of local oenology students. The sector went through a period of adjustment, with small producers disappearing and the remaining larger wineries modernising and becoming export-oriented (Torrealba, 1999).[18] Substantial improvements in the quality of grapes and in methods of wine production, combined with increasing world demand for "new world wines" contributed to an impressive growth of exports. At the end of the 1980s, exports started to climb dramatically to reach USD 610 million in 2002, making Chile the world's fifth largest wine exporter with a 4.2% market share.[19]

Salmon

114. With USD 1.2 billion exported, Chile qualified as the world's top exporter of farmed salmon in 2003. This result is all the more remarkable when considering that Chilean salmon farming only began in 1979 and that salmon is not a species native to this country (Iizuka, 2004; Bjørndal, 2002).

115. What factors explain the impressive development of this industry? Though the Southern regions of the country present suitable environmental conditions, many essential factors for building competitiveness (domestic markets and knowledge) did not exist from the outset. The attempt to start farming on a commercial basis dates back to the mid-1960s, led mainly by government agencies, with support from international cooperation.[20] Dedicated government agencies were established and charged with strategy formulation and implementation, providing loans to local firms and supporting aquaculture development (Fischer, 2001; Iizuka, 2004).[21] Strong growth was accompanied in the 1990s by a phase of consolidation and market diversification. Government support to the industry decreased and became more indirect, reflecting the strengthening of producers and producers' organisations.[22] Salmon producing firms had to specialise and outsource non-core processes to reduce costs. Some of these subsidiary firms became independent after a few years.

Government policies

116. The rise of the export-oriented agro-food sector has been conditioned by the shift in economic policy, which have altered the incentive structure and created the conditions for the tradable sector to become competitive and develop. Agro-food exports were initially boosted by real depreciation in exchange rates, improved access to imported inputs and export promotion measures, including duty drawback and public support through the *Prochile* export promotion agency. Moreover, the liberal investment policy was instrumental in attracting FDI inflows, which helped to develop the sector.[23] The Chilean experience shows the importance of commitment to trade and macroeconomic reforms for a successful adjustment. Sectoral interventions were only effective thanks to the coherent changes in the overall policy stance (Valdes, 1993; see Boxes below). It also shows that adjustment (the supply-side response) may take longer than expected due to inertia and vested interests. On the one hand, initial conditions and inward-looking attitudes developed during the import-substitution era lingered on. On the other, reforms initially brought about a drastic reduction in subsidies, high interest rates and, later on, real exchange rate appreciation, which adversely affected the tradable (agriculture) sector. Imports surged leading to a large decline in the domestic production of manufactures and import competing agricultural crops. Restoring external competitiveness through nominal exchange rate devaluation and sound macroeconomic policies helped to withstand the mounting pressure for protection. At the same time, the fiscal reform mitigated the negative impact of a decline in international trade taxes, and the extension of credit lines to smaller farmers reduced the financial distress during the adjustment period (Valdes, 1993).

Challenges and opportunities

117. The main challenge facing the agro-food sector is to stay competitive in a market where technological advances and overall liberalisation are increasing competitive pressures and buyers are asking producers to comply with more stringent quality, health, labour and environmental standards.[24] Currency overvaluation can be a threat to competitiveness and FDI flows to the sector (Agroecónomico, 2004b). The government needs to resist pressures from protectionist lobbies to tamper with the country's liberal trade policy environment.

118. These challenges may be offset by the opportunities created by increased market access through bilateral free trade agreements and regional integration schemes. Thanks to these agreements, the majority of Chile's agro-food exports will enjoy duty-free access in major markets by 2010.[25] Moreover, the

government has designed, in partnership with the private sector, a long-term strategy for agriculture that aims at enhancing competitiveness, supporting the rural population and contributing to a sustainable use of resources (Gobierno de Chile, 2001).[26]

Conclusions

119. The liberalisation measures of the 1970s and 1980s initiated a major transformation of the economy from import substitution to successful export orientation. Besides the copper cluster, the fresh fruit and other food sectors have emerged as drivers of growth. Fresh fruit export growth has followed a decreasing trend over the years, but other food industries have emerged, such as processed food, wine and salmon. Overall, Chile seems to be in a rather favourable position to meet increasing competitive pressures and diversify its economy further. The biggest obstacle to development might well be the country's pervasive socio-economic inequalities.

Box 1. A Glance at Policy Reforms in Chile

Macroeconomic policy. During the first phase of reform, government was concerned with quickly redressing macroeconomic imbalances through tight monetary and fiscal policy, financial liberalisation and downsizing of the state intervention in the economy. Inflation was cut down. The initially very orthodox policies were later softened, following severe imbalances and a debt crisis in 1982, through nominal currency devaluations, restrictions on short-term capital inflows and the establishment of price stabilisation mechanisms. A key concern for policy makers has constantly been to avoid an appreciation of the exchange rate, caused by large inflows of short term capital.

Price and trade liberalisation. The military regime abolished public control over imports and exports and privatised public companies responsible for infrastructure and regulation in various markets. Trade and price reform was radical and fast. All international trade restrictions other than tariffs were removed immediately in 1973, while tariffs were reduced from an average of 94% to a uniform rate of 10% between 1973 and 1979. Price ceilings and public purchasing mechanisms were eliminated. After a temporary reversal in the context of the 1982-84 debt and banking crisis, tariffs were gradually reduced again to 15% by the end of military rule in 1989 and to 6% in 2003.[a] The 1990s saw a move from unilateral liberalisation to reciprocal trade agreements (Mercosur, 1996, EU, 2003, and the US, 2004). Negotiations are currently under way with India and China.

Investment policy. In 1974, the Chilean FDI regime was completely liberalised and foreign investments were allowed to play an important role in the development of the fresh fruit sector and agro-industry. In the 1990s, large flows of short-term speculative capital caused exchange rate and stock market volatility. As a consequence, the authorities put in place measures to discourage short-term flows such as a requirement for FDI to remain in Chile for at least a year and a reserve requirement of external credit.[b]

Infrastructure. At the time of the structural reforms in the early 1970s, Chile already had a physical infrastructure that facilitated the growth of exports. This included several large ports, a new international airport and a North-South highway built with foreign aid. The privatisation and deregulation of airlines and telecommunications, which improved quality of services and reduced costs, was particularly important for the fresh fruit industry's perishable exports.

Labour market. The structural adjustment initiated by the neo-liberal reforms of the military regime had a strong impact on the labour force. The reforms incorporated a range of measures which affected workers, including reduction of the minimum wage, easier dismissal of workers, and repression of labour unions.

Land and water right reform. Reverting the land redistribution programme initiated in 1967 based on expropriations and the establishment of cooperative farms, the military regime guaranteed by law land ownership and water rights. These measures secured property rights and created the preconditions for the development of agricultural enterprises more focused on productivity than extensive farming on large areas.

Innovation and technology. Until 1973, innovation was almost exclusively in the hands of the publicly funded *Instituto de Investigaciones Agropecuarias (INIA)*, which played an important role in dissemination of new technologies in basic crops. The liberal reforms greatly enhanced the role of the private sector in research and development with a focus on commercial agriculture. Despite the success in promoting more efficient research services, the reforms of the early 1970s would not have been possible without the investments in human capital made under the previous pre-reform agricultural research system.

Export promotion. *ProChile*, the trade promotion division of the Ministry for Foreign Affairs was created in 1974 to gather market information and promote Chilean products abroad. In the 1990s, the government encouraged private companies to form sector associations in order to promote their products economy-wide

a. In 1982-84 government introduced export incentives such as tax rebates and deferred payment on customs duty on imports as long as some protective measures for traditional agricultural products were reintroduced on wheat, sugar, and oil seeds.

b. Both requirements have been abolished in September 1998 and March 2000 respectively.

Table 1. Chile: Structure of the Economy

Average percentages

	1976-1984	*1985-1994*	*1995-2002*
Agriculture, value added (% of GDP)	7.4	9.1	8.7
Industry, value added (% of GDP)	37.9	38.8	34.7
Services, etc., value added (% of GDP)	54.8	52.1	56.6
Trade (% of GDP)	45.7	59.8	60.3
Exports of goods and services (% of GDP)	21.8	31.3	30.2
GDP growth (annual %)	3.9	7.4	4.7
Employment in agriculture (% of total employment)	16.0	19.1	14.5
Employment in industry (% of total employment)	20.8	24.7	25.0
Employment in services (% of total employment)	63.1	56.2	60.5

Source: World Development Indicators CD-ROM (2004).

Table 2. Chile: Export structure

Product name	***HS Code 2***	***1976-84***	***1985-94***	***1995-03***
Non-ferrous metals	68	40.90%	32.55%	27.55%
Metalliferous ores and metal scrap	28	22.21%	13.35%	14.13%
Vegetables and fruit	05	8.85%	15.12%	12.80%
Fish, crustaceans, molluscs, preparations thereof	03	2.96%	6.17%	8.66%
Pulp and waste paper	25	3.86%	4.47%	5.13%
Cork and wood	24	2.91%	5.43%	4.89%
Beverages	11	0.28%	0.87%	2.97%
Feeding stuff for animals, not incl. unmil. cereals	08	5.60%	5.14%	2.63%
Inorganic chemicals	52	0.96%	1.46%	1.81%
Paper, paperboard, artic. of paper, paper-pulp/board	64	0.96%	1.28%	1.78%

Source: UN COMTRADE Database, SITC Rev. 3.2. FISHERIES

[12] Between 1984 and 1997 GDP per capita increased at an annual pace of 5-6 per cent, which is more than double the long-term trend of around 2.4 per cent per year over the last 40 years (OECD, 2003c, p.29).

[13] Major recessions have contributed to dramatic increases in unemployment, which topped 24 per cent in 1982. Since then, the unemployment rate and mean duration have declined steadily to reach their historical levels in the 1990s (Edwards and Cox-Edwards, 2000).

[14] High growth, supported by targeted policies, led to a reduction in poverty from 45 to 21 per cent between 1987 and 2000. However, Chile still has one of the most uneven distributions of income among emerging market economies. The labour market is characterised by a dualistic structure, with a high share of informality and precarious contracts. Economic development is also split between the modern and dynamic metropolitan area of Santiago and several poor and relatively underdeveloped regions (OECD, 2003c).

[15] Average for 1998-2000 (Brooks and Lucatelli, 2004).

[16] These are the Chilean Fresh Fruit Association and the Fruit Growers Federation of Chile, which participate in the coordinating committee in the Ministry of Agriculture; the Asociación de Exportadores y Embotelladores (largest wine exporters), and the Asociación de Productores de Vinos Finos de Exportación (exporters of high quality wines); and the Asociación de la Industria del Salmón de Chile.

[17] Government favoured private investment in research and development. Private expenditure on agricultural research increased 19 times to about 13% of total spending on agricultural research between 1973 and 1990.

[18] Deregulation led to an initial increase in production, without a corresponding increase in demand, which caused a reduction in prices. The crisis spurred adjustment and upgrading. Yields were lowered and growers started to produce higher quality wines for export, initially targeting the regional market. Additional investment, mainly thanks to foreign capital, in modern technology and quality improvement of the vineyards, was needed to meet North American and European consumers' tastes.

[19] In 1984, only 2 per cent of the total production volume was exported, 7 percent in 1989, and in 63 percent 2002. This is the fastest growth recorded for New World wine producers during this period (Iizuka 2004).

[20] In the "experimental period" (1960s to 1973), donor agencies from Japan, USA and Canada lent financial and technical support to government agencies to survey areas and potentials for salmon farming. In the "learning period" (1974 to 1984) government agencies underwent structural change and local and foreign private initiatives for salmon and trout farming emerged. The "forming period" (1985 to 1989) witnessed a large increase in the number of local salmon farming firms and the first attempt at collective action from the local private sector. See Iizuka, 2004.

[21]The semi-public *Fundación Chile* played a particularly important role through the establishment in 1980 of the first modern farming centres – demonstrating the technical and commercial feasibility of large-scale salmon farming in the country – focusing on research and the implementation of new technology and by providing technical assistance to other firms

[22] For instance, the private sector took the lead in promoting the establishment of quality certification, with support from a government agency (Maggi, 2002, quoted in Iizuka, 2004).

[23] See http://www.foreigninvestment.cl/, which also include FDI legislation and statistics, and Agosin, 2002.

[24] As Chilean fresh fruit exports achieve dominant market positions, exports may face more and more non-tariff barriers in foreign markets. In order to meet these challenges, a programme of good practices in agriculture has been developed by sector associations, the Ministry of Agriculture and other stakeholders (www.fdf.cl/Buenas_prac.htm).

[25] The successful conclusion of negotiations with India and China may give access to potentially huge markets.

[26] Some of the elements of this strategy include: risk mitigation through insurance schemes, forward markets, and information; improved competitiveness through strengthened research and training; development of markets through bilateral agreements and consultations with private sector in connection to negotiations.

1.5 KENYA – THE CUT FLOWERS SECTOR

Introduction

120. In spite of being one of the most advanced countries in Sub-Saharan Africa, Kenya has endured two decades of slow growth, deteriorating social indicators, and a shrinking manufacturing sector. GDP per capita declined on average by 0.5% per year over the 1990s. Nevertheless some resource-based sectors have been able to develop. A prime example is the cut flower industry that has been growing consistently for over thirty years to become one of the country's main sources of foreign exchange. Albeit relatively small in terms of its impact on overall employment, growth and poverty reduction, the sector is one of the rare success stories of non-traditional export development in Sub-Saharan Africa. More specifically, it illustrates the importance of the government's non-interventionist and facilitative approach in attracting FDI and foreign expertise, which has led to the emergence of non-traditional exports.

Economic and social developments

121. Over the last twenty years, Kenya has experienced economic decline and falling living standards. One explanation is poor governance, which has caused extensive corruption, weak rule of law, growing insecurity, and poor infrastructure (UNECA, 2003). Investment and savings rates have declined over the period, together with decreasing government revenue and a cutback in donor funding. During the 1990s the service sector was the major driver of growth, while agriculture and industry were characterised by a dismal performance (World Bank, 2003).

122. Kenya's share in world trade has shrunk by 50% over the same period, due to declining coffee exports and deteriorating international competitiveness of manufactures. Kenyan exports performed strongly in the early 1990s, thanks to the abolition of trade licensing and foreign exchange controls, increasing regional integration, a sharp depreciation of the Kenya shilling and a significant fall in the real average wage (Glenday and Nddi, 2000). However, these favourable export conditions were not sustained by adequate government policies. As a consequence, private investment and export performance deteriorated significantly after 1996.[27] Stable tea exports, in which the country has 25% of the world market share, and booming horticultural exports, notably cut flowers, have not been enough to reverse this trend. More recently the U.S. Africa Growth and Opportunity Act (AGOA) has helped boost clothing exports.[28]

123. Economic stagnation has led to a significant deterioration in social indicators. Wage employment has declined in the formal economy and employment is now larger in the informal sector. The number of poor people increased during the 1990s to reach 55% of the population in 2001. Life expectancy has decreased to reach 47 years in 2000, with HIV/AIDS taking a heavy toll. Primary school enrolment has declined and infant mortality has gone up to reach 78 per 1,000 live births. Gender differences prevail; women persistently have lower education, less access to health services, and heavier workload than men (World Bank, 2003).

Cut flower industry developments

Industry performance, structure and impact on the economy

124. With a 2% share of the world market, Kenya was in 2002 the world's seventh largest exporter of cut flowers and the largest exporter to the EU.[29] Exports amounted to USD 100 million, accounting for 7% of total exports, with roses as the single most important item.[30] The volume was up 25% from the previous year and very strong growth continued in 2003 (Gray, 2003). This is a remarkable result, considering that twenty years before export volumes were ten times lower.

125. The origins of the industry date back to the late 1940s, but exports only started around independence, as the country emerged as an exporter of off season vegetables and fruits to the UK. Further developments were fuelled by increased tourist-related air traffic, foreign investments on preferential terms, reinvestment of tea export earnings, expatriate professionals, and training of small-scale growers. The industry continued to expand in the 1980s, driven by foreign investments and technical expertise from abroad, combined with domestic investment from local fruit and vegetable companies and public officials. The major boost came after trade liberalisation and deregulation of air freight tariffs in the early 1990s. The industry also benefited from improved transport infrastructure (Thoen *et al.* 2000).

126. The industry is made up of around 5,000 farmers or enterprises, employing between 40 and 50 thousand people – predominately young women – which corresponds to less than 1% of total employment (Opondo, 2002, and CBS, 2004). Jobs are precarious, but households that are involved in horticulture seems to be better off than non-horticultural households thanks to higher wages and better access to credit (McCulloch and Ota, 2002; Minot and Ngigi, 2003).

127. Flower production has prompted the development of local expertise and stimulated the establishment of a network of support services and business. As a result, Kenya now provides consultancy services to neighbouring countries (Dijkstra, 2001). Inputs such as greenhouses, shade structures, agrochemicals, irrigation and other equipment can be procured locally.

Government policies

128. Economy-wide reforms have conditioned the development of the cut flower industry, but their impact has been probably less important than in other industries. In fact, the government's intervention in the sector has traditionally been limited, unlike the tea and coffee sectors. The authorities have actively promoted commercial horticultural production but mostly acting as a facilitator and through the provision of extension services and research and development. The sector has benefited from a relatively liberal trade policy regime, characterised by low export taxes and no marketing or distribution control (Opondo, 2002).

129. The liberalisation of foreign exchange controls, the lowering of import barriers for input and the decrease in state interference with air freight tariffs in the early 1990s greatly benefited the cut flower industry by reducing the previously high transaction costs. At the same time, the reforms introduced were not sufficient to tackle the underlying distortions in the economy and the mismanagement of the public sector, as witnessed by the stagnation of other industries (Reinikka, 1996). In fact, the cut flower industry expanded, while the overall economic growth rate continued to decline throughout the 1990s (Thoen *et al.*, 2000).

130. The reform process ran out of steam between 1997 and 2000 following the onset of the Asian financial crisis, a budgetary crisis related to election spending and, eventually, the collapse of the IMF stabilisation programme (Glenday and Nddi, 2000).[31] The crisis was accompanied by a strong exchange rate appreciation that, in conjunction with strong devaluation in Asian currencies, negatively affected the

competitiveness of Kenyan exports. Cut flower exports contracted by 16% in 1998, but then fully recovered with the real decline of the Kenya shilling in 1999.

131. Preferential access to the European market under the Lomé Conventions has played an important role in the development of the industry. In this respect, the outcome of the Economic Partnership Agreements (EPA) will be critical for the industry, since Kenya cannot benefit from the duty-free access granted to LDCs under the Everything But Arms initiative. In contrast, the AGOA initiative has so far been largely irrelevant as far as cut flower exports are concerned.[32]

132. Foreign capital and expertise have been vital for the development of the cut flower industry, bringing technical know-how, management skills, planting material, as well as facilitating marketing contracts and joint-ventures, sometimes with the support of donors. (Thoen *et al.* 2000).[33] Investments were attracted thanks to Kenya's basic competitive advantages for flower production (based on favourable geographical, climatic and labour conditions), the relatively friendly investment environment and the expected profitability of the cut flower market. Foreign investment was granted legal guarantees on taxes and profit repatriation, as well as work permits for expatriate personnel. (Minot and Ngigi, 2003, FKAB Feldt Consulting, 2001)

133. Hence, investments in the cut flower industry have taken place against a background of overall dismal Kenyan FDI performance in the 1990s. This performance is mainly explained by the poor governance and weak institutions that have raised the cost of doing business and deterred investors. (World Bank, 2003)

134. Ease of access to infrastructure is also vital for the industry's perishable products. Infrastructure has traditionally been more developed in Kenya than in most other African countries, even though its quality has deteriorated over the past decade because of lack of investment. Kenyan air transport, which is a key element for the sector, is competitive and operating well (World Bank, 2003; Minot and Ngigi, 2003).[34] In addition, there are government-run cooling facilities in the airports, though they are reported to be deficient. This has affected the quality of goods from smaller producers, while most large producers have invested in their own cooling facilities (Thoen *et al.*, 2000).

135. A number of public institutions support the cut flower industry, including the Horticultural Crops Development Authority (HCDA), established in 1967 and funded by an export levy and various donors. HCDA has not been directly involved in buying and selling produce. Instead, it has played more of a facilitator role, regulating and developing the sector through disseminating market information and advisory services (Ebony Consulting International, 2001). In addition, the *Kenya Agricultural Research Institute* is responsible for flower research and development and the *Kenya Plant Health Inspection Service* issues phytosanitary certificates for exports. Two business associations – the *Kenya Flower Council* (larger enterprises) and the *Fresh Produce Exporters Association of Kenya* – represent the industry and are involved in policy making through various consultative processes (Opondo, 2002). Both have approved codes of practice covering social and environmental criteria and are active lobbyists to the government.

Future challenges and opportunities

136. Kenya's cut flower industry faces several major challenges. First, there is stiffening competition from other producer countries, not least in the region, while buyers are becoming increasingly demanding in terms of both prices and quality (Thoen *et al.*, 2000). Second, the EU is putting more and more stringent phytosanitary restrictions on flower imports (Riungu and Mbaria, 2004). Third, civil society, importers and consumers are constantly pressuring for higher labour and environmental standards and there is a multitude of codes and labels (Gray, 2003). Fourth, a major setback would be anticipated if Kenya loses its preferential access to the EU market in 2008. The outcome will depend on the result of the EPA

negotiations, but there is a risk that growers will begin to outsource production to neighbouring LDCs (FKAB Feldt Consulting, 2001; Gray, 2003). Fifth, growers are worried that the government may get increasingly involved in the horticulture industry through direct intervention or taxes (FKAB Feldt Consulting, 2001). Sixth, poor governance and deteriorating security increase the cost of doing business in the country and harm Kenya's image. (World Bank, 2003).

137. All these challenges are likely to be felt disproportionately by small and medium-sized producers, with a potential negative impact on employment and poverty. Despite the government's attempt to promote smallholder involvement in flower production, small farmers face an uncertain future. They can not meet demands for higher quality and face increasing costs such as having to pay royalties under the International Convention for the Protection of New Plant Varieties that Kenya signed in 1999 (Thoen *et al.*, 2000).

138. On the positive side, the Kenyan cut flower industry has been able to develop and thrive in quite adverse domestic policy conditions and fierce international competition. The sector has an early-mover advantage compared to new competitors and there is a backbone of well-established enterprises with a high degree of control over the supply chain. This will provide some "protection" in the short term, but in the long run the industry relies on its ability to constantly innovate to stay competitive. A further positive development may be the increased market access to the US through AGOA, but so far it has mainly benefited the Kenyan clothing industry. Business associations have been developing their own standards covering labour and environmental criteria, but so far these have been less stringent than international codes. Work is under way to develop a national code on social accountability (Thoen *et al.*, 2000; Opondo, 2002).

Conclusions

139. Despite poor governance, general economic stagnation and growing poverty, the Kenyan cut flower industry has been able to thrive. Overall, the government has played a facilitating role, providing and securing sufficiently attractive investment opportunities for both domestic and foreign capital. A key decision by the government in the past has been to avoid direct intervention in production and sales, partly because of the diversity and perishability of the products. At the same time, both public agencies and business associations have been actively involved in the country's policy making through various consultative processes. This approach has proven to be most appropriate for an industry that has to adjust to rapidly changing market conditions. Yet, the industry is now facing a multitude of emerging challenges, as international trade and regulations evolve. Its future depends in no small measure on expanding trade opportunities in new markets and enhancing the competitiveness of small- and medium-sized producers. Indeed, unless the broad policy framework is improved, the continued success of the cut flower industry cannot be assured.

Table 1. Kenya: Structure of the economy

Average percentages

	1976-1984	*1985-1994*	*1995-2002*
Agriculture, value added (% of GDP)	35.3	30.7	24.1
Industry, value added (% of GDP)	19.7	18.6	17.3
Services, etc., value added (% of GDP)	45.0	50.7	58.7
Trade (% of GDP)	60.2	57.4	62.5
Exports of goods and services (% of GDP)	28.1	28.0	27.9
GDP growth (annual %)	4.5	3.6	1.9
Employment in agriculture (% of total employment)	23.0	15.5	18.6
Employment in industry (% of total employment)	21.6	18.7	19.5
Employment in services (% of total employment)	55.4	65.5	61.9

Source : World Development Indicators CD-ROM (2004)

Table 2. Kenya: Export Structure

Product name	*HS Code 2*	*1976-84*	*1985-94*	*1995-03*
Coffee, tea, cocoa, spices, manufactures thereof	07	56.70%	52.94%	34.60%
Vegetables and fruit	05	9.15%	12.07%	12.17%
Crude animal and vegetable materials, n.e.s.	29	4.97%	6.86%	9.46%
Petroleum ,petroleum products and related materials	33	7.00%	0.93%	5.12%
Fish, crustaceans, molluscs, preparations thereof	03	0.21%	3.04%	4.95%
Articles of apparel and clothing accessories	84	0.10%	1.40%	4.18%
Non-metallic mineral manufactures, n.e.s.	66	4.62%	2.89%	2.74%
Iron and steel	67	0.02%	0.56%	2.05%
Miscellaneous manufactured articles, n.e.s.	89	0.47%	0.89%	1.72%
Inorganic chemicals	52	1.57%	1.89%	1.55%

Source: UN COMTRADE Database, SITC Rev. 3.

[27] During the stabilisation crisis of 1997, the government raised interest rates, which attracted short-term capital inflows, which in turn led to a substantial appreciation of the exchange rate in 1997 and 1998. The average wage rate followed and reverted to its pre-1990 levels (Glenday and Nddi, 2000).

[28] Kenya's exports to the US under AGOA have increased more than threefold since 2001 from USD 59 million to USD 184 million at the end of 2003. A bulk of those exports were in garments (USD 52 million in 2001 to USD 176 million in 2003). Source: USITC.

[29] Two-thirds of the produce is marketed through the Netherlands, either through auctions or directly (Opondo, 2002). Direct sales to supermarkets in the UK are other important outlets (Gray, 2003).

[30] UN COMTRADE database, SITC rev. 2 code 2927 Cut flowers and foliage.

[31] Aid was frozen in July 1997 when the government refused to comply with IMF conditionalities on governance reforms and was resumed only in July 2000. See Bonaglia and Fukasaku, 2002, p. 125, for a detailed discussion.

[32] Kenya began to ship cut flowers to the US under AGOA for the first time in 2001, reaching not more than US $ 1.8 million in sales in 2003 (Gray, 2003).

[33] Domestic sources of investment include tea estates, large fruit and vegetable companies seeking to diversify, spin-offs from already established cut flower companies, and prominent public officials. The industry and its institutions have received non-negligible international donor support, much of which seems to have been directed at smallholding farmers.

[34] A major challenge is to improve safety and security in the airports. For instance, direct flights from Kenya to the US are not allowed, because of security concerns (World Bank, 2003; Cowell, 2003).

1.6 NEW ZEALAND – AGRICULTURAL REFORM

140. Conscious adaptation to a changing world through economic reforms to facilitate structural adjustment across the domestic economy has supported diversification and competitiveness in New Zealand's agricultural sector. New Zealand is a developed economy with a far higher share of agriculture as a percentage of gross domestic product (GDP) and merchandise exports than most other OECD economies. Moreover, the sector is essentially unsubsidised and has very low levels of border protection. The current status of New Zealand agriculture resulted from a period of difficulty that prompted sweeping reforms and structural adjustment. Between 1977 and 2003, agriculture as a percentage of GDP shrank by nearly half from 9.8 to 5.0 per cent,[35] a decline that was partially a reflection of relative growth in other parts of the economy. While agricultural GDP grew by an average of 2.1 per cent per year between 1989 and 2004, other parts of the New Zealand economy grew more quickly - especially the services sector, driven by rapid growth in tourism, communication and education services. Towards the end of this period however, agricultural based exports nearly doubled to NZD 16.6 billion between 1989 and 2002 and represented over half of total exports in 2002.[36] As of December 2003, agriculture employed 142 000 people and represented 7 per cent of total employment. If related activities beyond the farm gate are also included, agriculture represents 12 per cent of total employment in New Zealand.[37]

141. The importance of agriculture in New Zealand has evolved against a background of changing economic development and runs the gamut of prosperity, crisis and reform. New Zealand experienced rapid growth and prosperity—supplying goods for economic recovery during the early post-war period. By the early 1950s, GDP per capita in New Zealand was exceeded only by Switzerland.[38] During the 1970s and 1980s New Zealand's GDP per capita grew at a sluggish average rate of 1.2 per cent per year. Other countries' GDP per capita grew more rapidly, resulting in New Zealand slipping down the world rankings for this measure of prosperity. The relatively listless performance of the New Zealand economy over this period has been attributed to a combination of factors including: reliance on primary production, protection of the domestic market, world oil shocks and the accession of the United Kingdom to the European Economic Community, which diminished the traditional role of New Zealand as the UK's "off-shore" farm and thus its agricultural exports to the UK.

142. Economic reforms implemented beginning in 1984 included macroeconomic, microeconomic and sectoral elements. These reforms provided the agriculture sector with: a stabilized macroeconomic policy environment; more accurate price information; flexibility in the domestic allocation of resources; and incentives to respond to changing domestic and international demand for agricultural products. Together, these reforms facilitated the ability of the domestic agricultural sector to efficiently allocate domestic and international resources to meet domestic needs and enhance international competitiveness.

143. Early in the reform period, changes were introduced to stabilise the macroeconomic framework, facilitate adjustment and improve the price transmission mechanisms linking the domestic to the international economy. The 20 per cent devaluation of the currency implemented in 1984 responded to rapid declines in foreign reserves and was followed by transition from fixed to floating exchange rates. To enhance transparency, confidence and the sustainability of the new macroeconomic policy regime, inflation targeting was explicitly adopted as the governing principle for central bank policy.[39]

144. Microeconomic reforms to enhance efficiency in the provision of public services and better allocation of resources to more productive activities in the economy included implementation of a "user

pays" principle and restructuring of state-owned enterprises for responsiveness to market incentives, with a view to subsequent privatisation. Increasing labour market flexibility further facilitated flows of resources to emerging sectors of the economy.

145. Specific reforms to deregulate the agriculture sector included the removal of virtually all producer, exporter and consumer subsidies. OECD producer subsidy estimates (PSE) for New Zealand agriculture declined from 40 per cent in 1975 to 32 per cent in 1982 and currently rests at 2 per cent. Removing support not only exposed domestic agriculture to the discipline of the world agricultural market, but addressed distortions in agricultural production resulting from production based subsidies, which continue to exist in many advanced economies. Intended to complement these reforms was the implementation of trade liberalising measures including the elimination of import licensing systems and import quotas as well as deep tariff reductions. Together these reforms along with the currency revaluation at once reduced distortions in pricing information facing the domestic agricultural sector while enhancing incentives and prospects for better managing domestic agricultural resources in order to benefit from international trade.

146. The enabling environment created for structural adjustment of the agriculture sector is reflected in a variety of cases including the deregulation of the apple and pear industry. Previously regulated by a marketing board, the liberalisation of apple and pear exports in 2001 has seen many new players enter this industry. Growing from NZD 321 million in 2001 to NZD 473 million in 2004, apples represented 18 per cent of total horticultural export earnings in 2003 and employed over 10 000 people in 2003.[40] Representing only one per cent of world apple production, the competitiveness of the New Zealand apple industry can be seen in its 5 per cent share of total world apple exports. The success of the New Zealand pip fruit industry results from a combination of cultivating new varieties and emphasis on quality. While the varietal composition of New Zealand apple exports is increasingly being emulated by its competitors, returns in major markets remain significantly greater in comparison to market share by volume.

The New Zealand wine industry

The case of the domestic wine industry reveals a long history of regulatory reform preceding a dramatic eight fold increase in exports from NZD 47 to 370 million between 1992 and 2004. [41] Structural adjustment within the New Zealand wine industry reflects the importance of regulatory reform and trade liberalisation in stimulating healthy evolution, innovation and technological change in response to changing market preferences.

The early period of the New Zealand wine industry was characterised by small scale family enterprises producing simple fortified wines for a heavily regulated and unsophisticated domestic wine market. Two independent systems of licensing for the distribution of wine and beer favoured the more politically powerful beer producers at the expense of wine. Societal attitudes towards alcohol consumption were conservative. Low quality and limited domestic demand for wine was accompanied by trade policy which generally insulated domestic wine and beer from foreign competition.

Throughout the 1960s and 70s, increasingly positive societal perceptions of wine and regulatory reforms allowed the sale of wine to move beyond traditional venues such as hotels and bottle shops into specialist wine shops, licensed restaurants and theatres. Changing domestic market conditions during this period also saw innovations resulting from experimentation with varietal wines and particularly Germanic style wines (*e.g.* Muller Thurgau) suited to introducing non-wine drinkers to wine. With the industry moving focus away from fortified wines and towards table wines, an increasing number of foreign trained enologists joined the domestic industry. Increasingly modern winemaking methods such as the use of temperature- and pressure-controlled stainless steel fermentation and storage technology appeared in the domestic industry. Also evident during this period was significant overseas investment including by US drinks giant Segrams.[42]

The 1980s saw the success of government research to address two persistent problems confounding wine production in New Zealand: damaging viruses and excessive canopy production (which affects the quality of the fruit).[43] The uptake of these ameliorative technologies within the New Zealand wine industry along with other forms of non-trade distorting government support typified by the Wine Industry Development Plan led to the establishment of new wine production capacity. It was also during this period that the domestic wine industry accepted a plan to phase in liberalisation of wine imports in connection with the Australia-New Zealand Closer Economic Relations Trade Agreement.

Thereafter, rapid increases in domestic wine production coupled with dramatic gains by foreign wines within the domestic market led to a period characterised both by consolidation which led to the growth of large producers *and* expansion in the number of new independent "boutique" producers of high quality specialised wines. Significantly, this period of consolidation resulted in mergers between beer and wine producing interests to the extent that economic interests coincided with a reduction of regulatory barriers hampering licensing for domestic wine distribution.

The period of structural adjustment within the wine industry beginning during the 1980s continued well into the 90s with ongoing consolidation and even stronger growth in the number of innovative boutique producers. This was supported by a progressive reform of regulations, such as the introduction of the export certification system, revised provisions regarding oenological practices, the one off Grapevine Extraction Scheme (which facilitated removal of capacity for low quality wines and transition towards high quality varietals within the prestigious French *vinifera* family), the Sale of Liquor Act reforms, through to the passing of the Wine Act 2003. This period also saw domestic capacity owned by foreign firms leveraging overseas distribution and marketing knowledge to better synchronise domestic production and global consumer preferences, which were now increasingly conveyed through retail distribution. Largely complete by 2000, the transition to *vinifera* varieties saw domestic wine production in descending order as: Chardonnay, Sauvignon Blanc, Pinot Noir, Merlot, Cabernet Sauvignon and Riesling. By this time, New Zealand was a net—and significant—international wine exporter.[44]

[35] Smith (2003), p. 116.
[36] MAF (2004).
[37] Ibid.
[38] Ibid.
[39] Ibid.
[40] Ibid.
[41] Data provided by the Government of New Zealand.
[42] Barker (2001), p. 211.
[43] Ibid., p. 214.
[44] Ibid., p. 207.

2. FISHERIES

Key points emerging

147. The relationship between trade and structural adjustment in fisheries is different from the relationship in most other sectors. In other sectors globalisation and the opening of trade can trigger adjustment. Although this is also the case in fisheries, an additional strong adverse causality exists. The exploitation of fish stocks determines supplies, in an exogenous way, and by the same token causes pressure for adjustment. Trade must then necessarily adjust to domestic supplies *i.e.* act as a "shock absorber". The reason is that fishers catch what nature and fishery managers allow. Hence, the allowed quantities in fisheries determine the prices, where in other sectors it is rather the prices that determine the amount suppliers are willing to supply the market. Therefore, both resource changes and changes in the market initiate pressure for adjustment in fisheries.

148. On the supply side, the most important driver for adjustment is declining fish stocks, caused by over exploitation and insufficient fisheries management including ignorance about the resource base (*e.g.* stock levels), pollution and changing natural conditions of the seas (such as changed water temperature, or natural phenomena like the El Nino). The intensive development of aquaculture over the last two decades has compensated for some of the pressure for structural adjustment caused by declining fish stocks. The species farmed have, however, not necessarily been the same as the captured species. This is important since fish markets face a marked degree of product differentiation between fish species and product forms. The reason is the availability of numerous different fish species (more than 800 different fish species are commercially used globally), combined with the different eating habits developed over centuries. Hence, substitutability between fish species is limited, albeit it does exist for similar and closely related species[45]. In this regard it is noted that fish markets for single species are closely linked internationally.

149. On such markets producer and consumer countries must necessarily adjust when the supplies of some species (farmed) increase and others (captured) decline. Hence, both the increased scale of aquaculture and changed species composition has necessitated structural adjustment. Since the scale of aquaculture is expected to increase in the future further adjustment will come. This development can in some instances, but certainly not all, compensate for the declines from capture fisheries.

150. On the demand side several factors initiate pressure for adjustment. Globalisation of markets for final products and for raw materials has caused specialisation by outsourcing. This trend is expected to continue in the future, in particular with the further integration of China in world trade. Increasing incomes in developing countries, *e.g.* due to a rapidly increasing urban middle class, also cause adjustment pressure and demand for fish is expected to continue to increase. Increasing demand for convenience food and thereby for secondary processed fish products has been a factor of adjustment in the developed countries. Finally, the global concentration in the retail sector has caused pressure for adjustment in the fisheries sector. Retailers have, for example, increasingly used market power to impose claims and standards on their sub-suppliers and the delivery of sufficient large lots to be able to supply all their shops.

151. Several of these factors have been important for structural adjustment in the Danish cod sector (see case study). Most important has been the pressure initiated by the 80% decline of the Danish catches of cod over the last twenty years. Both primary harvesters and processors were severely hit, but the processing sector faced considerably more potential lines of action than primary harvesters. As a result the

turnover of the primary harvesting sector declined 50% while the decline of the processing sector was 20%. Initiatives to compensate for the declining cod stocks are reviewed in the case study for the harvesting and processing sectors separately.

152. The Danish experience with adjustment in the harvesting sector highlights that subsidies for decommissioning have reduced fleet overcapacity to some extent but, concurrently, the public cost has been high and the underlying problems have not been solved. In the meantime, the Danish experience in the processing sector demonstrates that opening trade in raw materials has eased the pressure on domestic fish stocks and has hence contributed to the adjustment process. The outsourcing of primary processing has also eased the pressure by improving efficiency, where developed countries specialise in secondary processing and developing countries in primary processing. Experience in the Danish fish processing sector illustrates that care is needed in implementing labour market policies. Reforms intended to reduce unemployment inadvertently diminished labour supply to the sector.

153. The seafood industry in Thailand enjoyed rapid growth, making the country a world leader in international market for processing food such as canned tuna and frozen shrimps, but there are a number of challenges relating to concerns on both the demand and supply sides. Non-tariff measures (mostly SPS) prevail in developed country import markets and the government of Thailand is to address the constraint by developing quality control, tracing and certification systems. In the meantime, the government has already taken action to increase competitiveness of the seafood sector by enhancing vocational skills and promoting R&D. Furthermore, it has improved natural resource management to promote sustainable fishing practices, for example, by establishing conservation zones, reducing the number of fishing vessels, promoting community-based fisheries and introducing regulations on fish farming in mangrove areas.

154. Industrial groups have played an important role in the development of Thailand's seafood industry, often relying on joint-ventures with foreign companies for acquiring expertise and penetrating foreign markets. Direct government intervention in production and sales has been limited and the case of the seafood industry suggests that the active involvement of industry associations in the national policy-making process could help design effective policy responses to adjustment challenges.

155. Subsidies and related government supports are also a defining feature of the fishing industry. During the 1980s and into the 1990s, after coastal states extended their jurisdiction over living marine resources to the limit (as much as 200 nautical-miles from shore) allowed by the United Nations Convention on the Law of the Sea (UNCLOS), many OECD countries provided large amounts of support for building and modernising fishing vessels. Today, most OECD countries have either reached the natural limit of fishing, or impose catch quotas, and subsidies aimed directly at expanding capacity and effort have declined. Indeed, many countries are now paying vessel owners to decommission their vessels, or to give up their licences to fish (see Danish case study). However, some subsidies continue to inhibit natural contraction of the industry, either by discouraging vessel owners and crew from leaving the industry (*e.g.*, through special income support), or by reducing the cost of operating a fishing vessel or having it tied up in port. Such policies have contributed to the maintenance of an inefficient level of excess capacity, which in turn has slowed the recovery of depleted fish stocks. Currently, subsidies to fishing are the subject of negotiations taking place in the WTO, which is seeking to "clarify and improve" subsidy disciplines in this area.

[45]For example cod, saithe and haddock are substitutes in some markets but not in others. Salmon and herring have a lower degree of substitutability than herring and mackerel.

2.1 DENMARK

Adjustment in the Danish Fish Harvesting Sector

156. To ease the pressure for structural adjustment following declining fish stocks, primary harvesters can target other species, harvest on fishing grounds in other areas or leave the fishery. Harvesting other species or on foreign fishing grounds need, in most cases, government permission. Permission for targeting other species in domestic waters is possible in some countries, but alternative species in commercially interesting quantities are often few. Hence, the scope for such initiatives is limited. This implies that the most likely option for the single fisher is to leave the fishery when fish stocks decline.

157. The limited scope for the harvesting sector to adjust is clearly revealed in the Danish cod case as approximately half the vessels dependent on cod left the fishery. While Norway lobster in domestic waters was found as an alternative species it was impossible for Danish fishers to find alternative fishing grounds, partly as fleet overcapacity was also present in other countries. The consequence was that several fishers chose to leave the fishery.

158. In the fish harvesting sector adjustment is closely related to the management of fisheries owing to the presence of externalities. If management is absent too many fishers remain in the fishery causing overexploitation and low economic outcomes. Moreover it should be noted that factors other than management regime (*e.g.* the level of subsidization) can contribute to whether a fishery is over-exploited. In the presence of optimal fishery management policies and other policies impacting on the sector (*e.g.* subsidies) such problems are avoided. Hence, automatic market based adjustment, securing that the optimal amount of fish is caught at the lowest possible cost, is not obtained in the absence of proper policies. The management scheme for the Danish cod fishery can neither be characterised as open access nor as optimal management. It is rather somewhere between these extremes. The fishery takes place in the North Sea and the Baltic Sea where stocks are shared with several other countries. The fishery in the Baltic is managed through the International Baltic Sea Fisheries Commission and EU Ministers' Council while that of the North Sea also includes negotiations with Norway. Total allowable Danish catches are determined internationally in these fora and national implementation includes output regulations (*i.e.* fishing permits specifying the conditions in terms of species, fishing ground and time). Input limitations are also applied in the form of capacity measures, as the introduction of new vessels should be accompanied by corresponding capacity reduction of older vessels. Furthermore, there are restrictions on entry into the fishery.

159. The Danish management scheme for cod has not ensured an automatic adjustment of the fleet size but one way to ensure reasonable incomes of fishers in the short and medium term is the removal of vessels with public support. On this basis decommissioning grants to Danish fishers were introduced in the eighties as part of a package which also covers other EU countries[46]. The decommissioning scheme has since been running in three programme periods 1987-93, 1994-99 and 2000-06.

160. The purposes of the decommissioning schemes were to improve the economic viability of the fleet and to rebalance the level of the fleet to the fish resources. The criteria for grants used in Denmark were changed virtually every year. However in the first scheme older vessels fishing for cod and older owners with high activity (in terms of fishing days) and low debt were favoured. In the subsequent

schemes smaller grants for modernisation and construction were also allowed as the fleet grew older and was not necessarily able to meet the requirements of fish handling and quality etc.

161. The total amount spent for decommissioning was (at 2002 price levels) 1 267 million DKK (1987-93), 360 million DKK (1994-99) and 294 million DKK (2000-02) in each of the three programme periods, corresponding to respectively 5%, 2% and 3% of the annual value of landing. The EU Commission and the Danish government contributed to the funding of the scheme, but since the grants were subject to taxation the EU Commission was the largest net contributor.

162. According to Frost *et al* (1995) 796 vessels, or 25% of the fleet, were withdrawn during the first scheme and approximately 2 000 jobs (25-30%) were lost. The scheme targeted in particular trawlers (-33%) and Danish seines (-41%) while gill-netters almost went free. The largest reduction was for medium sized 60-150 GRT trawlers (-45%). The result of the first scheme was that the vessels remaining in the fishery, obtained better financial results due to more fishing days per vessel and lower fishing costs; the scheme produced the desired adjustment. Another outcome was that the overall number of fishing days remained largely unchanged implying unchanged fishing mortality. Hence, the first scheme improved the economic viability of the fishing fleet, but did not change the total fishing pressure. Information on the employment of the people who left the cod fishery is sparse but suggests that older people retired, some got jobs in other fisheries, others were employed in other sectors of the economy and some remained unemployed[47].

163. During the second and third schemes, according to Lindebo (2004), 366 (16%) and 217 (12%) vessels were withdrawn. Hence, the annual average number of vessels which were withdrawn each year decreased to a lower level during the second scheme. During the third scheme an annual increase in the number of withdrawn vessels was observed as the focus changed and some grants were given for construction of 55 new vessels in 2000-02 with a total public support of 57 million DKK. This was done due to concerns with an ageing fleet. One grant condition was that a corresponding or larger fishing capacity left the fishery.

164. The result of the second and third decommissioning schemes corresponded to those of the first, although the schemes were used less and the criteria for receiving grants were changed. The reasons for the decreased use of the schemes include better fishing conditions. Hence, decommissioning solved some of the problems of overcapacity. But the root of the problem may not have been removed, *i.e.* the race for fish remains in the absence of optimal management. Fishing costs remain high and continued pressure for structural adjustment lingers. Continued technological progress makes this pressure more severe. The implication is that the primary cod sector will continuously experience low income or the government will have to accept continued decommissioning grants as part of fisheries management.

165. The lesson to be learned from the Danish experience is that subsidies in the form of decommissioning grants have reduced problems of overcapacity in the short and medium term. On the other hand, the public cost was high and it did not remove the root of the problem; *i.e.* that the race for fish causes high fishing costs. Furthermore, the recent grants for the construction of new vessels might induce over-investment, implying that problems of overcapacity may continue.

Adjustment in the Danish Fish Processing Sector

166. Fish processors possess more options for shouldering pressure for structural adjustment as the degree of processing can be increased, raw materials can be imported, other species can be used as raw material and companies can leave the business. Outsourcing can also be used to ease the pressure of adjustment, although this is a likely result of internationalisation rather than of declining stocks.

167. The Danish case shows that scope for easing the pressure of structural adjustment exists as the total turnover of the processing sector declined only 20% over the twenty year period, compared to a decline in primary harvesting of 50%. In this process primary processing[48] of cod decreased but was partly replaced by secondary processing, processing based on imports of unprocessed cod and increased use of imported alternative species like farmed salmon and cold-water shrimp.

168. Furthermore, primary processing of cod fillets has also recently been outsourced, due to lower wage costs in other countries. For example Danish processors of cod established plants in Poland. These plants rely on Danish raw materials, but also on raw material imported from Russia and domestic Polish landings. The frozen cod fillets are exported to the EU, the traditional market for Danish cod. A similar development is noted for Norway where processors of cod outsourced to China. In China the cod is typically thawed to just above zero degree Celsius, filleted and refrozen. Subsequently, the double frozen fillets are re-exported to the EU market. The main reason for outsourcing to China is the combination of low labour and transportation costs. Outsourcing may, however, also be due to the presence of favourable exchange rates (the low Euro-US D rate, given the fixed exchange rates between US D-Yuan) and it remains to be observed whether outsourcing to China continues with an increased Yuan-DKK exchange rate and increased transportation costs.

169. These examples illustrate that outsourcing of processing to lower cost countries serves as an instrument for the processors in developed countries to ease the pressure of adjustment. Developed countries specialise in secondary processed productions and developing countries in primary processed productions.

170. The Danish fish processing sector received public (EU) aid in the 1983-2002 period for productivity improving support measures. The purpose was to support continued development and modernisation and adjust to the changed supply and market conditions. According to the Danish Technological Institute (2003), support in the 1994-2002 period was given for increasing processing capacity and for modernisation of existing processing plants[49]. Modernisation support was given with the purpose of fulfilling hygiene, sanitary and environmental regulations and for innovations in quality and technology. Support in 1994-99 was given to 137 projects for a total amount of 350 million DKK corresponding to 1.5% of total sector value added. In 2000-02 support amounted to 107 million DKK, corresponding to 1.0% of value added.

171. According to the Danish Technological Institute (2003) the scope of the projects has –in order of priority- been quality improvements, better utilisation of existing raw materials and improvements in environmental and hygiene relations. To a lesser extent processing of new fish species has been introduced. The effect has been improved competitive power in the form of new technology and higher efficiency and productivity as well as improved quality of final products. For most companies, larger production and higher turnover have resulted while employment has in general not increased. Rather, the schemes have maintained levels of employment. The working environment has improved. The effect has in some cases also been less waste in the production process. Thus, the adjustment aid might have compensated for a part of the structural adjustment pressure following from declining cod stocks.

172. Trade policies applied on import of unprocessed cod into the EU comprise almost exclusively tariffs. Generally, the EU applies a system where import is subject to the WTO bound tariffs, but where tariff quotas grant access to the EU market on an *ergo omnes* basis at tariff rates suspended to below the WTO bound rate; in addition some specified countries are granted further preferential access as a compensation for losses endured as the EU has enlarged. The result has been that access at zero or reduced tariff rates has been the rule more than the exception. The tariff measures applied for import to the EU in the period 1988-2002 are presented in the table below.

Tariff measures and Danish imports of unprocessed Atlantic cod

	Tariff measures			Import/million DKK	
	1988	1996	2002	1996	2002
MFN	12.0	12.0	12.0	139	0
Quota /tonnes	45,000	[1]50,000	Unlimited	[2]130	707
In quota rate /%	3.7	[1]6.0	3.0	.	.
Norway /%	12.0	0.0	0.0	97	155
Iceland	3.7	0.0	0.0	6	11
Rest EU	.	.	.	184	156
Total	.	.	.	532	1,039

Notes: 1. From 1994.
2. Denmark assumed to use the same share of the tariff quota as obtained for total EU imports and the tariff quota is assumed fully used.
Sources: EU TARIC Database, Hatcher (1997) and OECD (2003d, 238-55).

173. Trade weighted tariff rates for imports into Denmark were 2.0% in 2002, 4.4% in 1996 and 6.2% in 1983. Hence, the increase in the import share of total production might partly be explained by the gradual lowering of the applied tariff rates. In the 1988-96 period the removal of tariffs on imports from EEA countries implied that imports increased from 34 600 to 64 300 tonnes, or 86%. In the period 1996-2002 the autonomous tariff suspensions to 3% on an unlimited amount of unprocessed Atlantic cod implied that Denmark was able to maintain almost unchanged imports in volume terms while catches of cod in the whole Northeast Atlantic declined by one-third.

174. The policy of granting preferential access for raw materials of cod to the EU market for the EEA countries, mainly Norway, has therefore been a success in 1983-96 in providing foreign raw materials to a processing industry suffering from declining domestic supplies. Furthermore, the EU policy of autonomous tariff suspension on unprocessed cod has also been a success in maintaining supplies of foreign raw materials, despite declining cod stocks in the North Atlantic as a whole. The increase in imports in 1996-2002 comes almost exclusively from Russia.

175. Structural adjustment in the Danish processing sector faced with a declining domestic raw material base has been effectively compensated by productivity improving support and by the unilateral liberalisation of EU tariff rates on unprocessed cod. The processing of cod fell in the period in question, but without the preferences and suspensions introduced, the fall would have been larger. Thus, the unilateral liberalisation of raw material import aided adjustment in a processing sector dependent on imported raw materials.

176. The key lesson to be drawn from this is that in the Danish case the opening of trade in raw materials eased the pressures of structural adjustment, as domestic raw material could be replaced by imports. Such a policy could be used in several sectors with a processing industry relying on imported raw material and located in a consumer country or area (*e.g.* the EU).

177. It can be noted in conclusion that experience in the Danish fish processing sector illustrates the care that is needed in implementing labour market policies. The reform of the unemployment benefit policy implemented in the late 1990s indirectly caused an additional adjustment pressure in the fish processing sector. The aim of reform was to reduce unemployment and in this endeavour the possibility for part-time employees to receive supplementary unemployment benefits was diminished. The reform,

however, decreased the incentive to work part-time and take on seasonal jobs which is an important feature of the fish processing industry in particular in filleting factories. Hence the labour force of the sector, traditionally located in remote areas, declined. Furthermore, the fish processing sector faced difficulties in attracting labour and in turn this has increased their wage costs.

[46] Decommissioning grants are public aid to remove vessels from a fishery in order to ensure the stock and the economic performance of the remaining vessels. The vessels are scrapped or sold for other purposes.
[47] The Danish unemployment insurance scheme includes both the vessel owners and their employees and provides a relatively good cover.
[48] Primary processed products include products only subject to cutting, where secondary products are products with any additional processing.
[49] Productivity improving grants for the processing sector were also applied before 1994, but since it was not possible to obtain reliable information on this, it is not assessed further here.

2.2 THAILAND – THE SEAFOOD SECTOR

Introduction

178. Thailand has been called a new Asian tiger, because of its high economic growth – despite the 1997-98 economic crisis - and rapid industrialisation on the basis of both vertical and horizontal export diversification. The development of traditional and high-value agriculture and fishery have stimulated the growth of export-oriented food processing industries and contributed significantly to the country's industrialisation process. In particular, the seafood industry has enjoyed rapid growth, making Thailand a world leader in international markets for canned tuna and frozen shrimps. The industry managed to expand continuously over the last two decades, despite chronic problems of shortage of raw materials and labour, increasingly stiff international competition, as well as non-tariff measures imposed by importing countries (TDRI, 2003). Thus, the sector presents an interesting case study for other developing economies. This review will examine the various factors that have contributed to the development of the seafood industry, with special reference to government policies.

Economic and social developments

179. The Thai economy has grown at very high rates since the mid-1980s, at levels not far from the Newly Industrialising Economies (NIEs) of East Asia. Between 1986 and 1991, the growth rate was among the highest in the world, averaging 9.6% a year in real terms (Dixon, 1999). Even though the overall macroeconomic situation was maintained favourably in terms of relatively low inflation and stable exchange rates, the economy was characterised by some structural problems, such as heavy reliance on imported inputs and weak inter-industry linkages. The rapid growth of the early 1990s, attracted by the country's financial opening and exchange rate peg, led to a large inflow of private capital. Fuelled by such capital flows, notably short-term capital, private credit booms made the economy vulnerable to external shocks. Indeed, heavy capital inflows became disruptive for the Thai economy, as they led to a real appreciation of the baht, heightened inflationary pressures and widened the current account deficits to an unsustainable level. The country was badly hit by the currency and financial crisis, following the government announcement to abandon the peg in July 1997. Real GDP fell by over 10% in 1998 and did not recover to the pre-crisis level until 2002 (IMF, 2003b). In 2003, the economy grew by 6.8%, its fastest pace since the 1997-98 crisis.

180. In 1970, 85% of Thailand's exports were primary products, such as rice, rubber, tin and maize. In 2002, manufacturing products made up 86% of total exports, while agriculture represented only 10% of the total. However, employment patterns have not shifted as drastically as export composition: around 40% of the population is still employed in agriculture.

181. Economic growth has brought about improvements in living conditions and social indicators. The incidence of poverty has been cut by three since the mid-1970s to around 10% in 2002. However, regional differences in income levels are wide and income distribution is characterised by high inequality (World Bank, 2004a). Life expectancy and infant mortality have improved markedly, as well as literacy rates thanks to the expansion of primary education.

Seafood industry developments

Industry performance, structure and impact on the economy

182. Thailand is the largest exporter of seafood products in the world, before China. Export values totalled USD 4.2 billion in 2002, corresponding to a world market share of over 18% and to 6% of the country's total exports.[50] The expansion of the seafood industry has been based on ease of access to fishing grounds, high levels of domestic investment and foreign capital and expertise (Dixon, 1999). During the 1970s, signs of depletion of fish stocks, rising fuel prices and the loss of traditional fishing grounds (due to the establishment of Exclusive Economic Zones), pushed the industry to introduce aquaculture and develop new marine fishing technology. Agreements with other countries in the region gave access to more distant fishing grounds. Since the mid-1970s production has expanded at a sustained pace and exports have multiplied by 30.

183. The seafood industry is an important source of employment and export revenue. Fish is also the major source of protein for most people in Thailand. The industry involves marine fishery establishments and fishing crafts, aquaculture farms, and processing factories.[51] It is estimated that 700,000 people, representing approximately 2% of total active labour force, are engaged in fishing and related industries (TDRI, 2003). Aquaculture in particular has also fostered a range of related activities, in fields such as animal feeds, chemicals and construction (FAO, 2000). Yet, the industry generates negative environmental spillovers in the form of damage to mangrove ecosystems and water pollution (Huitric *et al*., 2002).

184. The two major export products are canned tuna and frozen shrimps, mainly destined to the US, Japan, and the EU markets. The canned tuna industry grew rapidly in the 1980s and Thailand is now the main producer of canned tuna in the world. However, the industry has been facing shortages of domestic raw material. Since 1995, over 80% of the tuna is imported from countries such as Indonesia and Chinese Taipei, making Thailand the largest importer of unprocessed tuna, together with Japan (Josupeit and Catarci, 2004). Shrimp farming was initiated in 1973 and intensified in the 1980s. Farmed shrimp became a global commodity mainly thanks to a Thai multinational enterprise, Charoen Pokphand (also known as CP Group), and not by linking up to an established "northern" agro-food conglomerate (Goss *et al.*, 2000).[52] Thailand became the world's leading producer of shrimp in 1991 and accounted at its peak for over a third of world production (Huitric *et al*., 2002).

185. The industry has faced and still faces a range of tariffs and non-tariff barriers in export markets and the frozen shrimp industry has been particularly affected (TDRI, 2003). These barriers and the uncertainty created have prompted some Thai companies to move abroad to bypass these barriers.[53]

186. As a consequence of the constant threat of trade barriers facing the export seafood sector, the industry has become highly organised. The main business organisation, the Thai Frozen Food Association, has played an important role in dealing with the SPS and anti-dumping cases through lobbying, financial assistance and training, while other associations provide specific services to members.[54]

Government policies

187. The Thai government is said to have been the "least interventionist of any in South East Asia", basically restricting its role to promoting private enterprise development (Dixon, 1999). Consequently, there is very little direct government involvement in the Thai seafood industry, making it open to competition (TDRI, 2003). Nevertheless, a range of government policies have had direct or indirect impact on the expansion and international competitiveness of the industry.

188. Since the 1960s, the development strategy of the government has sought to combine conservative macroeconomic policies with a mix of import substitution, export promotion and strong investment incentives. This policy mix has stimulated the emergence of a strong group of Thai industrialists in import-competing, light industries – mainly through joint-ventures with foreign investors – as well as in the agribusiness and food processing sectors – mainly thanks to the support of local commercial banks (Lauridsen, 2003). The period of highest growth and structural change in the Thai economy occurred between 1980 (when the economy entered a period of recession following the second oil shock) and 1998 (second recession, following the Asian financial crisis). These crises contributed to trigger important economic policy changes.

189. The first recession led to the adoption of a World Bank-supported structural adjustment programme. In the following years, the economy experienced an unprecedented growth, driven by booming manufactures exports. Undoubtedly, the adoption of a more export-oriented policy stance and better targeted export-promotion measures contributed to attract FDI to the country. However, the slow implementation of reforms – import barriers are still relatively high and complex today (TDRI, 2003; World Bank, 2004a) – suggests that they only played a limited role in fuelling the recovery. Initial conditions and concomitant international developments probably had a greater impact (Jomo and Rock, 1998; Dixon, 1999).[55]

190. Overall, Thailand's agro-industrial industry survived the 1997 Asian financial crisis, while other manufacturing industries floundered under heavy debt. In fact, the industry benefited significantly from the weaker baht, which enhanced its price competitiveness (TDRI, 2003). However, the aggregate performance masks significant differences, even within the seafood sector. While frozen shrimps exports received a significant boost from the devaluation, import-intensive industries such as canned tuna contracted sharply due to production costs rising by about 35% (UNESCAP, 1999).[56]

191. Recently, Thai trade policy has focused on negotiating bilateral free trade agreements with a range of countries.[57] As a result of the agreements, seafood exports are expected to meet lower tariff barriers in various markets (TDRI, 2003). In addition, the country is a member of two important regional groupings: ASEAN, which is in the process of developing an FTA amongst member countries, and APEC.[58] It is worth noting that in 1999 Thailand "graduated" from its developing country status in the EU's GSP, which led to increased tariff barriers for exports to the EU market.[59]

192. The relatively open investment regime and the incentives schemes developed as part of the import substitution strategy of the 1960s attracted FDI into the sector. Yet, the positive spillover of FDI, *i.e.* transfer of knowledge, has probably been more important than the modest share of FDI in total investment would suggest. In particular, foreign partners have provided expertise, technology and privileged access to export markets. For example, through joint-ventures with Japanese companies, Thai exporters have been able to concentrate mainly on production (following specifications set by their foreign partner), invest less in marketing activities and penetrate the Japanese food market more easily (TDRI, 2003).[60]

193. A range of sector-specific policies and services have targeted the seafood sector, under the auspices of the National Fisheries Policy Committee – chaired by the Prime Minister – and the Department of Fisheries within the Ministry of Agriculture. The latter is engaged in fishery conservation and research and development and has played an important role in developing the seafood sector, by providing technical and financial assistance (FAO, 2000, and Dixon, 1999). The National Food Institute (Ministry of Industry) undertakes research and offers training to raise competitiveness and help with food safety standards (TDRI, 2003).

Future challenges and opportunities

194. There are a number of challenges facing the Thai seafood industry. First, a number of non-tariff barriers (mostly SPS measures) prevail in developed country import markets. Second, future growth is threatened by constraints in the quality and quantity of raw material, due to environmental problems and diseases. Third, there is increasing competition from low cost producers, originating from China and Vietnam (for shrimps) and the Philippines and Indonesia (for tuna). At the same time, the Thai seafood industry enjoys a strong market position and the industry has reacted to increased competitive pressures by moving into higher-value production and possibly de-localising into low-cost areas (TDRI, 2003). Overall, international demand for shrimp continues to be strong, while the canned tuna industry suffers from over-capacity.[61] The bilateral trade agreements that are being negotiated also have the potential to further boost trading opportunities.

195. A major challenge for the government is to address the emerging industry constraints by (1) developing quality control, tracing and certification systems, (2) improving natural resource management, (3) enhancing vocational skills and (4) promoting R&D. Such efforts may be hampered by the inequality (in education) that prevails in the country: in comparison to the NIEs, a high share of the Thai population still lives in rural areas, with on average much lower incomes than in urban areas and relatively low educational attainment past primary education (Dixon, 1999).

196. The government has already taken action to respond to a number of those challenges. It is actively pursuing various measures to promote Thailand's international competitiveness across various sectors. In early 2003, the government set up the National Competitiveness Committee, whose main task is to set up, implement and supervise a strategy for upgrading national competitiveness, both at macro and sectoral levels. A range of niche sectors are being targeted, one of which is the processed food sector.[62]

197. In addition, it has taken various measures to promote more sustainable fishing practices in light of emerging environmental concerns, for example by establishing conservation zones, reducing the number of fishing vessels, promoting community-based fisheries and introducing regulations on fish farming in mangrove areas (FAO, 2000). The Frozen Foods Association and the Department of Fisheries have promoted a code of conduct on "Sustainable Marine Shrimp Culture" to address social and environmental impacts and problems related to diseases. Education and training, which are essential to raise awareness of rules and regulations among fish farmers, are also being offered.

Conclusions

198. The development of Thailand's seafood industry should be seen in the context of the country's long-term economic transformation. Industrial groups and capital from the import substitution period have played an important role, often relying on joint-ventures with foreign companies for acquiring expertise and penetrating foreign markets. Direct government intervention in production and sales has been limited, but the industry has benefited from public support for production and transfer of technology, as in the case of shrimp farming, and increasingly active export promotion at a later stage. In addition, the industry initially faced relatively lax environmental regulations. While Thailand's seafood industry has a favourable position in the world market, issues such as natural resource management, access to sustainable raw material and non-tariff barriers in exports markets pose a considerable challenge for the industry. In this regard, the active involvement of industry associations in national policy-making process will help design effective policy responses to these issues.

Table 1. Thailand: Structure of the Economy

Average percentage

	1976-1984	*1985-1994*	*1995-2002*
Agriculture, value added (% of GDP)	22.3	13.4	9.5
Industry, value added (% of GDP)	29.7	36.4	41.1
Services, etc., value added (% of GDP)	47.9	50.2	49.4
Trade (% of GDP)	48.4	69.0	106.0
Exports of goods and services (% of GDP)	21.7	33.0	55.5
GDP growth (annual %)	7.0	9.0	2.5
Employment in agriculture (% of total employment)	64.8	63.0	49.2
Employment in industry (% of total employment)	12.6	13.8	19.5
Employment in services (% of total employment)	20.5	23.3	31.3

Source: World Development Indicators CD-ROM (2004)

Table 2. Thailand: Export Structure

Product name	*HS Code 2*	*1976-84*	*1985-94*	*1995-03*
Office machines and automatic data processing equip.	75	0.18%	7.26%	15.60%
Electrical machinery, apparatus and appliances n.e.s.	77	4.62%	7.84%	12.77%
Fish, crustaceans, molluscs, preparations thereof	03	7.60%	10.49%	6.67%
Telecommunications and sound recording apparatus	76	0.12%	4.04%	6.52%
Articles of apparel and clothing accessories	84	4.87%	8.80%	5.98%
Miscellaneous manufactured articles, n.e.s.	89	1.83%	6.84%	4.93%
Crude rubber (including synthetic and reclaimed)	23	8.78%	4.58%	3.30%
General industrial machinery and equipment, and parts	74	0.31%	2.04%	3.15%
Non-metallic mineral manufactures, n.e.s.	66	4.52%	4.34%	3.14%
Cereals and cereal preparations	04	14.54%	5.09%	2.89%
Textile yarn, fabrics, made-upart.,related products	65	5.14%	4.24%	2.68%
Vegetables and fruit	05	16.78%	7.53%	2.55%
Sugar, sugar preparations and honey	06	5.69%	2.76%	1.34%

Source: COMTRADE Database, SITC Rev. 3.

[50] UN COMTRADE mirror data: world imports of "Fish, crustaceans, molluscs, aquatic invertebrates" (HS code 03) and "Meat, fish and seafood food preparations" (HS code 16). See also Vannuccini (2003).

[51] Around 480 factories operated in 2001, the majority of which are small in size and less than a tenth of the factories involve multinational companies, which are mostly from Japan and the US (TDRI, 2003).

[52] The CP group is the largest company in the Thai shrimp industry, with highly vertically integrated operations spanning research and development, feed inputs and farm technology, processing and marketing of products in export markets. Its involvement in shrimp farming started in 1986, whit the acquisition of technologies in a joint-venture with the Japanese company Mitsubishi, employing Taiwanese technicians. The group has also promoted shrimp farming in neighbouring countries (see http://www.cpthailand.com).

[53] For example, the tuna producer Unicord, established itself in the US and Germany in the early 1990s and the CP group is considering setting up a shrimp farm in Madagascar to take advantage of zero import tariffs as opposed to the 20 per cent import duty for fresh shrimp and 15 per cent for processed shrimp products that Thai exports to the EU currently face. See Dixon (1999) and The Nation (2004a).

[54] For instance, the North America Shrimp Exporters Group negotiates freight prices with liners on behalf of members. Public agencies and private sector association have set up an Export Problems Solving Committee to deal with problems in importing countries (see www.thai-frozen.or.th).

[55] The most important factors were the devaluation (following the 1985 Plaza-accord) of the Bath vis-à-vis major partner countries' currencies and the declining competitiveness of NICs in labour-intensive production, combined with low labour and land cost and existing spare capacity in the Thai industry.

[56] For example, in the year 2000, export of canned tuna was only half its value in the previous year while export of frozen shrimps jumped. The trend was reversed in the following year when canned seafood experienced a rebound, while frozen seafood has weathered various non-tariff measures imposed by the EU and the United States (TDRI, 2003).

[57] The first agreement was signed with Bahrain in 2002. Negotiations are underway with China, India, the US, Australia, Japan, and Peru, and are being considered for Mexico and the South Africa Customs Union.

[58] Members joining the ASEAN FTA will be abiding to a Common External Tariff of 0.5%.

[59] http://www.foodmarketexchange.com/datacenter/product/seafood/shrimp/detail/dc_pi_sf_shrimp0802.htm

[60] The Thai Board of Investment recently started redefining its role from being a regulator focusing on tax incentives to becoming a facilitator that actually addresses the needs of investors. Instead of trying to attract high quantities of investments, BOI now works to promote quality investments with potential for research and development and technology transfers. One of the five focus industries that have been identified is agro-industry.

[61] http://www.foodmarketexchange.com/datacenter/product/seafood/dc_pi_seafood.htm

[62] See www.competitiveness.in.th