



# [682] Paper

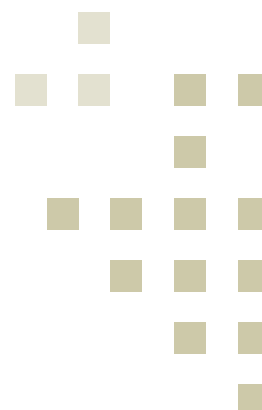
## Norway's trade with developing countries

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# Norway's trade with developing countries

**Per Botolf Maurseth**

**[Summary]** This paper presents some characteristics of Norway's trade with developing countries. Norwegian trade with low and low middle-income countries has increased in recent years. Imports have increased more than exports. This is partly because a large part of Norwegian exports is petroleum sold to other OECD countries. Norwegian trade with the least developed countries, on the other hand, is stagnant and constitutes only a minor share of Norwegian foreign trade. This pattern is similar to other OECD countries: Developing countries increase their share in world trade while least developed countries are marginalized. By adjusting for size and geographical position of Norwegian trade partners it is found that Norwegian trade with developing countries is as expected as compared to other OECD countries.

## **The GSP project**

This is a paper from a project on the Norwegian GSP system, undertaken by the Norwegian Institute of International Affairs for the Ministry of Foreign Affairs in 2004-2005. In addition, the following papers are available:

\*Melchior, A., The future of Norway's GSP system (main report), NUPI Paper No. 680b or Norwegian version in NUPI Paper No. 680a.

- \* Maurseth, P.B., Trade and Development – a selective review, NUPI Paper No. 681.
- \* Melchior, A., GSP in the “spaghetti bowl” of trade preferences, NUPI Paper No. 683.
- \* Melchior, A., The Norwegian import regime for agriculture, NUPI Paper No. 684.
- \* Melchior, A., Trade policy differentiation between developing countries under GSP schemes, NUPI Paper No. 685.

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## **1. Introduction**

In debates about globalisation, trade with developing countries is high on the agenda. Although domestic consequences of liberal trade policies is still a controversial issue, there is more acceptance that market access for developing countries is 'development friendly'. In the WTO this is the reason why member countries are allowed to deviate from the 'most favoured nations' principle and grant developing countries preferential access to their markets. Through the 'Generalized System of Preferences', GSP, member countries in the WTO are allowed to grant better trade conditions for developing countries than for other members. Such improved trade conditions can be given on objective criteria only. Norway for instance, grants developing countries better market access on many goods and zero tariffs on imports from the least developed countries. Improved market access for developing is an important demand from the developing countries in the Doha negotiations in the WTO.

In this note we present Norway's imports from developing countries. The note is a part of NUPI's study of the Norwegian GSP system.

In the next section we give a brief overview of the importance of developing countries in world trade. Developing countries are involved, as exporters, importers and both, in an increasing share of world trade. This is a natural consequence of high growth rates in several developing countries such as the growth miracles in South East Asia, China, India and more. It is also a consequence of trade liberalisation. Developing countries themselves have liberalised their international trade. They have also gained increased market access in developed countries' markets. The least developed countries, on the other hand, do not experience increased trade shares. Their exports to and imports from the developed countries stagnate. Therefore, these countries do not seem to succeed in world trade, although exceptions do exist.

Thereafter we take a closer look at Norway's trade with developing countries. Also for Norway imports from developing countries have increased. For a large part this is explained by increasing imports from Asia, in particular from China. Norway's imports from the least developed countries, which enjoy duty free access to Norway, is very small and constitutes about 0,2 per cent of total imports. Since it so small is it also subject to considerable variation.

We also give a presentation of the composition of Norway's imports from developing countries. Important goods imported from these countries are textiles, footwear and some agricultural goods.

In section 4 we present Norway's trade with developing countries in an international perspective. We ask whether Norway's imports from these countries are large or small as compared to other countries. Our results indicate the Norway's trade with these countries are in line with other countries when we control for size and distance.

## **2. Trade between developed and developing countries – a brief overview.**

There is no exact or official definition of 'developing countries'. In the WTO terminology, countries have the opportunity to 'declare' themselves as developing. So for instance, while China and South Korea are self-defined developing countries,

Russia (in the negotiations on membership) is not. Developing countries are entitled to preferential treatment in their trade with developed countries through the GSP system, though there is no automatic preferential treatment.

For the purpose of this paper, we have chosen the World Bank categorisation of low- and low middle-income countries (LLM countries) as developing countries. These countries include Russia, China, Brazil and Bulgaria, but they exclude countries like South Korea, Botswana, Chile, Argentina and Venezuela. We have chosen to focus on LLM countries for two reasons. First, upper middle countries include countries that are normally considered as developed countries. Second, extensions of preferences to developing countries can be given to LLM countries only. Therefore it is of interest to present Norwegian trade with these countries.

We give a presentation of these countries' trade with the developed countries. For this purpose we denote OECD countries as developed. Our presentation therefore excludes some international trade, i.e. trade between richer developing countries (like Botswana) and rich non-OECD countries, like oil producing Arab states. However, we believe that our selection of country groups give a fair ground for comparison with Norway's trade with developing countries.

The data used are taken from the COMTRADE database, provided by the United Nations Statistics Division. These data are based on individual countries' reports on their foreign trade. A reporting country's exports to some country should in principle be identical to the other country's imports from the reporting country. Sometimes however, this is not the case. We use the OECD countries' reports on trade with LLM countries. The reason why we use the OECD countries' reports to the UN statistics Division is that we regard these reports as more reliable than reports from the low and low-middle income countries.<sup>1</sup>

We also make use of data on OECDs trade with the least developed countries. Least developed countries (LDCs) is an official category of countries used both in the WTO system and by multilateral institutions like the World Bank and IMF (see e.g. Melchior, 2005). The UN is responsible for classifying countries into this group. There are in total 50 such countries, but we use data for 48 of them which were classified as LDCs in the COMTRADE database for 2004.

#### *Trade with low and low middle-income countries.*

In figure 1 we present OECDs total trade with low and low-middle income countries for the period from 1996 to 2004. We have chosen this period since it covers data for all years under the current WTO regime for international trade.

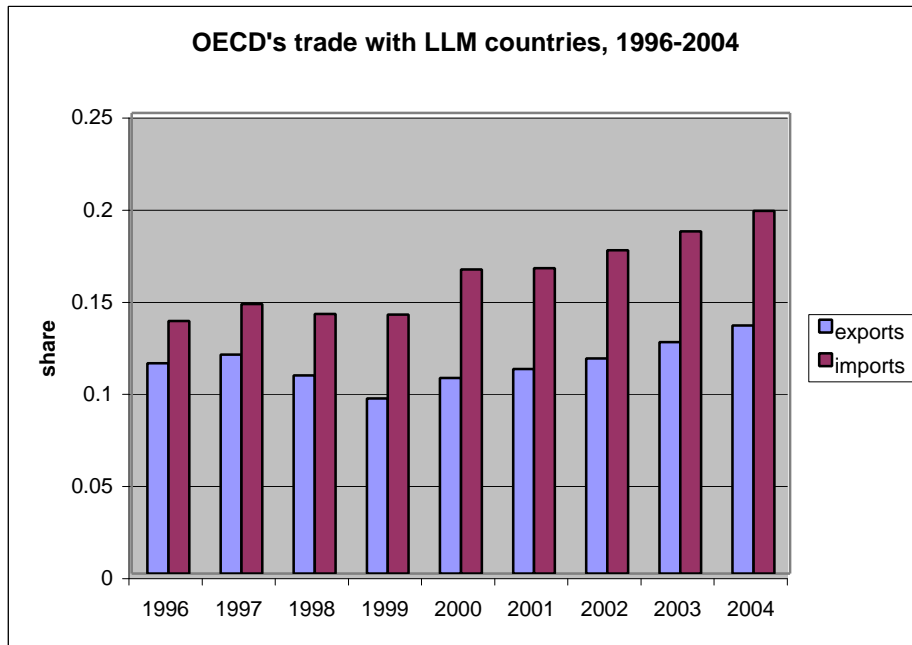
The figure shows that LLM countries' trade constitute an increasing share of OECDs international trade. Imports from LLM countries have increased from just above ten per cent in 1996 to almost 20 per cent in 2004. Also OECD exports to LLM countries seem to obey an increasing trend, but not as pronounced as for imports. Imports from these countries far exceed exports. Figure 2 illustrates OECDs trade deficit with LLM

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<sup>1</sup> In Melchior (2005) it is noted that Norway's reported imports from Bangladesh is different from Bangladesh' reported exports to Norway. There may be many possible reasons for this. For the purpose of this paper, we have chosen to make use of the OECD countries' reports.

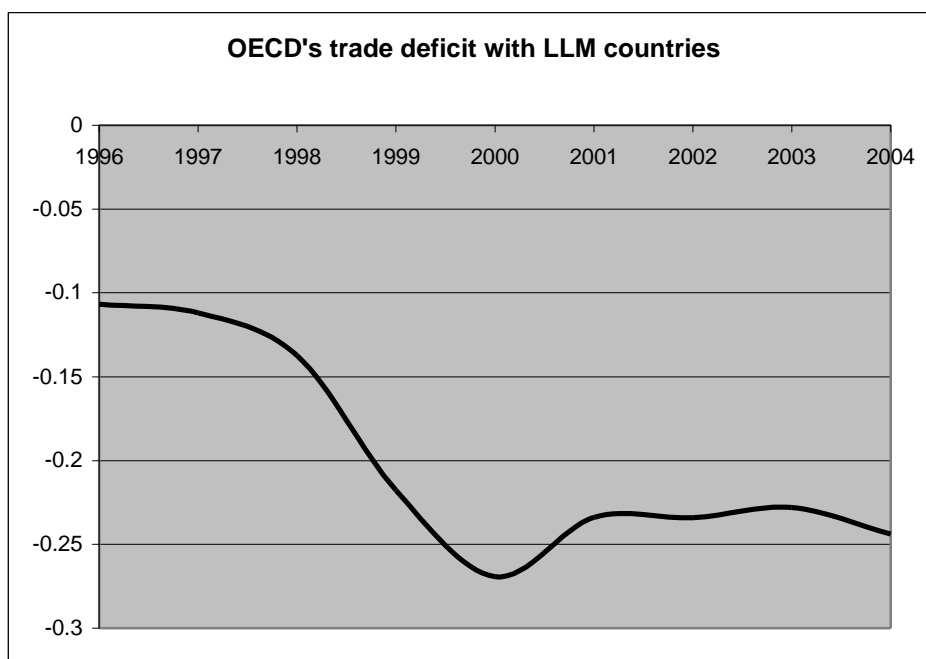
countries as a share of OECDs total trade with these countries (i.e. (exports-imports)/(exports+imports)).

Figure 1



Source: The COMTRADE database

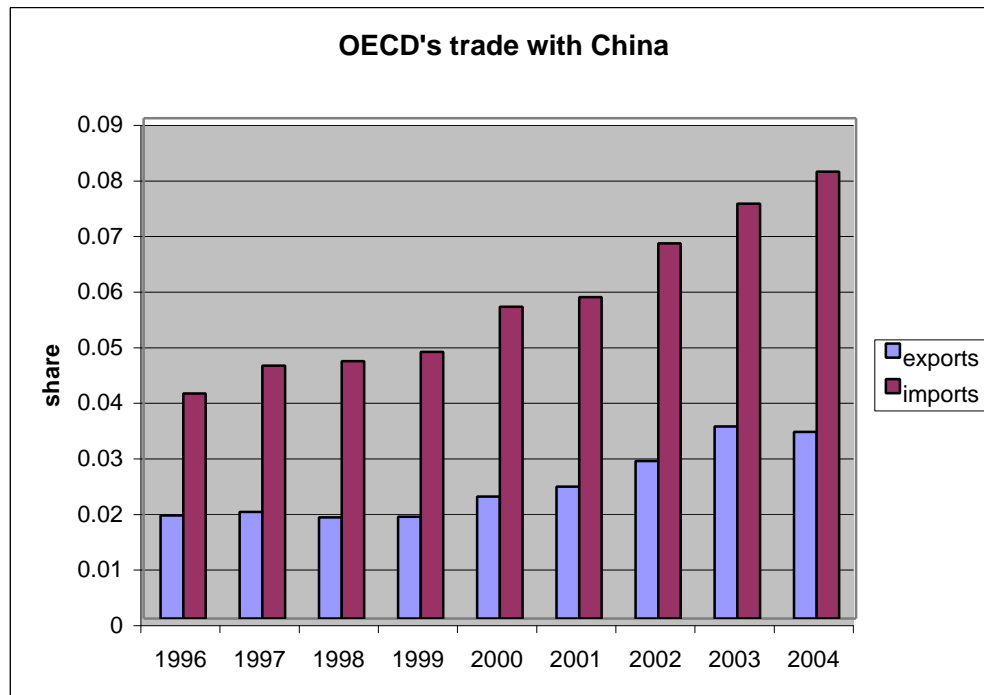
Figure 2



Source: The COMTRADE database

Naturally, China is in an exceptional position. Chinas trade with the OECD countries have increased dramatically over the period described here. Chinas share of OECDs imports and exports increased from about 2 and 4 per cent respectively in 1996 to above 3 and 8 per cent in 2004. In fact, trade with China constitutes the lion's share of the increased trade between OECD and the LLM countries. For the USA in particular, the increasing trade deficit vis-à-vis China has become an increasingly important political issue.

Figure 3



Source: The COMTRADE database.

Figure 4 displays trade in some important commodity groups in 2004 (the most recent year we have data for). The figure shows the share of trade in different commodity groups for OECD's exports and imports. The complete description of the commodity groups is given in the appendix.

It is seen from the figure that LLM countries constitute a larger share of OECD countries' imports than their exports for most commodity groups. For some commodity groups, imports from LLM countries constitute more than 30 per cent of OECDs imports. These commodity groups are textiles, pearls and precious stones, minerals, leather products, furniture and toys and footwear. With the exception of minerals, and pearls and precious stones, these commodity groups represent industries in which LLM countries have a comparative advantage in terms of low labour costs. For minerals and precious stones, the trade pattern probably reveals comparative advantages due to resource abundance and differences in preferences due to different income levels.<sup>2</sup>

<sup>2</sup> Pearls and precious stones are probably luxury goods with income elasticities much higher than one.



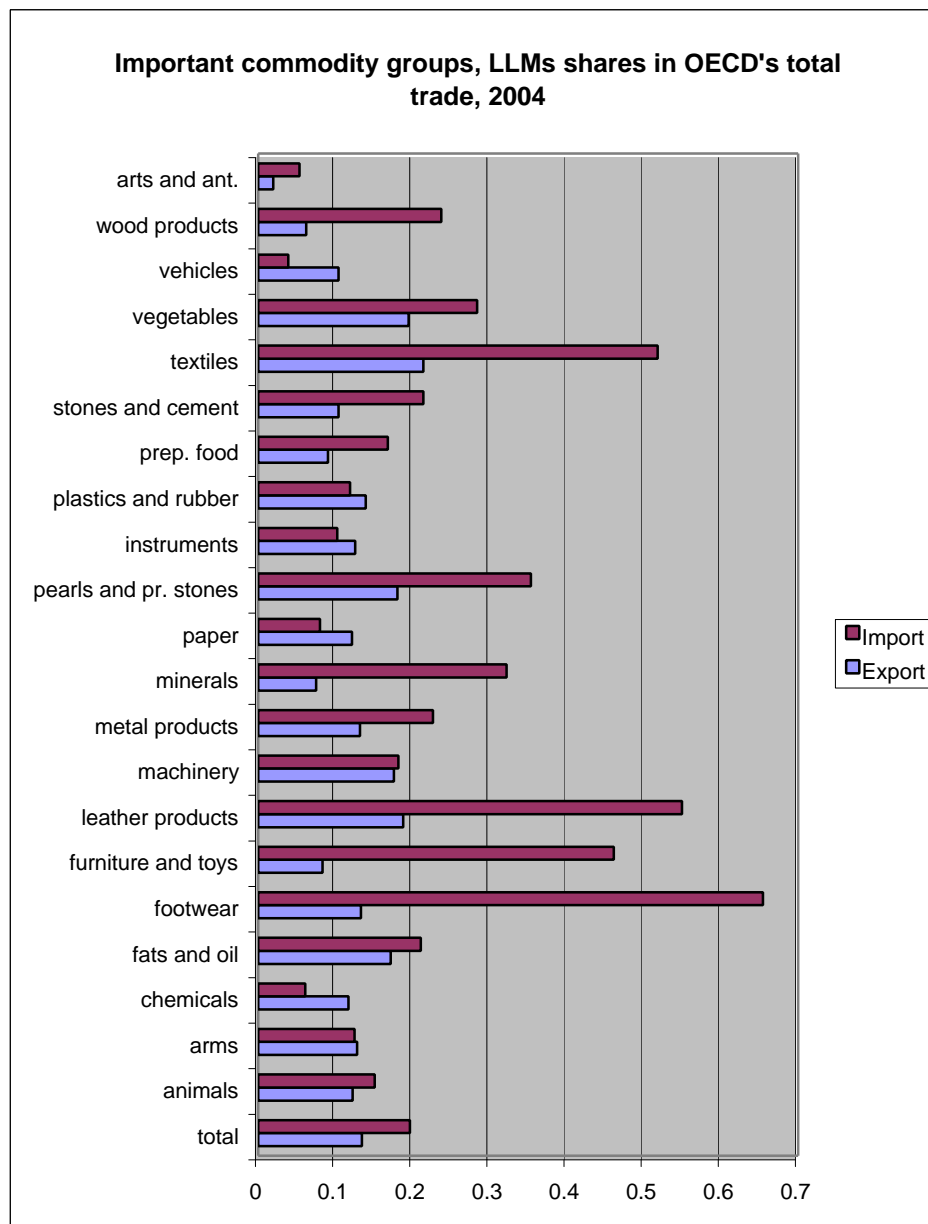
There are also three other peculiarities to be read off from figure 4. The first is that trade in agricultural products is relatively unimportant. Both for animal products, vegetables and prepared foodstuffs, trade with LLMs represent a small share of the OECD countries' imports and exports. For these three product types LLMs shares in OECD imports are larger than their share in OECD exports.

The second characteristic from OECD-LLM trade is the relative competitiveness of the OECD countries in commodity groups like vehicles, aircraft and vessels, instruments, chemicals and pharmacy and arms. These are high tech commodity groups in which the OECD countries have a comparative advantage as compared to LLM countries.

It is well known that two-way trade within the same commodity groups is increasing in importance in the world economy. This is denoted as intra-industry trade. Such trade is known to be most important for developed countries. Intra-industry trade is most prevalent for manufactured goods. For fast growing economies such trade is growing more than other trade. Intra-industry trade is not directly visible in the figure since commodity groups and country groups are gross aggregates. However, there are significant exports and imports in each commodity groups and most so in the groups where OECD imports from LLMs are low. That is, for some commodity groups the relative competitiveness of LLMs seem to be high. For those groups where it is not, exports from the OECD are also relatively limited.

Note however, that there is a large share of 'intra-industry trade' in these agricultural goods. These are industries in which LLM countries are assumed to have comparative advantages vis-à-vis developed countries. For the OECD countries in total this can be explained first subsidies of agricultural production and export and second by the comparative advantage of some countries, like the USA and Australia in these commodity groups.

Figure 4



Source: The COMTRADE database.

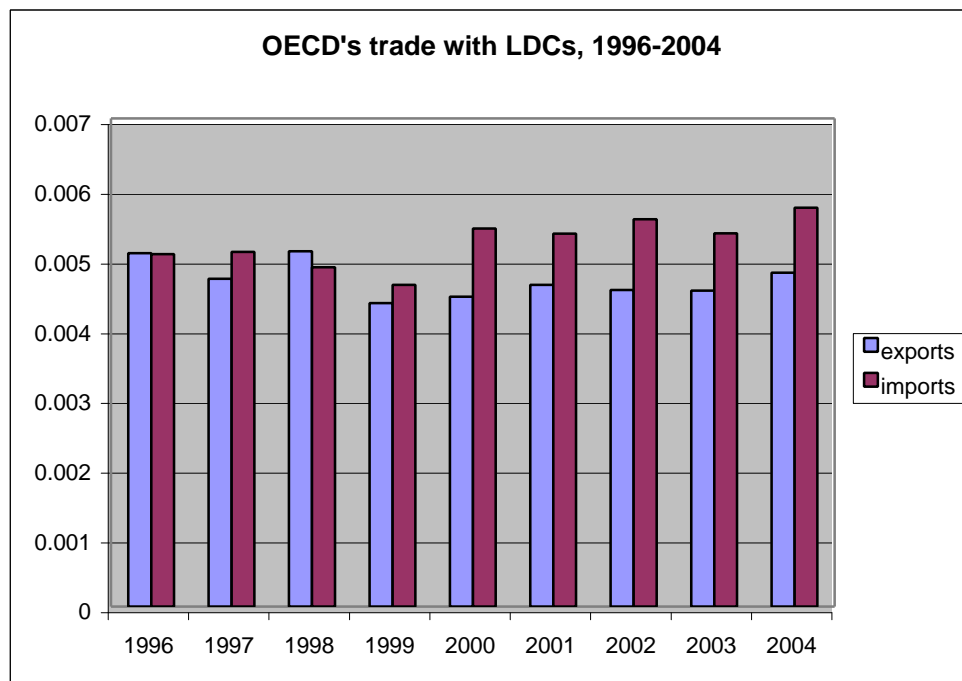
*Trade with least developed countries.*

The least developed countries (LDC) have gained increased attention in recent years. These countries enjoy duty free access to many markets in the OECD, in particular the European Union and Norway. Melchior (2005) gives an overview of tariff regimes facing different developing countries in some developed countries. A special problem in multinational trade negotiations is the effect of trade liberalisation on these countries' market access in rich countries. When tariffs facing other countries

decrease, the benefit of duty access also decreases. LDCs may therefore lose from general trade liberalisation.

In figure 5 OECDs trade with LDCs in the period from 1996 to 2004 is graphed. The figure is similar to figure 1 in all respects, except that it covers the LDCs only.

Figure 5



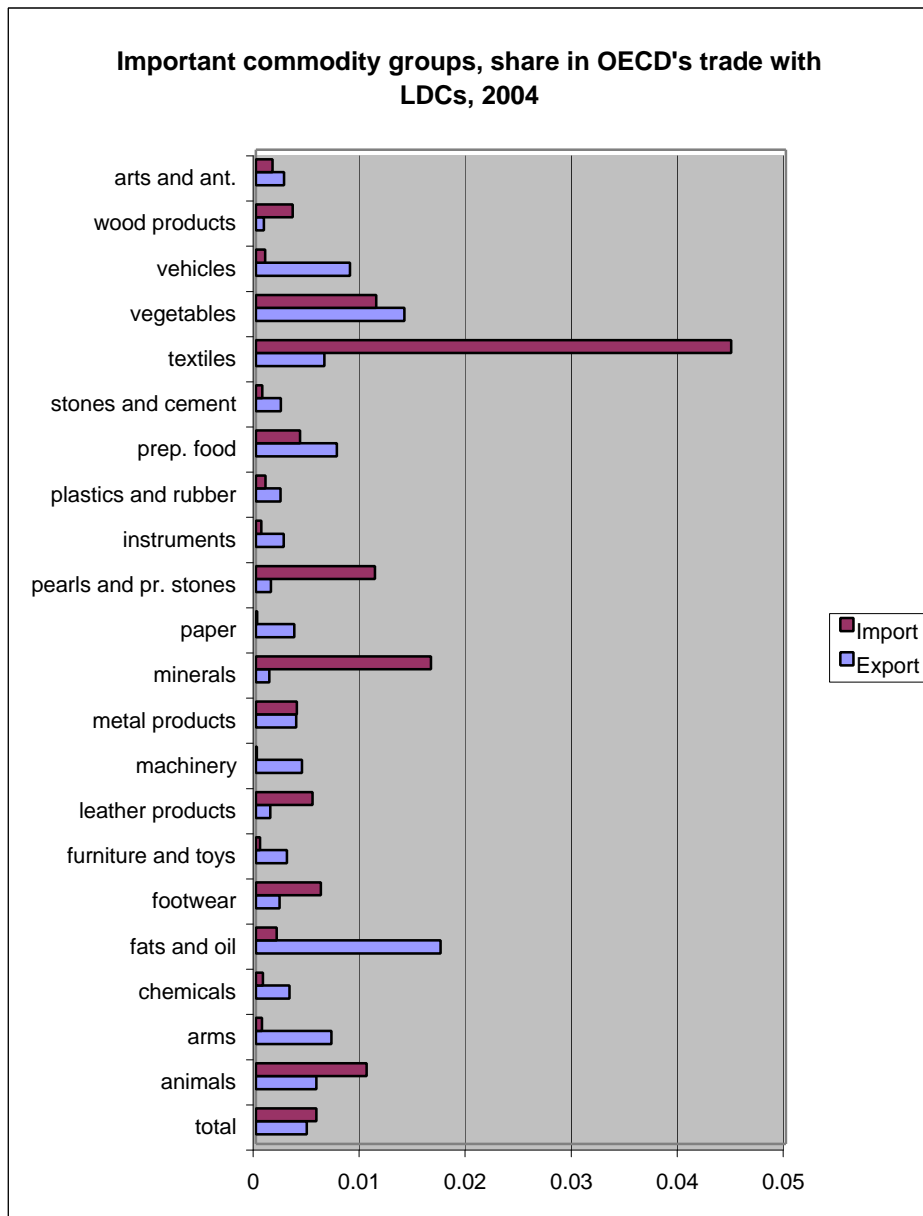
Source: The COMTRADE database

It is seen from figure 5 that OECDs trade with least developed countries is limited. Only about half a percentage of OECDs imports and exports are with these countries. There is some evidence of increasing trends in recent years, but it is not very clear. Also, trade between the OECD and the LDCs is more balanced than trade with the LLMs in total. Exports and imports shares are more similar than what was the case for the whole group of low and lower-middle income countries. Despite the limited importance of this trade, imports from LDCs have become more important as share of total imports than is the case for exports. This may be a consequence of extended preferences for these countries.

Figure 6 gives a very different picture of the pattern of trade between OECD and the LDC than what is the case for LLMs. First, the shares of LDCs are smaller than for LLMs. This is because LDCs are a sub group of LLMs. More important is that the trade pattern is different. For imports, LDCs represent a larger share than for exports for only 8 commodity groups. The most important of these are textiles, minerals and footwear. For the other commodity groups export to LDCs are larger as share of total exports than import as share of total imports. OECDs comparative advantage in high tech commodity groups is much more pronounced than it was for the whole group of LLMs.

Also note that for commodity groups in which LDCs could be assumed to have comparative advantages, like vegetables, fats and oils and foodstuff, exports from the OECD is larger as compared to total exports than what is the case for imports. This is probably due to agricultural policies in the OECD countries and the comparative advantage of some of the OECD countries in agriculture (like USA and Australia).

Figure 6



Source: The COMTRADE database.

In sum, north-south trade, here represented with trade between the OECD countries and low and low-middle income countries is on increase. This is mainly due to high growth rates in some developing countries and China in particular. Trade with the least developed countries is small and fairly constant. A minor trade deficit in the OECDs trade with LDCs may reflect beneficial market access for these countries. Trade patterns in goods show that developing countries have a large share in some

commodity groups. Textiles and footwear are of particular importance. The same does not apply to agricultural goods even if developing countries often are assumed to have a comparative advantage in agriculture. One reason for this may be agricultural policies in some developed countries.

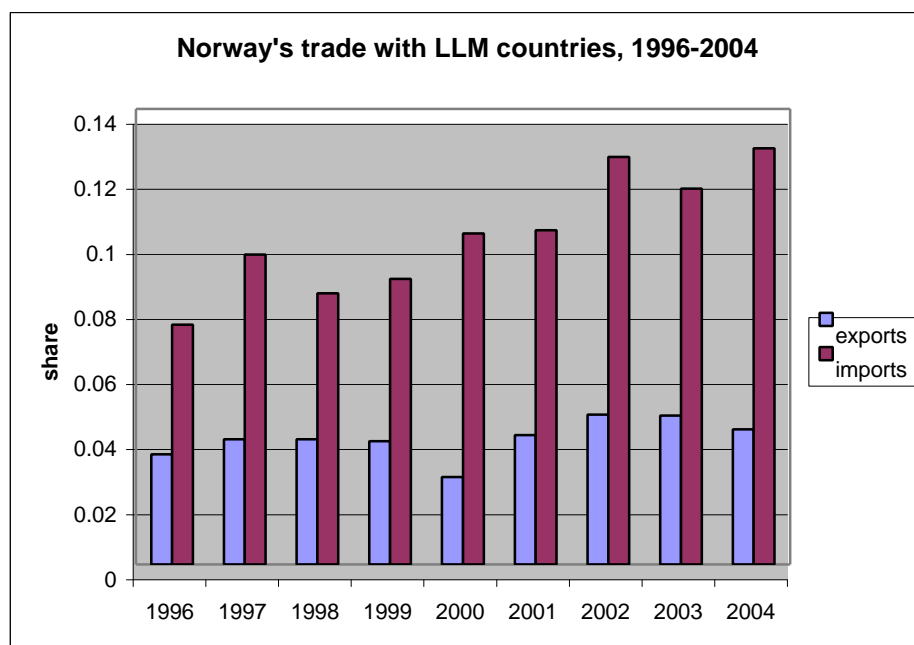
### **3. Norway's trade with developing countries.**

#### *Trade with low and lower-middle income countries*

Figure 7 is the parallel to figure 1 above. It shows Norway's trade with low and low-middle income countries in the period from 1996 to 2004 as share of total trade. The graph indicates that Norway's trade deficit with developing countries is relatively larger than the deficits for OECD in total. Norway's exports to developing countries are a modest 4 per cent of total exports. Imports from LLM countries on the other hand, constitute more than 12 per cent. It is clear that this is a consequence of the petroleum based Norwegian export structure. While fast growing developing countries are also important petroleum improters, the most important destinations for Norwegian oil and gas exports are still the OECD countries.

As for the OECD countries in general, Norwegian imports from developing countries are on increase. Norwegian imports from these countries were above 12 percent in 2004. Note that this is considerably lower than the 20 percent for the OECD countries in total.

Figure 7



Source: The COMTRADE database

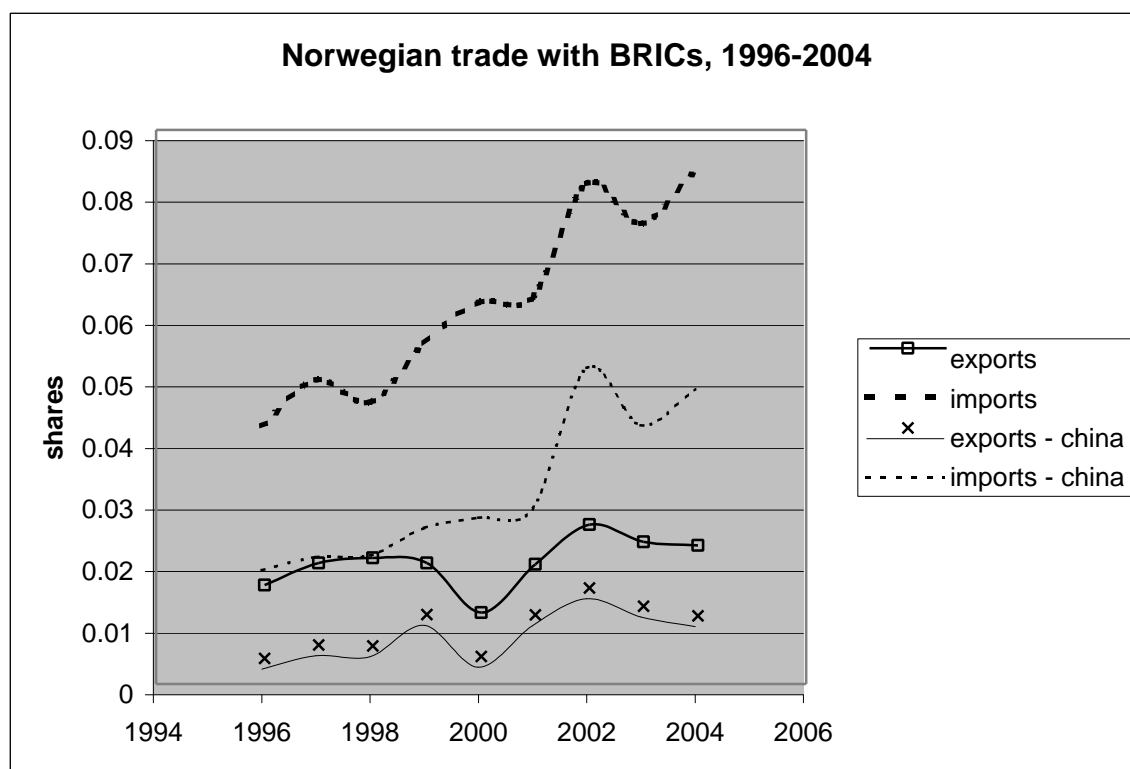
For the OECD countries, an important part of the increase in trade with developing countries is with China. Both exports to, but in particular imports from China, have increased dramatically. In figure 9 below Norwegian trade with China is described,

together with trade with Brazil, India and Russia. In recent years these four countries have experienced high growth rates and some observers believe that these four countries will constitute growth engines in the world economy in the future. These four countries are sometimes labeled with the nickname 'BRICs'

Figure 8 shows that there are indeed increasing and high imports to Norway from the BRICs. Their share of Norwegian imports were almost 9 per cent in 2004, up from 4,5 in 1996. It is clear from the figure however, that imports from China do represent most of the increase. The vertical distance between imports in total from BRICs and imports from China increases, but only slowly.

Norwegian exports, both to China and to the other BRICs, seem to stagnate. China receives about 1 per cent of Norwegian exports. In total the four growth engines receive somewhat more than 2 per cent of total Norwegian exports.

Figure 8



The composition of Norway's trade with developing countries is very similar to that of the typical OECD country. This is shown in figure 9. As the average OECD country, Norway has high import shares in vegetables, textiles, leather products, footwear and animal products. These are industries in which developing countries have comparative advantages. Norwegian imports shares of furniture, minerals and wood, on the other side, are lower than for the average OECD country.

As is seen from the figure, Norwegian exports to low and lower middle income countries are more specialised than the average OECD country. For the commodity groups vehicles (which includes ships), machinery, leather products and animal

products, Norwegian export shares to developing countries are higher than ten percent. It is interesting to note that export shares to developing countries are also relatively high for vegetables and instruments.

In figures 10 and 11 we take a closer look at Norwegian imports of agricultural goods from developing countries. This is because market access for such goods is high on the agenda in the WTO negotiations and because Norway has extremely high tariff rates for some agricultural goods. Goods are defined as agricultural according to the HS-1996 system. Our category of agricultural goods includes all traditional agricultural goods and prepared foodstuffs, but excludes fish products. The list of included goods is listed in table A3 in the appendix.

Figure 10 graphs the share of imports in agriculture from LLMs over the period from 1996 to 2004. It is notable that imports shares in agriculture have *not* increased in this period. For agricultural goods, import shares from these countries are fairly constant and fluctuate around 16 per cent of total imported agricultural goods. Therefore, agricultural goods have lost relatively to other goods since import shares from LLMs in total have increased.

Import shares in agriculture are only slightly higher than import shares for all goods. In international economics a commonly used term is *revealed comparative advantage* (RCA). RCA is defined as a country's export share in one type of commodity as compared to its export share in a market in total. Values above one for one type of good indicate relative specialisation in industries producing this good. Values below one indicates relatively low exports of this good as compared to other goods. For LLMs' exports to Norway, the RCA in agriculture has declined from 1,65 in 1996 (but the peak was in 1997 with 1,94) to a more modest 1,22 in 2004.

Figure 11 graphs more details about Norwegian imports of agricultural goods from developing countries. Four commodity groups constitute the major share of Norwegian imports of agricultural goods from developing countries. These are prepared foodstuffs (several HS chapters), oil seeds (HS chapter 12), coffee and tea (HS chapter 9) and fruit (HS chapter 8). Shares for coffee and tea are decreasing while shares for oil seeds and fruits are increasing. Meat imports from developing countries have increased only modestly and constitute a small part of Norwegian total imports of meat.

Note that figure 9 does not reveal much about Norwegian trade policy. That figure present LLMs shares of the total imports of the *given* commodity groups. Norwegian trade policy raises trade barriers for many countries (with the exception of least developed countries) but developing countries are treated beneficially as compared to other countries facing *most favoured nations* (MFN) tariffs. Figures 11 on the other hand, reflect import shares of different agricultural goods as shares of total imports of agricultural goods from developing countries. As such, this figure indicates effects of Norwegian trade policy. Note that imports of goods that are produced by Norwegian farmers are low. This applies to cereals (HS chapters 10 and 11), vegetables (HS chapter 7), dairy products (HS chapter 4, but hardly visible in the figure) and meat products (HS chapters 1,2,4, and 5).

Figure 9

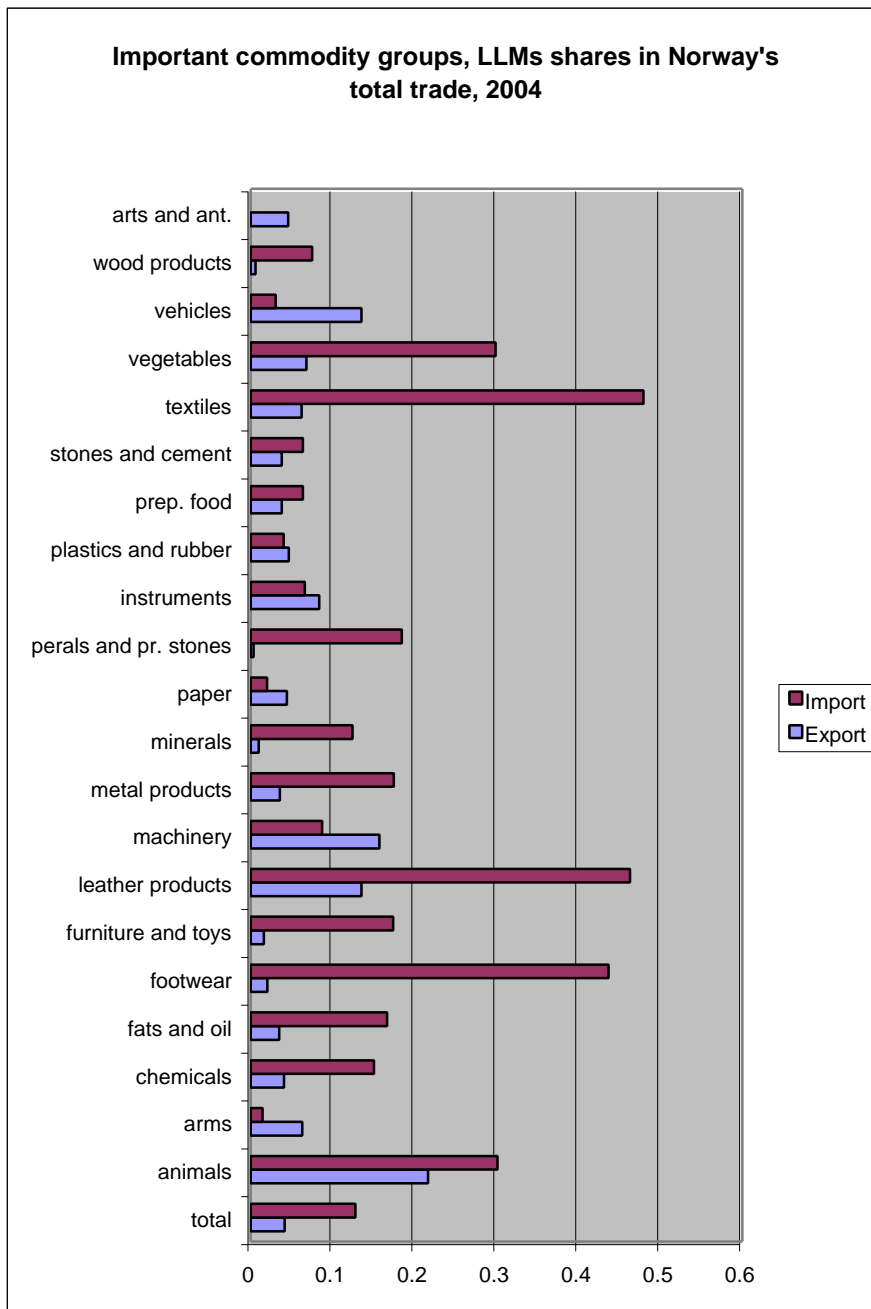




Figure 10

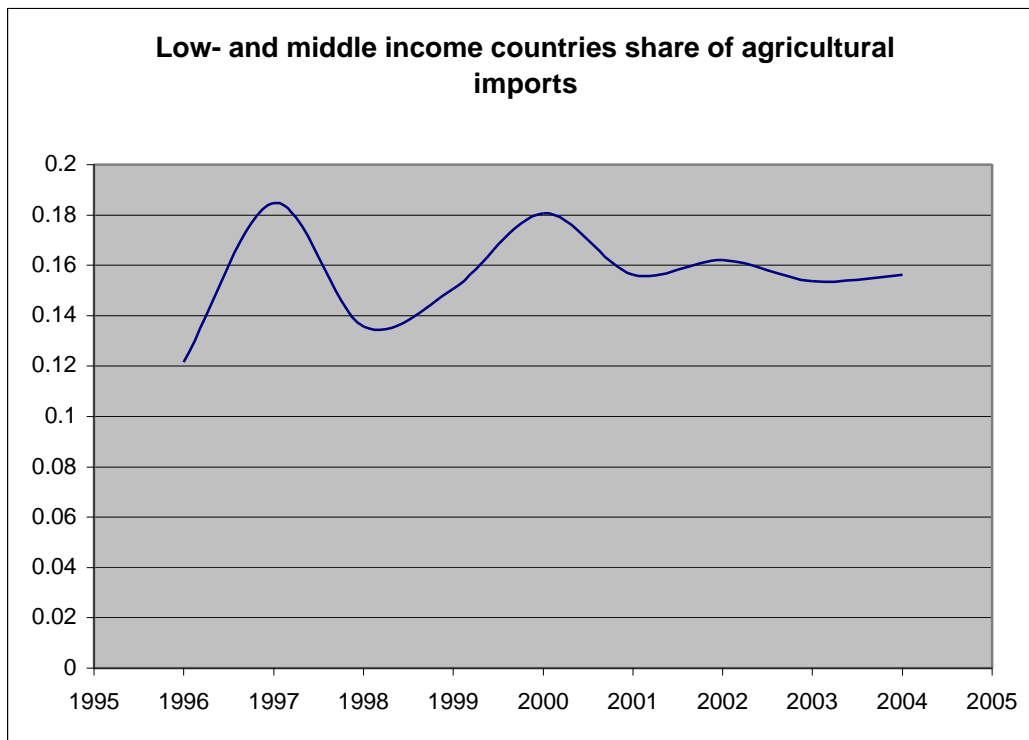
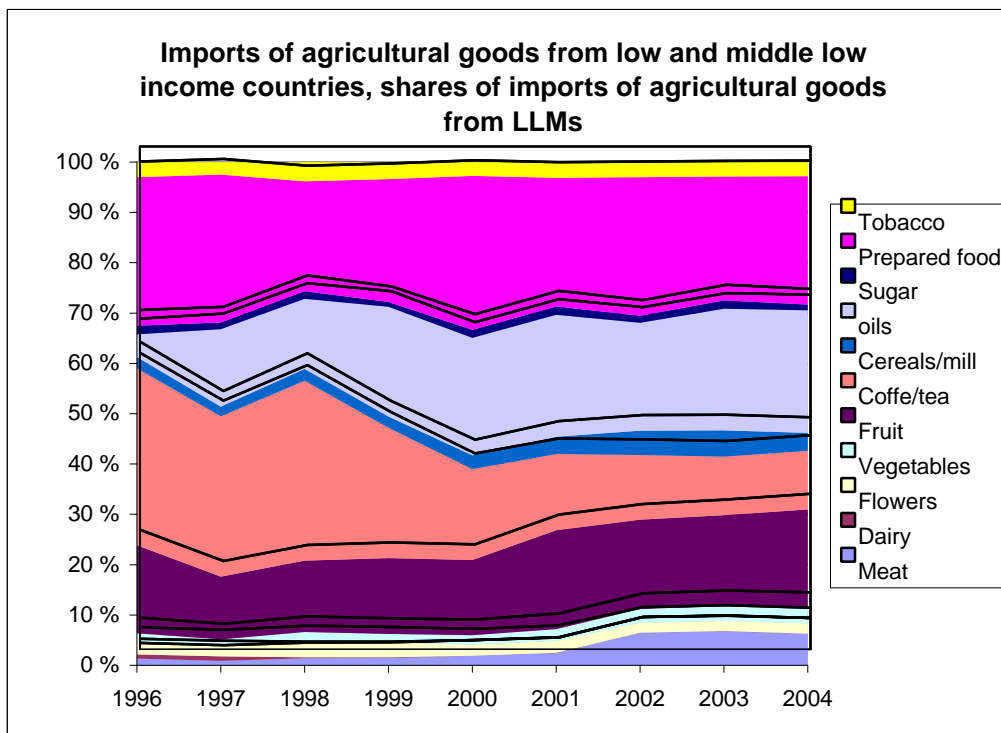


Figure 11



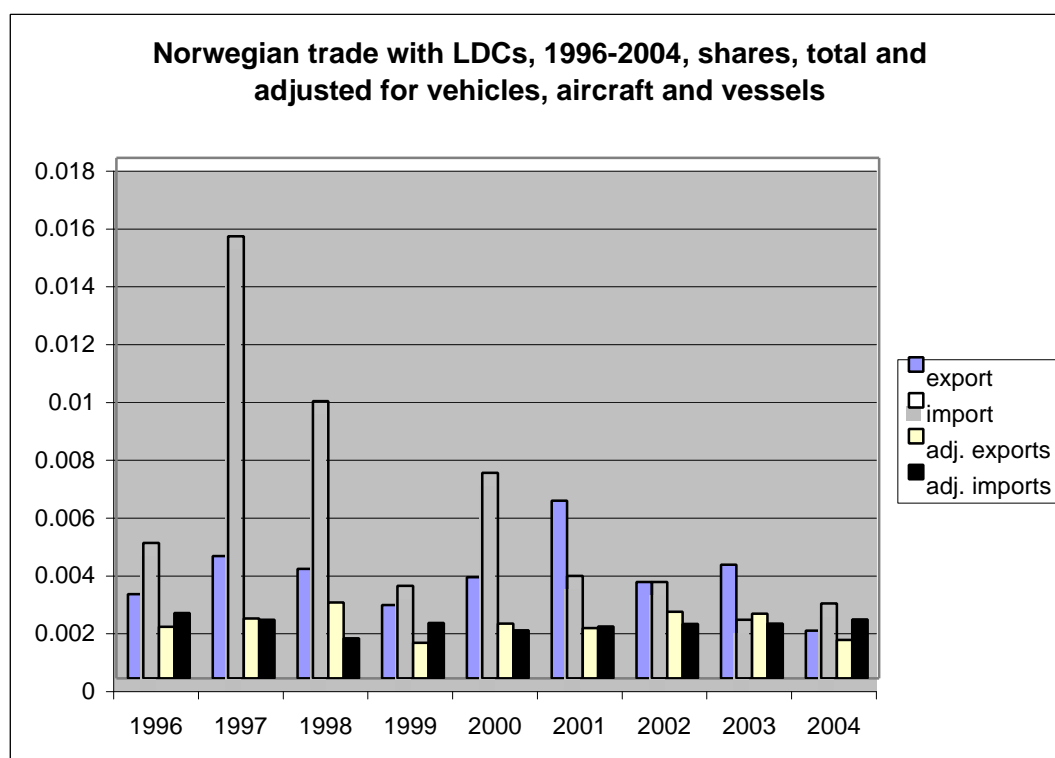
Note: Commodity groups follow the same ranking as in the list to the right in the figure. Tobacco is located high and meat low in the figure.

Norwegian trade with least developed countries

Figure 12 graphs Norway's trade with the 48 least developed countries for the period from 1996 to 2004. The figure shows imports from and exports to these countries as shares of total Norwegian imports and exports. The figure also shows these shares when the commodity group *vehicles, aircraft and vessels* is excluded from trade with these countries. The reason for this is that Liberia is a major importer and exporter of used vessels. Naturally, such trade is international trade, but it represents trade for a very special type of commodity due to particular political circumstances. Much of this is exports and imports for registration purposes only. We have therefore chosen to present trade with LDCs both when this group is included and when it excluded.

The graph demonstrates that trade with the least developed countries is very limited and that Norwegian trade shares with these countries are generally less than for the OECD in total. Import shares from these countries are fairly stable and does not show any clear trend (but when vessels are included they vary considerably over time). Imports from least developed countries seem to be stable around 0,2 per cent of total Norwegian imports.

Figure 12

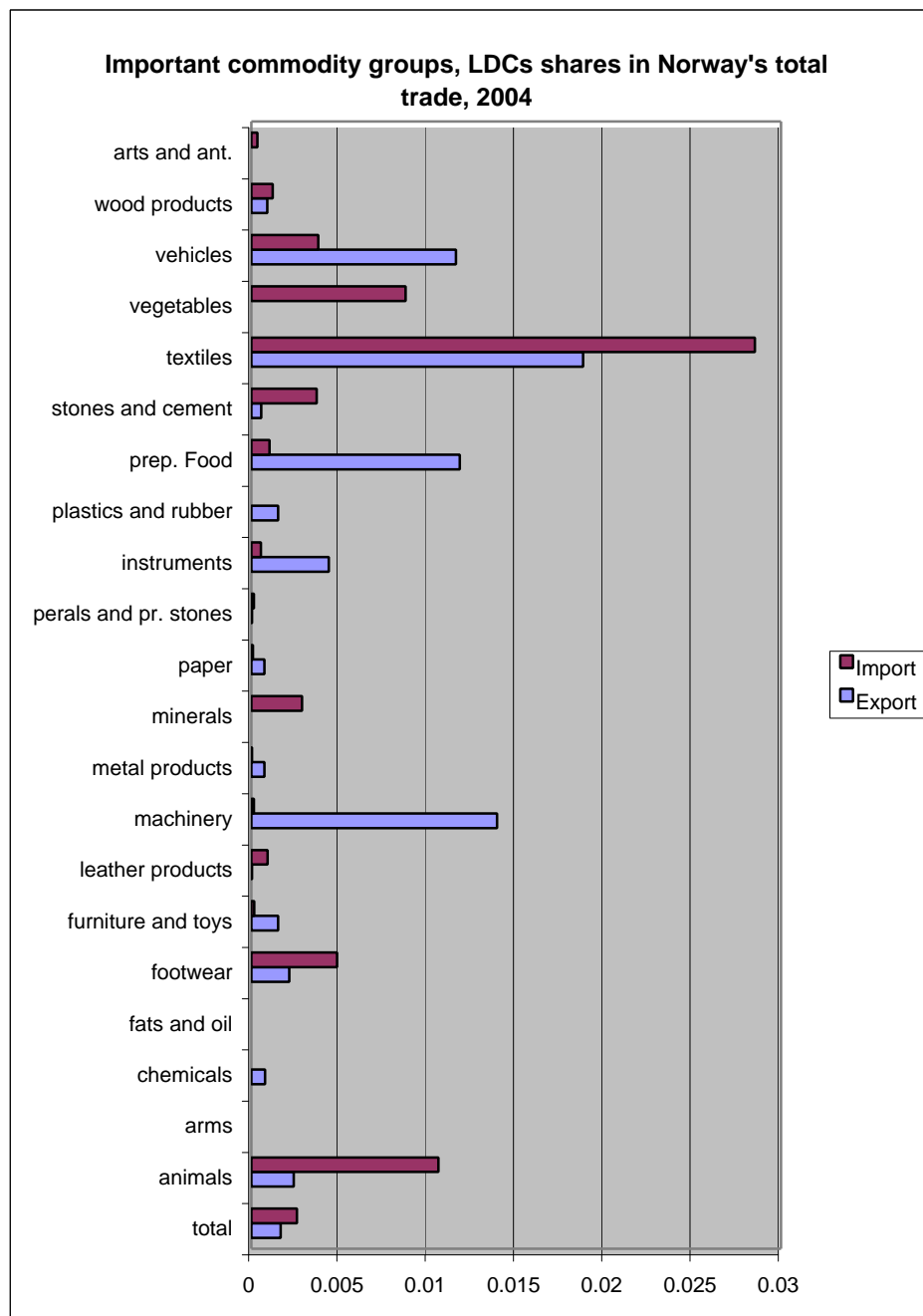


Norwegian exports to the least developed countries are also limited. Adjusted for vessels they constitute approximately 0,2 per cent of total Norwegian exports. When vessels are included, Norwegian export performance is larger and varies more.

Figure 13 shows Norwegian shares of imports from and exports to LDCs as shares of total trade in 2004. This figure demonstrates that the least developed countries are

minor trading partners for Norway for most commodity groups. There are a few exceptions. For imports, vegetables, textiles and animal products constitute more than 0.5 per cent of total Norwegian imports in these commodity groups. For textiles, imports from LDCs is close to 3 per cent of Norwegian imports and for animal products imports from LDCs is slightly above one per cent.

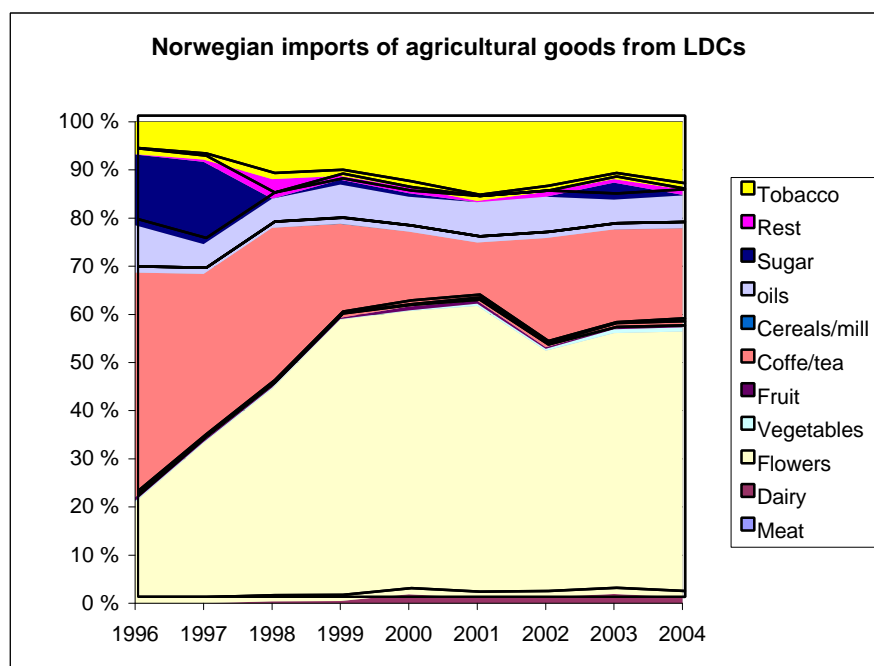
Figure 13



In the appendix we list import values from different countries for vegetables (including cut flowers), textiles, footwear and animals. From that list, it is clear that imports from LDCs in these commodity groups are concentrated to a few countries only. For imports, Bangladesh represents 83 per cent of total imports of textiles from LDCs.

Figure 14 graphs Norwegian imports of agricultural goods from least developed countries. It is clear from that figure that cut flowers, coffee and tea and tobacco represents the most important goods. Imports of other agricultural goods are minor. Cut flowers are mainly imported from Tanzania (c.f.r. Appendix A4).

Figure 14.



#### 4. Trade with developing countries – an international perspective

Above we have established that Norwegian trade with developing countries is increasing over time but that trade with the LDCs is stagnant. This is similar to the average OECD trading pattern. For LDCs, Norwegian imports are relatively smaller than what was the case for the average OECD country. Does this mean that Norway trades less with the developing world than what should be considered ‘normal’?

International trade is known to be influenced by a wide set of economic and other variables. From theories on international trade, productivity, resource endowments, labour costs and transportation costs are assumed to be important. From empirical research on international trade, the so-called gravity model is the standard ‘working horse’ to analyse trade patterns between countries.

For a pair of countries,  $i$  and  $j$ , the following expression ‘explains’ trade with a high degree of empirical exactness:

$$\text{trade}_{ij} = a_1 \text{gdp}_i + a_2 \text{gdp}_j + a_3 \text{distance}_{ij}$$

Above,  $\text{gdp}$  denotes the log of total GDP and  $\text{distance}$  the log of the distance between the two countries. The  $a$ s are the presumed effects. The model implies that trade between two trading partners will tend to increase with the economic size of the two

partners (so that large and rich countries tend to trade more with each other) and decrease with the distance between them. The effect of distance is often assumed to reflect transportation costs, but it also reflects cultural differences, different languages and other factors. The gravity model is inspired by physics in which it is known that gravitation between objects obeys a similar law. Table 3 shows result from a regression of bilateral trade between 118 countries. Data are taken from the COMTRADE database and the World Bank (2004). Distance data were calculated on the basis of the location of each country's capital.

Table 4 Gravity equation

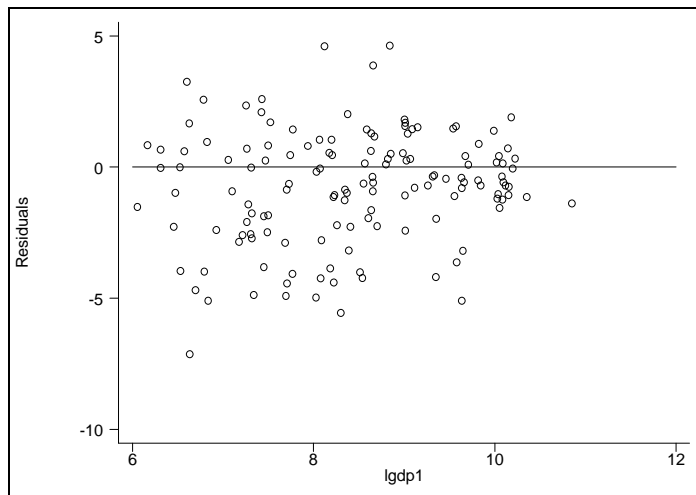
$R^2=0.67$	N=13694	
Variable		
Imports	Coefficient	P-value
GDP1	1.16	0.00
GDP2	0.98	0.00
Distance	-1.31	0.00

The as in the table are the estimated effects. From the data, a one percent age increase in total GDP will tend to increase the imports by 1.16 per cent and exports by 0.98 per cent. Trade decreases between otherwise similar country pairs and the estimated effect is that a one percentage increase in distance reduces imports with 1.31 percent.

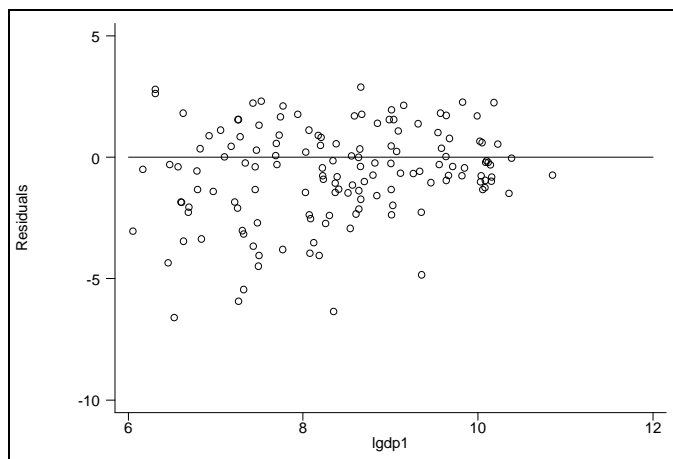
The estimated effects can be used to 'predict' trade. All regression equations are approximations to the data set. Therefore predicted values will deviate from what is actually observed. One can calculate these deviations and use these deviations to evaluate whether trade is larger or smaller than expected based on geographical location and economic size. In figures 15, 16, 17, 18, 19, 20 and 21 we have done this for Norway's , Denmark's, Sweden's, Germany's, France's, USA's and Japan's imports from other countries against these countries GDP per capita. The figures show there is no systematic relationship for 'errors' in Norwegian trade with other countries as compared to their income levels. Some countries are above the zero line and some are below, but there does not seem to be an exact relationship.

It is seen from the figure that the estimated relationship for imports is more accurate for rich countries than for poor countries. For poor countries deviations from zero (errors) are larger than for rich countries. Also, negative errors are largest for poor countries. Despite this Norwegian imports seem to be predicted relatively well by the gravity model in the sense that deviations from predicted imports are evenly distributed for rich and poor countries.

**Figure 15 Residuals versus GDP per habitant for Norway's trade partners, Norwegian imports.**



**Figure 16 Residuals versus GDP per habitant for Denmark's trade partners, Danish imports.**



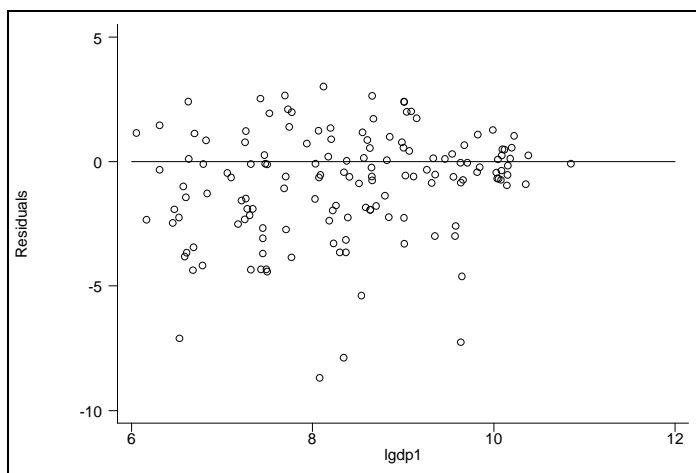
In figure 16 similar results for Denmark are reported. For Denmark we also observe larger deviations (be they positive or negative) for poor than for rich countries. In contrast to the Norwegian result, we observe that for Denmark, the residuals do seem to be increasing in GDP per capita. This implies that Denmark imports less from low-income countries and more from rich countries than what the gravity model predicts.

For Sweden, USA and Japan there is no clear pattern between errors in predicted imports from other countries and these countries' income levels. This does not however, apply to Germany and France. For these two countries the errors are

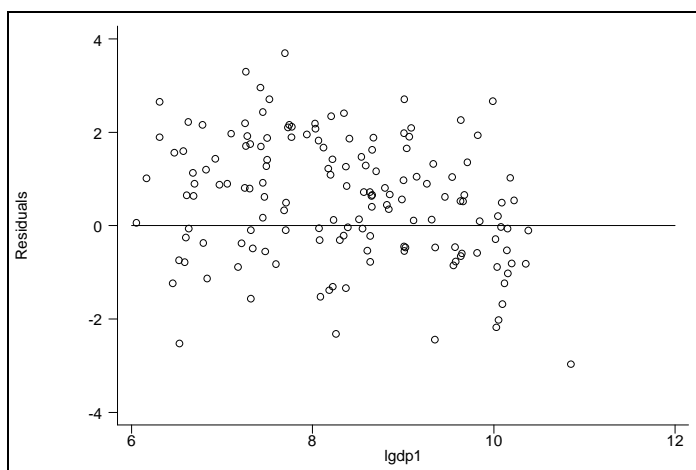
negatively related to income levels among their trading partners. Germany and France therefore, have managed to increase their imports from low-income countries.

This does not apply to all other EU countries (like for instance United Kingdom) so this finding cannot be attributed exclusively to EUs trade policy towards developing countries. However, EUs trade regime is very detailed and the result of a large set of national interests and often compromises in the EU system. It is beyond the scope of this paper to analyse whether EUs trade policy or other variables explain the different trade patterns between EU countries and the developing world.

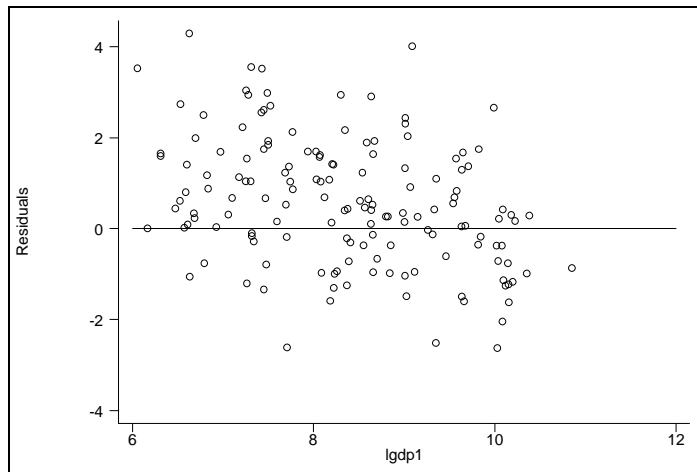
**Figure 17 Residuals versus GDP per habitant for Sweden's trade partners, Swedish imports.**



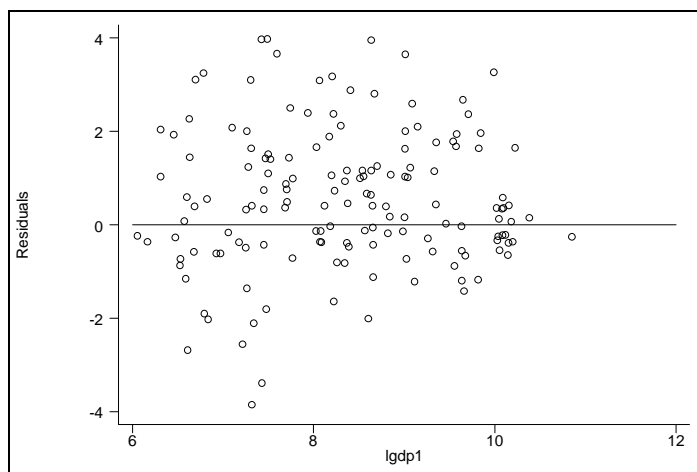
**Figure 18 Residuals versus GDP per habitant for Germany's trade partners, German imports.**



**Figure 19 Residuals versus GDP per habitant for France's trade partners, French imports.**

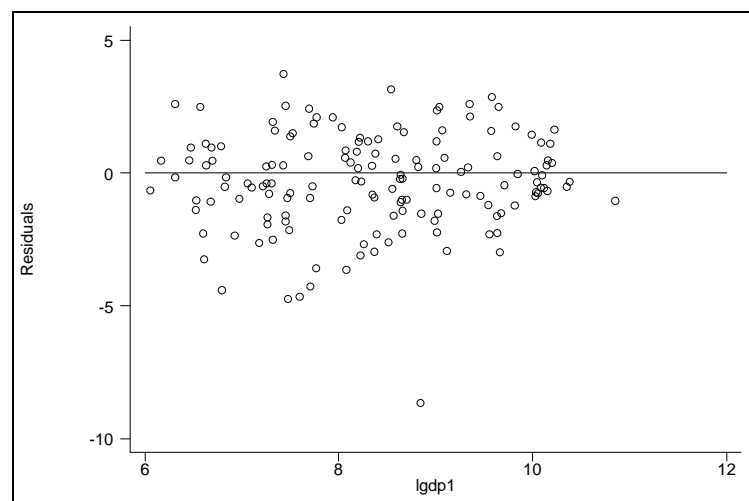


**Figure 20 Residuals versus GDP per habitant for USA's trade partners, US imports.**





**Figure 21 Residuals versus GDP per habitant for Japan's trade partners, Japanese imports.**



Gravity models for international trade do not perfectly reflect international trade. Such models do not capture important determinants such as natural resources, physical and human capital or industrial structures. These models only reflect countries' size and the distance between them. Gravity models are nevertheless known to be empirical accurate. As such the figures presented above do indicate to what extent the different countries reported import from other countries. Germany and France import more from poor countries than what the model predicts, Denmark imports less while there is no systematic relationship for Norway, Sweden, Japan and the USA.

## **5. Conclusions**

In this paper we have presented Norway's trade with developing countries and compared it with that of other OECD countries. Norwegian trade with low and low middle-income countries has increased in recent years. Norwegian trade with the least developed countries, on the other hand, is stagnant and constitutes only a minor share of Norwegian foreign trade. LDCs are minor trading partner for Norway and Norwegian imports from these countries are concentrated in a few commodity groups. The Norwegian trade pattern is similar to that of other OECD countries: Developing countries increase their share in world trade while least developed countries are marginalized. Use of a gravity model of international trade shows that Norway does not trade less with developing countries than do other countries. There is no systematic relationship between errors in predicted imports and the exporting countries' income per habitant.

## Appendix

**Table A1 Countries included as low and low-middle income countries and LDCs**

country	LDC	country	LDC
Afghanistan	1	Liberia	1
Albania	0	Madagascar	1
Algeria	0	Malawi	1
Angola	1	Maldives	1
Armenia	0	Mali	1
Azerbaijan	0	Marshall Isds	0
Bangladesh	1	Mauritania	1
Belarus	0	Mongolia	0
Benin	1	Morocco	0
Bhutan	1	Mozambique	1
Bolivia	0	Myanmar	1
Bosnia Herzegovina	0	Namibia	0
Brazil	0	Nepal	1
Bulgaria	0	Nicaragua	0
Burkina Faso	1	Niger	1
Burundi	1	Nigeria	0
Cambodia	1	Occ. Palestinian Terr.	0
Cameroon	0	Pakistan	0
Cape Verde	1	Papua New Guinea	0
Central African Rep.	1	Paraguay	0
Chad	1	Peru	0
China	0	Philippines	0
Colombia	0	Rep. of Moldova	0
Comoros	1	Romania	0
Congo	0	Russian Federation	0
Cuba	0	Rwanda	1
Côte d'Ivoire	0	Saint Vincent and the Grenadines	0
Dem. People's Rep. of Korea	0	Samoa	1
Dem. Rep. of the Congo	1	Sao Tome and Principe	1
Djibouti	1	Senegal	0
Dominican Rep.	0	Serbia and Montenegro	0
Ecuador	0	Sierra Leone	1
Egypt	0	Solomon Isds	1
El Salvador	0	Somalia	1
Equatorial Guinea	1	South Africa	0
Eritrea	1	Sri Lanka	0
Ethiopia	1	Sudan	1
Fiji	0	Suriname	0
Gambia	1	Swaziland	0
Georgia	0	Syria	0
Ghana	0	TFYR of Macedonia	0

*Maurseth: Norway's trade with developing countries.*

Guatemala	0	Tajikistan	0
Guinea	1	Thailand	0
Guinea-Bissau	1	Timor-Leste	0
Guyana	0	Togo	1
Haiti	1	Tonga	0
Honduras	0	Tunisia	0
India	0	Turkey	0
Indonesia	0	Turkmenistan	0
Iran	0	Uganda	1
Iraq	0	Ukraine	0
Jamaica	0	United Rep. of Tanzania	1
Jordan	0	Uzbekistan	0
Kazakhstan	0	Vanuatu	1
Kenya	0	Viet Nam	0
Kiribati	1	World	1
Kyrgyzstan	0	Yemen	1
Lao People's Dem. Rep.	1	Zambia	1
Lesotho	1	Zimbabwe	0

**Table A2 Commodity groups used in sections 2 and 3**

Animals (live) and animal products; Section I (HS1996)
Arms and Ammunition; Section XIX (HS1996)
Chemical products; Section VI (HS1996)
Fats and Oils (animal or vegetable); Section III (HS1996)
Footwear; Headgear; and Umbrellas; Section XII (HS1996)
Furniture; Toys; and other products; Section XX (HS1996)
Leather products; Section VIII (HS1996)
Machinery; Section XVI (HS1996)
Metal Products; Section XV (HS1996)
Mineral Products; Section V (HS1996)
Paper products; Section X (HS1996)
Pearls and precious stones; Section XIV (HS1996)
Photographic instruments; Clocks; and Musical instruments; Section XVIII (HS1996)
Plastics and Rubber; Section VII (HS1996)
Prepared Foodstuffs; Beverages; and Tobacco; Section IV (HS1996)
Stone; Cement; and Glass products; Section XIII (HS1996)
Textile products; Section XI (HS1996)
Vegetable products; Section II (HS1996)
Vehicles; Aircraft; and Vessels; Section XVII (HS1996)
Wood products; Section IX (HS1996)
Works of Art and Antiques; Section XXI (HS1996)

**Table A3 Commodity groups included in category 'agriculture'**

<b>HS chapter</b>	<b>Commoditydescription</b>
1	Live animals
2	Meat and edible meat offal
4	Dairy products, eggs, honey, edible animal products
5	Products of animal origin, nes
6	Live trees, plants, bulbs, roots, cut flowers etc
7	Edible vegetables and certain roots and tubers
8	Edible fruit, nuts, peel of citrus fruit, melons
9	Coffee, tea, mate and spices
10	Cereals
11	Milling products, malt, starches, inulin, wheat gluten
12	Oil seed, oleaginous fruits, grain, seed, fruit, etc, nes
13	Lac, gums, resins, vegetable saps and extracts nes
14	Vegetable plaiting materials, vegetable products nes
15	Animal, vegetable fats and oils, cleavage products, etc
16	Meat, fish and seafood food preparations nes
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
19	Cereal, flour, starch, milk preparations and products
20	Vegetable, fruit, nut, etc food preparations
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
23	Residues, wastes of food industry, animal fodder
24	Tobacco and manufactured tobacco substitutes
35	Albuminoids, modified starches, glues, enzymes

**Table A4 Imports of some commodities from least developed countries, thousands US dollars. The table lists all trading partners in the five commodity groups among the LDCs.**

<b>Textiles</b>		<b>Animal products</b>	
Bangladesh	52 639,56	Bangladesh	4 968,436
Cambodia	6 589,261	Zambia	147,245
Lao	2 457,621	Gambia	19,035
Myanmar	504,158	Yemen	10,068
Nepal	290,478	Malawi	4,818
Madagascar	171,91	Dem, Rep, Congo	1,523
Afghanistan	107,763	Maldives	0,929
Mauritania	12,477	<b>Footwear</b>	
Ethiopia	6,424	Cambodia	1 457,405
Eritrea	3,99	Bangladesh	611,006
Mali	3,612	Nepal	111,963
Dem, Rep, Congo	0,718	Mali	0,584
Gambia	0,698	<b>Vehicles, aircraft , vessels</b>	
<b>Vegetables</b>		Liberia	2 6136,85
Tanzania	4 623,964	Togo	3,854
Ethiopia	2 298,821	Zambia	2,909
Zambia	1 200,649	Bangladesh	1,234
Sudan	794,506		
Uganda	471,485		
Madagascar	453,599		
Mali	27,382		
Togo	16,215		
Burkina Faso	11,213		
Gambia	10,355		
Comoros	5,222		
Nepal	4,547		
Haiti	1,686		
Guinea	1,299		
Afghanistan	0,895		
Eritrea	0,872		

*Maurseth: Norway's trade with developing countries.*

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