3. CONTAINER TRADE GROWTH

3.1 Economic assumptions

Growth in container trade is ultimately driven by economic growth. An underlying assumption of this study is that, for the next decade at least, the structural relationships between growth in container trade and economic growth will remain basically unchanged\(^6\). The starting point for this analysis was therefore based on expectations of future economic growth.

For its underlying economic assumptions, this study has relied as far as possible on the economic projections of the IMF. The IMF projections estimate major economies, however only extend through to 2010, whereas this study period runs to 2015. For some countries, it was possible to obtain longer term economic growth estimates from national sources. Where this was possible, these estimates have been accepted as authoritative. Otherwise, in extending the projections for this study’s forecast period, the average growth rate for IMF projections over the 2006-2010 period was applied for the remainder.

The resulting economic growth estimates are shown in Figure 3-1. They embody a view of future economic growth that is reasonably optimistic: that the average growth rate in the short term is similar to that of the recent past if the economic downturn of the early 2000's is omitted, and in the medium term it approximates the long-term cumulative average growth rate for the world economy over the last 30 years.

The time horizon for these forecasts is medium term, eight years from now; it is impossible to predict timing of the economic cycles that will inevitably occur within this period. The economic growth assumptions that underpins this study may therefore be interpreted as hypothesizing that growth will continue along a path similar to that of the recent past. Although there may be both good and bad years within the forecast period, the assumption is made that there will not be a major, prolonged economic slowdown on the scale of that of the early 1990s.

\(^6\) The economic relationship between GDP and trade volume is considered useful in forecasting the development of the container sector, although the relationship is not considered a sufficient explanation of the growth. There are a wide range of factors that impact on the volume of container imports and exports, including exchange rate fluctuations, changes in economic structure etc. However, for forecasting purposes it is necessary to use very simplified relationships, as many of the causal variables are themselves even harder to predict than container volumes. Container imports and exports are, for instance, undoubtedly greatly affected by exchange rate movements. However, the uncertainties involved in estimating exchange rates are immense. The forecasting relationships used in this study in fact are simple, linear relationships between container volumes and GDP. In most cases, the regression analysis provided a good fit for these simple relationships. Further testing indicated that this was not simply because both variables tended to rise over time.
GDP growth in the ESCAP region, within the forecast period, remains steadily above that of the world GDP growth rate. As shown in Figure 3-2, the expected GDP growth rate for the ESCAP region moves in line with that of the rest of the world with only minor convergence towards the end of the forecast period.

Growth rates amongst the OECD, high income, economies expected to be relatively low, while developing countries in Asia continue to grow strongly, as shown in Figure 3-3. While the largest growth is expected in the lower to middle income countries, as classified by the World Bank, growth in the high income non-OECD countries are expected to moderate after a period of particularly high growth observed between 2003 and 2007.

Growth estimates based on World Bank defined regions, as shown in Figure 3-4, show a similar trend to those based on income. Greatest growth is expected in South Asia, as well as the developing nations of East Asia and the Pacific.

The forecast average annual GDP growth rates for each MPPM modelling region over the 2005-2015 period are presented in Figure 3-5. It can be seen from the figure that the highest level of growth is in the developing Asian nations, the Commonwealth of Independent States, Central Africa, and Eastern South America. Lowest growth is expected in the more developed economies.
**Figure 3-2: Forecast GDP for the ESCAP Region and the World**

(Source: Study estimates based on IMF and other sources)

**Figure 3-3: Forecast GDP Growth by World Bank Income Class**

(Source: Study estimates based on IMF and other sources)
FIGURE 3-4: FORECAST GDP GROWTH BY REGION

(Source: Study estimates based on IMF and other sources)

FIGURE 3-5: FORECAST ANNUAL GDP GROWTH BY MPPM REGION

(Source: Study estimates based on IMF and other sources)
3.2 Global container forecasts

The next step of the forecasting process is the conversion of economic growth rates to projected full container volumes. Imports and export volumes were estimated from independent equations for individual countries.\(^7\)

Figure 3-6 shows the global container forecasts that resulted from this process. The volumes shown in the figure are full origin-destination containers only: that is, empty containers are not included, and each container is counted only once during its entire journey, regardless of how many times it may be handled.

\(^7\)This was done by estimating separate forecasting equations for individual countries in the ESCAP region. For the countries outside of ESCAP, separate equations were estimated for each 'region', which was defined as a group of countries. In a number of cases, however, the historical time series data was simply not able to support a formal regression process. This is the case in particular where the country is still in the very early stages of containerization. In such cases, there was little alternative but to use professional judgement, informed by an examination of the history of containerization in similar countries during a similar phase of economic development.
The total number of full containers shipped internationally is expected to grow to 235.7 million TEU by 2015, up from 113.6 million TEU in 2005 (the base year for the cargo forecasts). The compound growth rate during the period 2005-2015 is 7.6 per cent per annum, decreasing from 9.0 per cent per annum in the period 1980 to 2005.

Comparison of model forecasts with those provided by private consulting firms suggest that these global level estimates lie within the range of expert opinions, but slightly towards the more conservative end of that range.

**TABLE 3-1: ESTIMATED AND FORECAST GROWTH RATES FOR FULL CONTAINER TRADE**

(1980-2015)

<table>
<thead>
<tr>
<th>Year</th>
<th>Container volumes (million TEU)</th>
<th>Compound average growth rate over period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>13.5</td>
<td>-</td>
</tr>
<tr>
<td>1990</td>
<td>28.7</td>
<td>7.8 per cent</td>
</tr>
<tr>
<td>2000</td>
<td>68.7</td>
<td>9.1 per cent</td>
</tr>
<tr>
<td>2005</td>
<td>116.6*/113.6</td>
<td>11.2 per cent</td>
</tr>
<tr>
<td>2015</td>
<td>235.7</td>
<td>7.6 per cent</td>
</tr>
</tbody>
</table>

(Source: UNCTAD 2006, *Drewry 2007, Study estimates)

Past and predicted future global container volumes are summarised in Table 3-1. The table shows that growth over the 2000-2005 periods had been unexpectedly strong. (For consistency with the early years, the value shown in the table for the 2005 base year for both Drewry Shipping Consultants — the source of the estimates for 1980 through to 2000 — and the MPPM database, which is used as the base figure for global container flow forecasts).

It should be noted that these forecasts depend critically on the assumptions that are made about future world economic growth. Analysis conducted during the course of the study suggests that, for every 1 per cent per annum increase or decrease in estimated global economic growth, the rate of growth in container volumes will change by approximately 1.5 per cent per annum.

**3.3 Geographical distribution of container volumes**

Figure 3-7 and Figure 3-8 show the estimated contribution made to total global full container flows by each major geographical region in the year 2005. Figure 3-7 shows that North and East Asia is the most significant driver of global container trade, generating 50 per cent of
world export trade, with Europe and North America contributing another 35 per cent. By 2015 the geographical distribution of export trade is expected to change with North and East Asia increasing its world export share by 12 percentage points, with a further increase of 1 percentage point to South Asia. On the other hand both of the two other largest markets, North America and Europe are expected to lose export market share by 5 and 7 percentage points respectively.

As shown in Figure 3-8, regional share of world imports shows a similar trend, with the majority of the market attributable to North and East Asia, and considerable market share to Europe and North America. It is expected in 2015, that East and North Asia will dominate import growth, increasing by 8 percentage points to 48 percent, while North America and Europe will drop to 14 and 16 per cent respectively of the world import market.

The volumes of imports and exports in 2005 and 2015 for each of the modelled regions are presented in Figure 3-9 and Figure 3-10. The resulting spatial representation of trade volumes shows the dramatic increase in China’s trade; however, it also shows significant growth for Kazakhstan and India.

### 3.4 ESCAP trade

Study estimates for the ESCAP region show an average annual increase of 9.5 per cent through to 2015, reaching 146.8 million TEU of trade. As a result, the share of ESCAP economies in world container exports, as shown in Figure 3-11, is expected to rise from 57 per cent to 68 percent by 2015, mainly as a result of the increase expected in East Asia. Similarly, world market share of imports for ESCAP nations is expected to increase from 47 per cent in 2005 to 56 per cent in 2015.

Within the ESCAP region, the balance of exports and imports is expected to change. As shown in Figure 3-12, exports are dominated by East Asia accounting for 58 per cent of the ESCAP market. This is expected to increase by 11 per cent in 2015 to 69 per cent, with corresponding reduction is the share South-East Asia and North Asia in the ESCAP market. Imports are expected to show a similar trend, with East Asia increasing its market share of ESCAP imports to 55 per cent, with South-East Asia and North Asia losing 3 per cent and 6 per cent respectively.

Within the ESCAP region, the highest concentration of 2005 trade activity is in China, with high trade volume also seen in Japan and the Republic of Korea. Study estimates show significant trade growth in South Asia, with Pakistan increasing at 14.6 per cent and India at 12.2 per cent to reach 12.7 million TEU of import and export trade in 2015. In the Eastern areas of Asia, China and Viet Nam are estimated to grow at 13.5 per cent and 13.2 per cent respectively, with China reaching 155.3 million TEU in 2015. However, trade growth for Taiwan Province of China and Japan is expected to be low, at less than 4 per cent per annum.

Trade growth is expected to be modest for ESCAP nations in the Australasia and the Pacific region, growing at less than the world average, with Fiji and Papua New Guinea registering growth of only 3.0 per cent per annum.
**Figure 3-7: Regional Share of World Export Trade 2005 and 2015**

2005

- North America: 14%
- South Asia: 3%
- Middle East: 3%
- Africa: 2%
- Europe: 21%
- Australasia: 2%
- Latin America: 5%
- North and East Asia: 50%

2015

- North America: 9%
- South Asia: 4%
- Middle East: 3%
- Africa: 2%
- Europe: 14%
- Australasia: 1%
- Latin America: 5%
- North and East Asia: 62%

(Source: Study estimates)

**Figure 3-8: Regional Share of World Import Trade 2005 and 2015**

2005

- North America: 18%
- South Asia: 3%
- Middle East: 6%
- Africa: 3%
- Europe: 21%
- Australasia: 3%
- Latin America: 6%
- North and East Asia: 40%

2015

- North America: 14%
- South Asia: 5%
- Middle East: 6%
- Africa: 3%
- Europe: 16%
- Australasia: 2%
- Latin America: 6%
- North and East Asia: 48%

(Source: Study estimates)
**Figure 3-9: 2005 Trade Volume by MPPM Region**

(Source: Study estimates)

**Figure 3-10: 2015 Trade Volume by MPPM Region**

(Source: Study estimates)
FIGURE 3-11: ESCAP SHARE OF WORLD IMPORT AND EXPORT TRADE (2005 AND 2015)

Exports

Imports

(Source: Study estimates)

FIGURE 3-12: SUBREGIONAL SHARES OF ESCAP CONTAINER TRADE (2005 AND 2015)

Exports

Imports

(Source: Study estimates)

(Source: Study estimates)