

Box 2.1: Diverging Growth Trends in the Electronics and Precision Engineering Clusters

The electronics and precision engineering clusters form an integral part of Singapore’s manufacturing sector. Together, they accounted for 44 per cent of manufacturing output and 41 per cent of manufacturing employment in 2010 [Exhibit 1]. In the same year, the clusters attracted \$6.3 billion of fixed asset investments and \$2.4 billion of total business spending [Exhibit 2].

Exhibit 1: Electronics and Precision Engineering contributed significantly to manufacturing output and employment in 2010

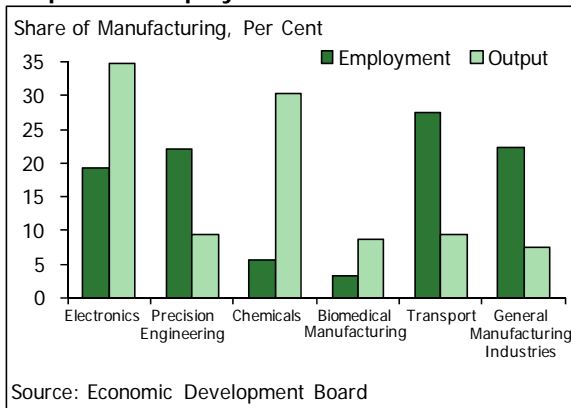
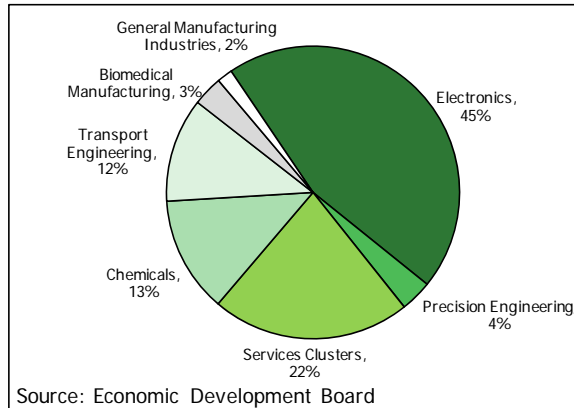


Exhibit 2: Electronics and Precision Engineering attracted almost half of total fixed asset investments in 2010



The performance of the precision engineering cluster has tended to track that of the electronics cluster because of significant economic linkages between the two [Exhibit 3]. For instance, companies in the precision modules & components segment of the precision engineering cluster support the production of hard disks in the electronics cluster. Similarly, semiconductor equipment used by electronics firms to manufacture semiconductor chips is produced by firms in the machinery & systems segment of the precision engineering cluster. Indeed, based on the 2005 Input-Output tables, nearly a fifth of the output of the precision engineering cluster that was sold to domestic industries in 2005 went to the electronics cluster.

Exhibit 3: Between 2000 and 2009, Electronics and Precision Engineering output moved in tandem

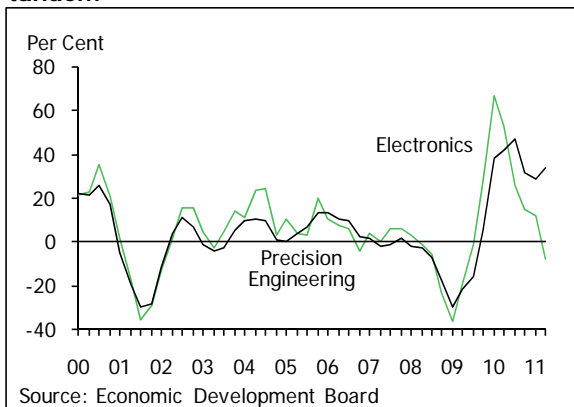
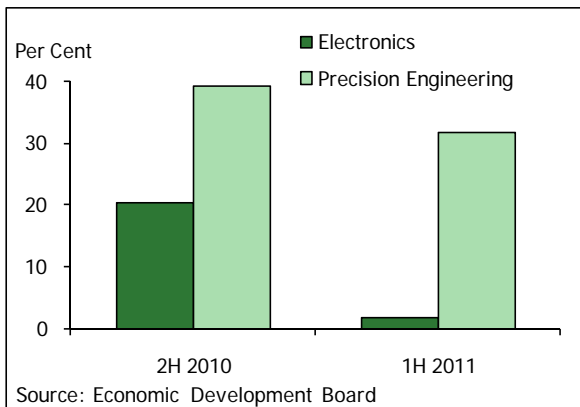


Exhibit 4: Precision Engineering outperformed Electronics over the past year



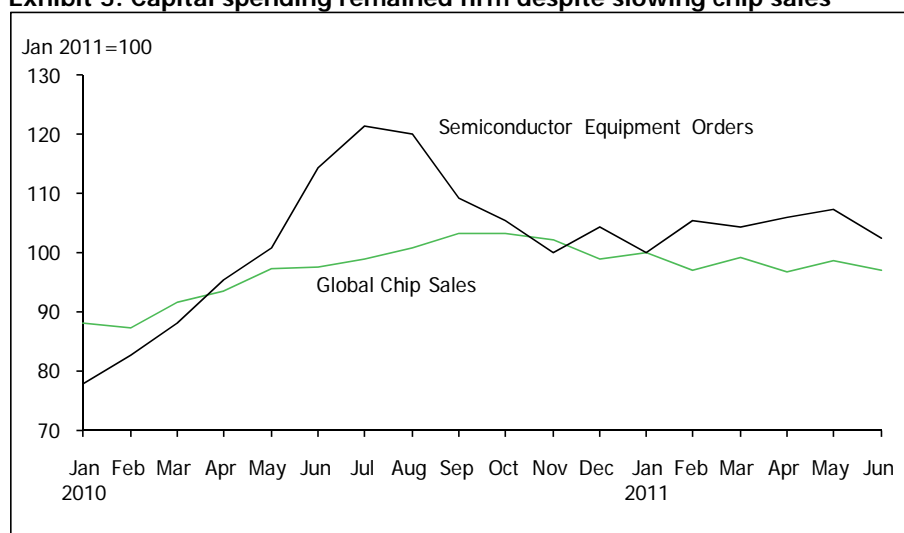
Recently, the precision engineering cluster has outperformed the electronics cluster...

Reflecting these close linkages, the quarterly year-on-year growth rates of the electronics and precision engineering clusters were highly correlated (0.93) between 2000 and 2009. However, since the second half of 2010, the precision engineering cluster has outperformed the electronics cluster significantly [Exhibit 3]. In the second half of 2010, growth of the precision engineering cluster (39 per cent year-on-year) was almost double that of the electronics cluster (20 per cent) [Exhibit 4]. Their growth rates diverged even more in the first half of 2011, with the precision engineering cluster growing by 32 per cent year-on-year compared to the 1.7 per cent growth in the electronics cluster. Two factors may account for this divergence.

Globally, semiconductor firms continued to invest in capital in the first half of 2011...

First, despite slower chip sales, global semiconductor firms have continued to invest in capital [Exhibit 5]. Equipment orders were strong in 2010 and remained healthy in the first half of 2011. For instance, Intel announced record capital spending plans of US\$10.5 billion in 2011.¹ Industry feedback suggests that the healthy capital spending in 2011 thus far was due to semiconductor firms investing in technological upgrades and expanding their capacity in anticipation of future demand. This has benefited semiconductor equipment firms in the precision engineering cluster.

Exhibit 5: Capital spending remained firm despite slowing chip sales



Leading global equipment players have set up operations in Singapore...

Second, the precision engineering cluster saw an expansion in capacity in 2010, with some of the world's leading equipment players, such as Applied Materials, setting up manufacturing operations here. Notably, 50 per cent of Applied Materials' global semiconductor equipment production is expected to flow through its facility in Singapore when it is fully operational.² This expansion in capacity meant that the local precision engineering cluster was in a better position to benefit from the strong capital spending of semiconductor firms in 2010 and the first half of 2011.

¹ "Intel sets record spending, boosts chip equippers", Bloomberg, 15 January 2011.

"Intel reports fifth consecutive quarter of record revenues", <http://newsroom.intel.com/>, 20 July 2011.

² "Applied Materials Opens Global Hub in Singapore for Manufacturing Semiconductor Equipment", <http://www.appliedmaterials.com/news/>, 13 April 2010.

Growth in the precision engineering cluster is expected to moderate...

Going forward, the demand for semiconductor equipment may slow down as many chip makers have already built up substantial capacity. Additionally, the boost in growth that came from the opening of new plants is expected to wane by the second half of 2011. Given these factors, the growth of the precision engineering cluster is expected to moderate in the coming quarters.

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