

Parts Localization Lifecycle in the Auto Industry

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Abstract

In this paper we try to introduce concept of the Parts Localization Lifecycle in order to analyze the cost competition between developed and developing countries in accordance with the development of auto industry in each country. Parts Localization Lifecycle means the changes of cost curves along with each stage in accordance with the development of the auto industry in both developing and developed countries. In this paper cost curves in each stage consists of cost reduction curve, penalty switching point (most economical balance point), and cost penalty curve. In cost reduction process, total cost of parts decrease in inverse proportion with the increase of local parts ratio. Penalty switching point means the point at which cost reduction curve switches to cost penalty curve. In cost penalty curve, total cost of parts increase in proportion to the increase of local parts ratio.

In order to introduce concept of the Parts Localization Lifecycle, first we critically survey the studies on cost penalty in auto industry. Secondly we define cost reduction curve as well as cost penalty curve. At the same time, we analyze the shifting of the penalty switching points from cost reduction to cost penalty curve. Finally, combining cost reduction curve with cost penalty curve and then comparing internationally and historically the shifting of the penalty switching point and the cost curve in each country to define Parts Localization Lifecycle of in order to offer new concept of the development of auto industry.

In the new concept of Parts Localization Lifecycle, at first in the least developed countries, penalty switching points appears at of a local part ratio of zero percentage. And then penalty switching point shifts to the right direction. In most competitive countries, penalty switching point reaches to a local parts ratio of one hundred percentages. However, in the more matured countries, penalty switching point shifts back to the left and then might reaches to of a local part ratio of zero percentage. We refer to these shifting as Parts Localization Lifecycle.

Keywords: Auto parts industry, Parts localization, Cost penalty, Cost Reduction process, Penalty Switching point, Lifecycle.