

## 1. Introduction

The expanding world-wide competition in research and development is giving rise to numerous attempts by a range of organizations to compare research and development expenditure among various countries. If expenditure is calculated on an exchange rate basis, figures over the past few years are greatly affected by fluctuating exchange rates. Another problem is that since exchange rates do not always correspond to price-level ratios on a national currency base, the result of conversions do not necessarily reflect the actual amount of material or services that can be purchased with the R&D expenditure, that is, the purchasing power of the amount spent on research and development (Note 1) .

Purchasing power parities have been developed as a currency conversion rate that could adjust such price level differences between countries, but they cannot be applied in all cases (hereinafter, purchasing power parities will refer to OECD purchasing power parities unless otherwise indicated). There is some doubt as to whether the current purchasing power parities, which were calculated based on consumption goods, are in fact effective enough to be used for R&D expenditure. In this report we have clarified the key points that must be noted when using purchasing power parities for R&D expenditure by itemizing R&D expenditure and examining the price level for each expenditure item. We have also calculated the real conversion rate of R&D expenditure between the United States and Japan to determine the price level of each R&D expenditure item.

In this report we have used the 1985 estimated purchasing power parities based on the Geary Khamis Method.