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**ANNUAL TREND OF PHYSICAL GROWTH IN INFANT AND  
JAPANESE HIGH ECONOMIC GROWTH**

**Abstract:**

The Ministry of Health, Labor and Welfare has published measurement records on height, weight, chest circumference, and head circumference in 0 to 6 year-old children from 1960 to 2010 as indicators of physical development in early childhood in Japan. Physical development evaluation charts have been developed from these records using percentile methods, but reports on the trends in physical development over time are limited. This is because no method has been established to scientifically analyze physical growth. Even more difficult is investigating secular trends in physical growth and linking those trends to economic growth. In this study, we identified the first largest peak velocity (FLPV) during the year after birth in infant physical growth records (height, weight, chest circumference, head circumference), and applied the wavelet interpolation model to the variations over time in the identified FLPV. Next, we applied the wavelet interpolation model to the secular variations in GDP for the same years. We then applied a cross correlation function to the relationship between the curves of FLPV and GDP variations over time, and investigated how high economic growth acts as a controlling factor variations in physical development of young children over time. The speed of variation in the physical development of children over time was the greatest around 1980. By synchronizing GDP to that time, the results suggest that high economic growth is a controlling factor in the physical development of young children.

**Keywords:**

Twins , Similarity , Measurement system, Growth velocity curve, Wavelet Interpolation Method

**JEL Classification:** I00, I10, I19