

Abstract for “The GPT Behind IT: What is Happening to Semiconductor Prices?”

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How fast are semiconductor prices falling? Data from the Producer Price Index (PPI) for the United States suggests that these prices have barely been falling in recent years, a dramatic contrast from the exceptionally rapid declines in semiconductor prices reported from the mid-1990s to the early 2000s. This slowdown in the rate of decline is puzzling given evidence that the performance of microprocessors (MPUs) continued to improve at a rapid pace after the mid-2000s. Also in the mid-2000s, Intel substantially changed its pricing behavior and product introduction strategy. Given these developments, this paper re-examines the measurement of quality-adjusted prices for MPUs for desktop PCs. We argue that, with the changes in Intel’s pricing behavior, the matched-model methodology used for the PPI index for MPUs may have started to be biased in the mid-2000s and that hedonic indexes provide a more accurate measure of price change since then. Our preferred hedonic index tracks the PPI closely through 2006. However, from 2006 to 2012, our preferred index of MPU prices fell at an average annual rate of 32 percent, while the PPI declined at only an 8 percent rate. This difference has important implications for gauging the rate of innovation in the semiconductor sector.