**Introduction**

Why do the United States and Canada enjoy the world’s highest incomes with only modest shares of their populations in work, while China has relied on putting far more people to work to climb the income ladder and Japan now struggles as both labour supply and productivity stall? Resolving that puzzle matters for forecasting whether East Asia can keep closing the prosperity gap as demographic tailwinds subside and for judging how long North America can protect its lead in the face of slowing participation. By tracing employment, growth and income in all four economies from 1990 to 2023, this study uses six complementary graphics to ask whether productivity can replace labour mobilisation as the dominant driver of convergence—or whether the gap will persist.

**Income levels and their growth paths Income levels and their growth paths**

图表, 折线图

描述已自动生成

The GDP-per-capita plot underscores the prosperity gap that separates North America from East Asia. Real income in the United States rises from roughly thirty-nine thousand dollars in 1990 to about sixty-six thousand in 2023, widening its lead over all other cases. Canada mirrors the American path but remains seven to ten thousand dollars lower throughout. China, starting from a base of just over one thousand dollars, multiplies its income almost ten-fold, yet still reaches only about twelve thousand dollars by the end of the sample. Japan’s income climbs during the 1990s but plateaus at approximately thirty-six thousand dollars after 2010. The corresponding growth-rate figures reveal that China’s rapid expansion, once firmly in double digits, decelerates to mid-single-digit territory in the 2010s. Japan’s growth oscillates around zero, reflecting its long struggle with deflation and demographic ageing. The United States and Canada exhibit more moderate booms and busts, rarely exceeding four percent on the upside or falling much below minus two percent except in the global crises of 2009 and 2020, which strike all four economies simultaneously.

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**Evolution of labor-market participation**

图表, 折线图

描述已自动生成

The employment-to-population chart reveals markedly different trajectories between the two regions. China begins the 1990s with an exceptionally high participation rate of about seventy-seven percent, but this figure declines steadily to the mid-sixties by 2023. Japan starts near sixty-three percent, drifts downward for a decade, then partially recovers but never regains its early-1990s peak. Canada and the United States instead fluctuate within a relatively narrow band between fifty-eight and sixty-four percent. Both North-American economies share two conspicuous dips—the Great Recession in 2009 and the Covid-19 shock in 2020—yet by 2023 they have largely returned to pre-pandemic levels of around sixty-two to sixty-three percent.

**GDP growth rate overtime**

图表, 直方图

描述已自动生成

Each panel shows annual real-GDP growth for one country (1990-2023). China starts with exceptional double-digit gains, slows steadily after 2010, and dips sharply in 2020. Canada, the UK and the US share the usual rich-economy cycle: steady 2-4 % growth interrupted by recessions in 2009 and 2020, with quick rebounds. Japan hovers near zero for most of the period, illustrating prolonged stagnation, and sees the same two global downturns. The shaded bands mark wider volatility during those recessions and during China’s early boom, but are narrow in normal years, signalling more predictable growth paths then.

**Correlations between Indicators**

应用程序, 表格

描述已自动生成

The correlation matrix for 1990–2023 reveals a clear trade-off between output levels and both labour participation and growth momentum. GDP per capita is strongly negatively correlated with the employment-to-population ratio (–0.72), indicating that higher-income economies tend to rely more on productivity gains than on expanding their workforce. Likewise, GDP per capita exhibits a sizeable negative relationship with GDP growth (–0.65), reflecting the convergence pattern whereby lower-income countries grow faster as they catch up. By contrast, employment share and GDP growth move strongly in tandem (+0.75), suggesting that when economies do expand rapidly, they often do so by mobilizing additional labor. Together, these coefficients underscore how the balance between labor input and productivity shifts as countries develop.

**Result and discussion**

1. **Result Interpretation and Implications**

These findings underline the importance of demographic structure and productivity for long-run income dynamics. The downward relationship between employment shares and income per capita does not imply that work makes countries poorer; instead, it reflects a developmental sequence in which early-stage economies rely on absorbing surplus labor, while advanced economies derive gains mainly from capital deepening, technological change and human-capital improvements. The synchronized recessions of 2009 and 2020 remind us that global shocks propagate rapidly across regions, yet the amplitude and duration of recoveries differ according to each economy’s structural foundations. Looking ahead, China faces the challenge of replacing its waning demographic dividend with faster productivity growth, whereas Japan must either reignite innovation or find ways to mobilize under-utilized segments of its ageing labor force. North America’s task, by contrast, is to preserve its productivity edge and immigration-supported labor supply so that real incomes can continue to rise despite relatively low employment-to-population ratios.

1. **Limitations and future work**

The analysis is limited to four countries and to head-count measures of employment rather than hours worked. Adding other regions, incorporating hours-based labour input, and decomposing productivity into capital, technology and human-capital components would sharpen the story. Sectoral data could also help disentangle how shifts from manufacturing to services affect both employment ratios and income trajectories.

**Conclusion**

Across the period under review, North American prosperity has been achieved with fewer workers per capita thanks to very high productivity levels, whereas East-Asian prosperity—still rising in China but already plateaued in Japan—has leaned more heavily on putting larger portions of the population to work. As demographic shifts erode the labor input available to China and continue to weigh on Japan, the two regions appear set to converge on a common imperative: sustainable growth must increasingly be secured through productivity gains rather than through further mobilization of labor.