Suggested Solutions to Practice Problems (Chapter 01)

1. Calculating Growth Rates Data:

   a) Actual Percentage Growth Rates, 2015–2017

2015	–0.161152891
2016	–0.103898032
2017	1.742102037

   b) Approximate Percentage Growth Rates, 2015–2017

2015	-0.161282882
2016	-0.103952043
2017	1.727101407

   The approximation is close. The approximation works well for small growth rates.

   c) Actual Percentage Growth Rates for Decades, 1950–2010

1960	21.00068711
1970	37.112178
1980	29.17545181
1990	14.90279518
2000	19.48404444
2010	8.432583912

   Approximate Percentage Growth Rates, 1950–2010

1960	19.06260382
1970	31.56292223
1980	25.60013858
1990	13.89163257
2000	17.80126572
2010	8.095844744

   The approximation errors are larger because the growth rates are larger. Note that the approximation formula actually calculates the continuously compounded growth rate.

   d) Growth is highest in the 1970s. Growth is lowest for 2000–2010.

2. The variability of real GDP per capita was larger before World War II than after, even if we ignore the Great Depression and World War II. This could just be a measurement issue, as the national income accounts data were not collected in a systematic way until the 1920s. Also, it is possible that the lower variability after World War II was due to the sound judgment of macroeconomic policymakers, who took appropriate action at the right times. Finally, it is possible that the *lower* variability in post-World War II times was just a happy accident.