This paper sheds light on two problems in the Penn World Table (PWT) GDP estimates. First, we show that these estimates vary substantially across different versions of the PWT despite being derived from very similar underlying data and using almost identical methodologies; that this variability is systematic; and that it is intrinsic to the methodology deployed by the PWT to estimate growth rates. Moreover, this variability matters for the cross-country growth literature. While growth studies that use low frequency data remain robust to data revisions, studies that use annual data are less robust. Second, the PWT methodology leads to GDP estimates that are not valued at purchasing power parity (PPP) prices. This is surprising because the raison d’être of the PWT is to adjust national estimates of GDP by valuing output at common international (purchasing power parity [PPP]) prices so that the resulting PPP-adjusted estimates of GDP are comparable across countries. We propose an approach to address these two problems of variability and valuation.