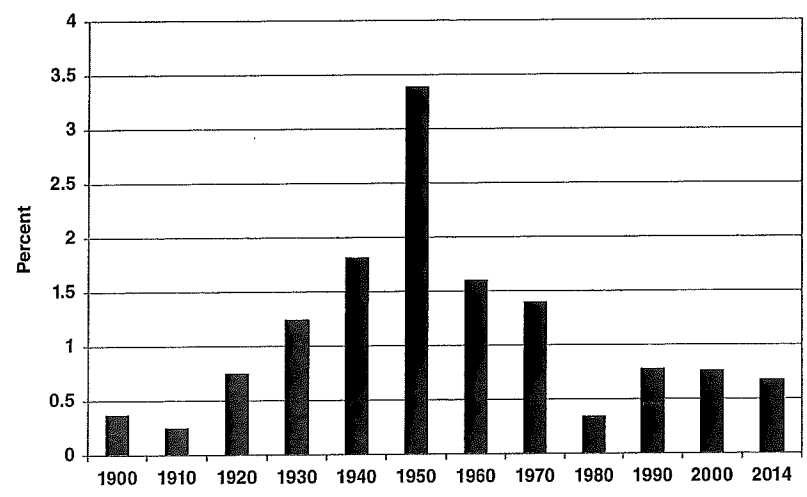


ed to 1928, and the average  
 ppendix has identified three  
 jump of the output-capital  
 easurement causes capital to  
 bstitution of a new adjusted  
 and in tandem reduces the  
 figure 16-4. In contrast to  
 data, that ratio in 1950 is a  
 oughly half of the post-1935  
 l to the measurement issues

own as the lower line in  
 28 value, gradually the ratio  
 n's output grew much more  
 1972 and then much more  
 h rate of the output-capital  
 r year and then fell at -0.8  
 aises deep questions that we  
 rs caused the adjusted ratio  
 0 percent during 1950-72?  
 ct of the depression and war  
 s well as the underlying pace  
 ond.

determine the growth his-  
 vailable measure of innova-  
 of TFP is mechanical and  
 bor and capital input, with  
 pital.<sup>16</sup> Labor input equals  
 f educational attainment.<sup>17</sup>  
 pped in the data appendix.  
 in figure 16-5, which dis-  
 decade between the initial  
 000-2014. The horizontal  
 l so the highest bar in the  
 growth rate of TFP during



**Figure 16-5.** 10-Year Average Annual Growth in Total Factor Productivity, 1900-2014

*Note:* The average annual growth rate is over the ten years prior to year shown. The bar labelled 2014 shows the average annual growth rate for 2001-14.

This history of TFP growth has the appearance of an up-and-down “staircase” with steps of unequal height. The singularity of the 1940-50 decade leaps off the page. This graph confirms Alex Field’s emphasis on the 1930s as a more productive decade than the 1920s, as well as the pickup in TFP growth in the 1920s compared to the 1890-1920 interval. Called into question is the verdict of Moses Abramowitz and Paul David (regarding World War II) that “the war...imposed restrictions on civilian investment, caused a serious reduction in private capital accumulation and retarded normal productivity growth.”<sup>18</sup> Labor productivity and TFP soared during World War II, and the cessation of defense production did not prevent the wartime productivity gains from becoming permanent.

The TFP growth history laid out in figure 16-5 poses a daunting set of questions for the rest of the chapter. What was it about the innovation process that allowed TFP growth steadily to accelerate from the 1920s to 1930s to 1940s and then slow down thereafter? What was it about the growth process that allowed the *level* of TFP to remain high even after wartime production ceased in 1945-46? To what extent did the productivity explosion of the late 1930s and the 1940s benefit from inventions and innovations in the 1920s and