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The dynamics of the labour market and income distribution in relation to the speed of demand saturation

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ABSTRACT

The purpose of this paper is to provide a coherent framework to explain the unusual phenomena of employment, real wage, and profit share observed in industrialised economies since the 1980s, in relation to the speed of demand saturation. To this end, we use a multisectoral model including capital goods and the stochastic emergence of new products. We show that faster demand saturation tends to accelerate the growth of employment but decelerate the growth of the real wage. Furthermore, we show that faster demand saturation tends to increase the profit share and the share eventually converges irrespective of the difference in the speed of demand saturation. Finally, it is argued that our model has a critical implication for the non-accelerating inflation rate of unemployment (NAIRU).

1. Introduction

Since the 1980s, income distribution in industrialised economies has been a research subject given great attention. This is because unusual phenomena were observed: (1) the stagnant growth of real wage despite the recovery of the growth of labour productivity and employment, (2) as related to the above, price level stability despite strong economic growth, and (3) the tendency of profits and profit share to increase in comparison with the past trends.

Such phenomena were typically observed in the U.S., whose growth process was unprecedented enough to be called a 'new economy' in the 1990s. Let us review the process briefly. The average growth rate of the real wage in 1947–1973 was 4.4%, while the average growth rate of labour productivity during the same period was 2.8%. The average unemployment and inflation rates during the period were 4.7% and 3.5%, respectively. After 1973, the U.S. economy stagnated, and then it subsequently recovered in the early 1990s; the average growth rate of labour productivity was 2.1% in 1990–2000 and 2.5% in 2000–2007. The average unemployment rates in these periods were 5.6% and 5%, respectively. The average inflation rates were 3% and 2.8%, respectively. However, the average growth rates of the real wage were 3.4% and 2.3%, respectively.

From the above review, it is obvious that the growth rate of the real wage alone was far below the level of the period

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1947–1973, although the average growth rates of labour productivity, inflation, and employment improved almost to the levels of that period.[2] The real wage did increase in 1990–2007, but the linkage between the growth rate of labour productivity and that of the real wage became weaker. Furthermore, increases in profits and the profit share of national income were observed in many industrialised economies. The U.S. average of the profit share of the period 1980–1990 was 8.6%, and the averages for the periods 1990–2000 and 2000–2008 were 10% and 10.8%, respectively.[3] We can observe the recent tendency of the share to increase.

The above phenomena have been already scrutinised by many economists and policy-makers. With respect to the relation among unemployment, real wage, and stable price level, the most influential argument is based on wage aspirations built on the concept of a time-varying NAIRU.[4] According to this concept, the long-run unemployment rate is independent of the level of effective demand, and the growth of labour productivity has no long-run effect on the level of the NAIRU (Friedman, 1968). This is because, in the long run, the real wage is adjusted in accordance with the growth of labour productivity. Although labour productivity increased in the 1990s, workers had grown accustomed to slow wage growth in the 1980s. Such a mismatch in the growth of labour productivity and wage aspirations caused a favourable shift in the Phillips curve. Therefore, low inflation and low unemployment were consistent, decelerating the growth rate of the real wage.

The IMF (2006, chap. 4) closely examines the recent change in corporate profits of industrialised economies. It has been indicated that the increase in corporate profits was so strong that the corporate sectors of industrialised economies ran financial surpluses. Although such a strong increase includes the profits generated in the financial corporate sector, the profits generated in the nonfinancial corporate sector also increased enormously.[5] According to the IMF, the increase in nonfinancial corporate profits is caused by low tax and interest rates, the decline in nominal capital spending due to the declining relative prices of capital goods, and the strong desire of the nonfinancial corporate sector to hold liquidity due to a more uncertain business environment.

The above arguments concerning these unusual phenomena are logically reasonable, but they lack a formal demand-side analysis. It seems important to us to consider the demand-side factors because we can observe the tendency of the saturation speed of demand for recently emerged products to increase.

Many studies observe such a tendency; it is particularly strong in products related to information technology (IT). For example, Stefik and Stefik (2006, p. 204) presented a figure indicating that the diffusion of products which fostered the economic growth of industrialised countries from WWII to the early 1970s (e.g. electricity, telephones, and automobiles) took a longer time than did the diffusion of products which fostered the economic growth of the 1990s and 2000s (e.g. PCs, cell phones, and the Internet); electricity, telephones, and automobiles required more than 40 years for the ownership level to reach 30%, while PCs, cell phones, and the Internet required less than 20 years for the ownership level to reach 30%. Van den Bulte (2000) analysed the diffusion of various consumer durables using U.S. data from 1923 to 1996 and revealed the tendency of later-emerged products to diffuse rapidly. Furthermore, some empirical studies reveal that the recent tendency is increasingly accelerated, especially in IT-related sectors (e.g. Dewan et al., 2010; Stefik and Stefik, 2006).

Why does the speed of demand saturation become faster? First, it has been indicated that the complementarities effect becomes stronger as products emerge later. The effect works for several reasons. The first is related to the infrastructure: Stefik and Stefik (2006, p. 204) pointed out that the later-emerged products can reuse the infrastructures pioneered by older ones. Similarly, Van den Bulte (2000) argued that demand for products requiring a large investment in complementary infrastructures is prone to be saturated rapidly. These studies imply that newer products are diffused through 'multi-innovation interrelationships'; new products do not diffuse in a vacuum, and often there are interactions across overlapping innovations that affect the diffusion paths of the individual innovations (Dewan et al., 2010). This holds especially true for IT-related products. In fact, there are many empirical studies on the complementarities effect in IT-related products. For example, Dewan et al. (2010) investigated the complementarities effect between the PC and the Internet. Bucklin and Sengupta (1993) investigated the complementary effect between scanners and universal product code (UPC) symbols, and Bayus (1987) examined complementarities in hardware and software sales data.

Second, it has been indicated that the diffusion of products for which multiple competing standards were available early is prone to be faster (Van den Bulte, 2000). The indication also holds true for IT-related products. According to Van den Bulte, the effect of standards incompatibility is not necessarily important. He used the example of the competition between VCRs and PCs to point out the possibility that consumers expect to enjoy their VCRs so much that they accept the risk of ending up with an obsolete machine 2 years after purchase. Furthermore, Besen and Johnson (1986) argued that when intrinsic

[2] The average growth rate of labour productivity was obtained from the Bureau of Labor Statistics (http://www.bls.gov/lpc/prodybar.htm). The average growth rates of the real wage and unemployment were calculated using the data obtained from the Bureau of Economic Analysis (http://bea.gov/). The former was deflated by the price indexes of personal consumption expenditure. The average rate of inflation is the change in consumer price indexes for commodities and services, which was obtained from the Council of Economic Advisers (2010, p. 404).

[3] Here, profit share means the ratio of corporate profits with inventory valuation and capital consumption adjustments to national income. These data were obtained from the Council of Economic Advisers (2010, pp. 350–351).

[4] See, for example, Ball and Mankiw (2002), Ball and Moffitt (2002), Blanchard and Katz (1997), Bosworth et al. (1994), Fuhrer et al. (2009), and Stiglitz (1997).

[5] Since the behaviour of financial corporate sector appears to be driven by factors specific to that sector, the IMF exclusively analyses the profits generated in the nonfinancial corporate sector.