

Austrian Elements of Structuralist Unemployment Theory?

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One of the leading schools in modern unemployment theory is the “Structuralist” theory of the “natural” or equilibrium rate of unemployment (NRU)¹ started by Edmund S. Phelps (see Blanchard 2000, p. 255; Phelps 1994, 2005b; Fitoussi et al. 2000; Phelps and Zoega 2004). In fact, it can be understood as a kind of meta-theory of unemployment (Phelps 2002). In a nutshell, Structuralist theory postulates that changes in real interest rates, asset prices, and wealth lead to changes in the NRU.

In the Austrian context, it is quite astounding that this prominent theory of modern mainstream macroeconomics is supposed to have Austrian characteristics (Phelps 1994), although Phelps (2003a, b, 2004a) argues that Austrian business cycle theory cannot account for the boom and the slump of the 1920s/1930s and the 1990s/2000s: “The interwar Austrian School . . . held that a boom’s excesses cause . . . overshooting: a slump is the cure. I noted weaknesses in their over-investment argument. Austrians counter with a revised ‘malinvestment’ argument. . . . But that model does not fit” (Phelps 2003b). It is therefore no surprise that Phelps’s theory of “structural booms and slumps”² came under heavy attack by well-known Austrian economists (Batemarco 2003; Cochran 2003; Thornton 2003).

The goal of this paper is to clarify this debate and to answer the question does Structuralist theory really have Austrian elements as suggested by Phelps. This article is organized as follows: “The Austrian School: Capital-Based Macroeconomics” gives a refresher on the basic principles of Austrian macroeconomics.

¹This rate of unemployment is “natural” in that it involves no expectational error. (Woodford et al. 2002, p.2). The NRU is the unemployment rate where inflation does not have a tendency to accelerate or decelerate.

²See (Phelps and Zoega (2001, p. 93):

Structural booms and slumps are defined . . . as wholly or largely *temporary* expansions or contractions in employment. . . . [S]tructural (i.e., noninflationary) . . . slumps result when entrepreneurs come to expect a lull in new investment opportunities over the medium-term future.

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“The Structuralist School: Capital Market-Based Macroeconomics” recapitulates the basic structure of Structuralist unemployment theory and discusses economic policy issues. “Austrian Elements of Structuralist Unemployment Theory?” detects possible Austrian elements of Structuralist theory. The “Conclusion” is that Structuralist theory has on the surface some Austrian features such as being “dynamic” and considering entrepreneurial expectations, but misses the core element of Austrian macroeconomics by neglecting the monetary process which leads to credit-induced booms and busts.

The Austrian School: Capital-Based Macroeconomics³

To compare Structuralist theory with Austrian macroeconomics one has to clarify what is meant by the term “Austrian macroeconomics.” “Austrian macroeconomics . . . concerns itself with two critical aspects of economic reality: the intertemporal capital structure and entrepreneurial expectations” (Garrison 1997). The focus on the time element in the production process and on the intertemporal capital structure is the main characteristic of Austrian macroeconomics (Garrison 1991a).⁴

Austrian macroeconomics and accordingly Austrian business cycle theory is a theory about a *monetary policy*-induced departure from the economy’s production possibilities frontier or the NRU respectively: Stylized, a credit expansion by the central bank suppresses the market interest rate below the natural rate of interest. The artificially low interest rates lead to an intertemporal misallocation of resources due to a mismatch between saving and investment. For “too” low interest rates and “too” high asset prices stimulate excessive allocations to long-term capital projects and increase consumption leading to an unemployment rate temporarily below NRU.⁵ However, because investment is not backed by “true” savings, the economy cannot indefinitely stay here. Therefore, the adjustment path has to turn back toward the NRU, because consumers are “forced” to save, consumer prices rise due to bottlenecks, and interest rates increase due to higher capital demand leading to falling asset prices. In the inevitable bust, misallocations in the capital structure are followed by reallocations. Hence, the resulting cyclical unemployment has a structural

³See Garrison (1996, p. 17):

Capital-based macroeconomics is simply macroeconomics that incorporates the time element into the basic construction of its theory. . . . The Austrian theory features the time element by showing what happens when the economy’s production time . . . is thrown out of equilibrium by policies that override the market process.

⁴The Mises Institute gives a superb overview on Austrian economics in general. See its webpage <http://www.mises.org/>. See also Garrison (1989).

⁵See Oppers (2002, p. 6):

[G]iven consumer preferences for intertemporal consumption, entrepreneurs have invested in production methods that take too long to yield consumer goods. The injection of liquidity has given them the wrong interest-rate signal: consumption demand will materialize before the goods to satisfy it are available.

quality about it. If macroeconomic policies try to counter the unemployment-induced negative income effects, the economy may plunge into a deep recession.

Austrian business cycles in terms of departures of the unemployment rate from the NRU are the result of intertemporal discoordination, because it is the entrepreneurs' lack of information about the "true" real interest rate which leads to the business cycle. This discoordination must necessarily be resolved by self-correcting market forces, because the entrepreneurial errors in terms of malinvestments are revealed in the inevitable bust. Intertemporal discoordination can occur even during a period of overall price-level stability. Worse, it is during periods of price-stability that intertemporal discoordination is likely to be hidden until market forces reveal the unsustainability of the boom. For in a growing economy, the upward pressure on prices attributable to credit expansion may just offset the downward pressure on prices attributable to the underlying real growth (Garrison 1991a, p. 94; 1991b).

The Structuralist School: Capital Market-Based Macroeconomics

The Basic Structure of Structuralist Unemployment Theory

In contrast to the interwar period, swings in economic activity are observed today only with little deflationary and inflationary patterns.⁶ Hence, the Structuralist School concludes that economic booms and busts have to be explained by *nonmonetary* models.⁷ Structuralist models use the now standard *WS-PS* framework of modern unemployment theory (Blanchard 2000, p. 116). In this framework (Phelps 1994), the existence of *involuntary* equilibrium unemployment is generated in a real wage-employment diagram (see Fig. 1) by an upward-sloping wage-setting curve *WS*. The actual value of the NRU is determined by a downward-sloping labor demand curve or—in the setting of imperfect goods markets—a price-setting curve *PS*.⁸

Stylized, the economy is closed. u is the unemployment rate. $(1-u)$ is the aggregate employment rate if the exogenously given aggregate labor supply LS is, for simplicity, normalized to 1.⁹ The price-setting curve *PS* represents equilibrium on goods markets. It gives the real wage v that firms are willing to pay (given their correct expectations on their relative competitiveness and real wages). *PS* is a

⁶"Small wonder that for the Austrian, Keynesian and Monetarist schools it was always '*cherchez la monnaie*'" (Phelps 2001).

⁷However, Hayek (1966) rejected the claim that the absence of aggregate inflation or deflation implies the need for nonmonetary theorizing. Monetary policy via credit expansion changes relative prices and thus the structure of the production process. "The structure of production can be distorted from a stable state, while aggregate figures seem relatively unchanged." Cwik (2003) and Hoon and Phelps (2004, pp. 21–23) show how monetary policy can be incorporated into the Structuralist framework.

⁸In the following, no distinction is made between a labor demand curve and a price-setting curve.

⁹ L is the number of labor market participants, U the number of unemployed, N the number of employed; by definition $U=L-N$. The unemployment rate u is defined as $u = \frac{L-N}{L} = 1 - \frac{N}{L}$; then the aggregate employment rate N/L results as $\frac{N}{L} = 1 - u$.

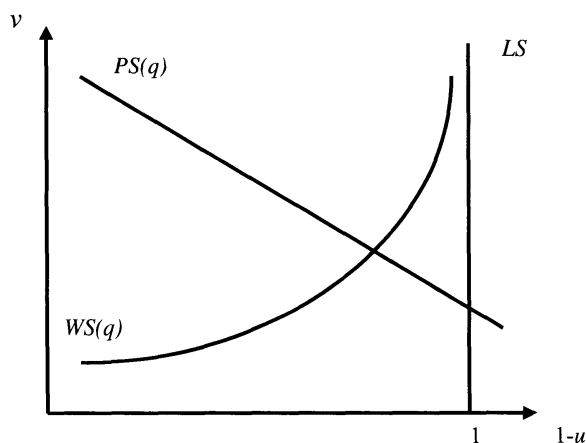


Fig. 1 Equilibrium real wage and equilibrium employment

nonincreasing function of employment: Due to the law of diminishing returns a boom in terms of higher employment forces firms to increase price mark-ups over wages and *vice versa*. Hence, price-setting—and thus labor demand—depends negatively on the mark-up of prices over wages.

In respect to labor demand or the *PS*-curve, respectively, Phelps (1994, p. xi) has “taken a good deal of inspiration from the . . . parables of Austrian capital theory. . . . [For] . . . what firms will pay for labor generally depends . . . on real asset prices and thus on real interest rates.” Thus, Structuralist theory focuses on the specific assets firms invest in: physical capital, customers, and trained employees. The crucial variable q in the Structuralist paradigm represents the present value of expected future profits of an additional unit of the firms’ investment in their assets. q is interpreted as the price of shares that represent ownership claims to identical amounts of assets of the homogenous firms. For stock prices incorporate approximately all relevant information about the future evolution of firms’ assets. q depends positively on expected profitability and negatively on the instantaneous real interest rate. q is a shift parameter of the *PS*-curve: A rise of stock prices gives firms incentives to invest in their assets. Hence, derived labor demand increases, *PS* shifts to the right, and employment increases *ceteris paribus* and *vice versa*.

However, a decrease in labor demand leads to a fall of employment only if real wages are “rigid” in the sense that the real wage v does not adjust enough to accommodate fully a downward shock to labor demand, so that employment bears some of the adjustment (Phelps 1994, p. 405). Real wage rigidity is modeled via the *WS* curve. If real wage rigidity would not exist, labor market equilibrium would settle down at the intersection of the *LS*-curve and the *PS*-curve, i.e., at the full employment level. In Fig. 1, the wage curve *WS* shows the current real wage v needed for labor market equilibrium (in the sense of correct expectations). In contrast to *LS*, *WS* represents the macroeconomic *relevant* labor supply.

In respect to the *WS*-curve, Structuralist theory builds on standard efficiency wage theories (Shapiro and Stiglitz 1984; Phelps 1968; Salop 1979) which are “dynamized” by incorporating asset prices, real interest rates, and wealth. The

crucial assumption of efficiency wage theory is that the real wage is not causally dependent on productivity, but productivity is causally dependent on the real wage. In a nutshell, efficiency wage theory¹⁰ postulates that firms do have an incentive to pay real wages above the market-clearing level to increase productivity (“efficiency”) of employees and to decrease turnover costs in deterring employees from shirking and quitting. For if firms have only imperfect information regarding the prospective profitability of a new employee, each firm has an incentive to create a wage differential *vis-à-vis* the other firms. The resulting wage-wage spiral increases wage costs in the aggregate lowering in turn labor demand. The optimal efficiency wage is determined by the real wage costs on the one hand and the benefits of a real wage increase in terms of higher productivity and lower turnover on the other.

Shirking and quitting behavior of employees is determined by job opportunities elsewhere (measured by the aggregate employment rate) and alternative sources of income to labor income: The lower the unemployment rate and the higher nonlabor income, the more likely it is that employees want to quit or show some kind of shirking behavior, because lower unemployment makes it easier to find a new job and higher nonlabor income makes it easier to live without work. Hence, if aggregate employment or nonlabor income sources increase, employers will increase efficiency wages to battle shirking and quitting, thereby creating endogenously (i.e., not directly imposed by government laws) involuntary equilibrium unemployment. Labor market equilibrium is given if the increased wage costs have increased unemployment so much, that no firm has an incentive to increase wages further.¹¹ Thus, the optimal efficiency wage rises if employees’ propensities to shirk or to quit increase in reaction to higher aggregate employment. Hence, WS is a nondecreasing function of the employment rate: The higher employment, the higher the required efficiency wage level for labor market equilibrium and *vice versa*.

Today, real wage rigidity is widely seen as the result of the ratio between net wage income and net alternative income in case of being unemployed. Due to the above-mentioned adverse incentive effects on *effective* labor supply, a fall of this ratio leads to an increase in wage costs. Instead of recurring on exogenously given unemployment benefits as the main source of unemployment income (Layard et al. 1991), Structuralist theory features the income from households’ average asset holdings.¹²

Financial wealth of households consists of real public debt and asset wealth. Financial assets represent the claims of households on the firm’s assets. If households receive a continuous stream of income from their average asset holdings,

¹⁰See Yellen (1984) for a survey of efficiency wage theory. See Bellante (1994) for a critique of the concept of efficiency wages from an Austrian point of view.

¹¹In equilibrium (in the sense of correct expectations), involuntary unemployment exists because employers do not have an incentive to decrease wages to a market-clearing level even if the unemployed want to work for lower wages. For wage decreases would decrease productivity, *given* nonlabor income. In fact, a certain “natural” rate of unemployment is needed to keep a check on shirking and quitting of the employed.

¹²If financial wealth is a significant source of employees’ nonlabor income, time-dependent real asset prices and real interest rates determine efficiency wages and thus the aggregate unemployment rate. It is in this sense that the Phelps-paradigm offers a “dynamization” of efficiency wage theory.

an increase in financial wealth leads to a rise of relative unemployment income, and therefore—via an increase of the propensities to quit and to shirk—to a fall of effective labor supply. To raise the incentives to work, firms react by raising efficiency wages. Thus, financial wealth of households is a shift-parameter of the *WS*-curve.¹³ An increase in financial wealth shifts *WS* to the left and *vice versa* (in Fig. 1).

Completing the general equilibrium system requires capital market equilibrium to determine equilibrium asset prices and real interest rates. In case of a closed economy or in a “world view,” an endogenization of the real interest rate is necessary: Product and capital market equilibrium implies that consumer demand equals consumer good supply. Consumption demand and supply is equilibrated by the natural rate of interest in the sense of Knut Wicksell. Consumption demand is a positive function of financial wealth and human wealth: Higher wealth increases consumption demand, thereby increasing interest rates. Consumer goods supply of firms depends positively on asset prices and asset stocks: the higher stock prices, the more goods firms will supply and for this reason invest in their assets. Hence, changes in the natural rate of interest lead to changes in the natural rate of unemployment.

Austrian “Themes” in Structuralist Theory

One of the most important themes of structuralist unemployment theory is that a rise of public debt leads to a rise of the NRU. For if current households presumably do not care about a deficit-induced tax burden for future generations, an increase in public debt leads to higher financial wealth, higher consumption demand, and higher real interest rates. The increase in the natural rate of interest decreases the prices of the assets in which firms invest and lowers labor demand. Thus, the direct effect of an increase of debt is to increase real interest rates and to shift the *PS*-curve to the left. However, the indirect effect is to increase relative nonlabor income in increasing financial wealth, thereby shifting the *WS*-curve to the left as well. Both shifts produce a “structural slump” in terms of lower aggregate employment.¹⁴

In the spirit of Hayek (1935), the structuralist framework turns Keynes’s paradox of thrift upside down. For an increase in consumption (e.g., due to an increase in the rate of time preference) will drive down asset prices, investment, and employment via an increase of real interest rates and *vice versa*. Nothing new for Austrians in this regard.

¹³The prevailing set of social policies reflected in tax and welfare legislation as featured by Layard et al. (1991) and work-independent rights on an income—“social wealth”—as featured by Phelps (1997) can also be included in this framework. “[W]orkers exhibiting a high incidence of unemployment mainly have assets, such as their dwelling, its furnishing, their car, clothes, etc. that they wouldn’t want to sell to finance the expenses entailed in the event they decide to quit” (Phelps and Zoega 2000, p. 16, 17n).

¹⁴To make this mechanism work, it is crucial that the indirect effects of the shock have less of an effect on the *WS* curve than the direct effects on the *PS* curve.

“[I]n one respect the structuralist theory *builds* on Hayek by bringing out the essentially nonmonetary nature of his argument . . . and making good the failure to draw the necessary distinctions among types of spending” (Phelps 1994, p. 161–62). For, contrary to Hayek, the structuralist paradigm shows that increased public *spending on capital-goods is expansionary: Due to the assumption of a relative high labor intensity of the capital goods sector in a two-sectors model (consisting of a capital goods and a consumption goods sector), an increase in government spending on capital goods leads to an increase of labor demand and employment. In this context fiscal demand management policies make sense only if the additional spending is directed to capital goods and the public sector. Although the capital structure is not addressed, in this model the “structure” of demand matters for its effects on employment.*¹⁵

The Structuralist framework does not only focus decadal swings of the NRU but also cyclical changes in the NRU (Phelps 1999). Here the expectations of entrepreneurs are crucial. For Structuralist booms are induced by expectations of *future profits* which raise the values that entrepreneurs put on new investments in business assets without raising the cost of acquisition. The cost depends productivity, because the opportunity cost in terms of foregone output is increased by higher productivity growth. These profit expectations raise real share prices and via q investment and labor demand. If *anticipated* productivity gains are realized, acquisition costs rise and the boom ends (Phelps 2004b).¹⁶ Cycles are not interpreted as departures of the actual rate of unemployment from the NRU but as swings of the NRU itself due to swings of the natural rate of interest and real share prices. The spread between the market interest rate and the natural rate of interest does not matter.

Economic Policy Issues

Austrian business cycle theory does not offer specific policy prescriptions other than central banks should not engage in credit expansion (see Garrison 2005). In contrast, Phelps gives quite concrete model-based advice on economic policy issues: If entrepreneurs are the driving force of productive change—Phelps’s concept of “dynamism”—and if entrepreneurs expectations matter for investment, then every policy measure that lifts the stock price variable q increases total business activity as well. *Vice versa*, a low level of entrepreneurial spirit, institutional rigidities, and high reservation wages of workers, entrepreneurs, and financiers due to high levels of financial and “social” wealth will depress economic activity (Phelps 2006). It is this

¹⁵It is this two-sector model where the “Phelps-Cochran controversy” on the validity of Austrian business cycle theory was built. Phelps (2004a, p. 10) argues that “[o]n overinvestment, the Austrians really had no argument.” For a sudden addition of capital on the world economy would imply that world capital markets would react with a sharp drop of interest rates, a jump of capital goods prices, and an immediate lift of real wages and employment. “Instead, Cochran (2003) points out that the sudden addition of capital is the result of an increase in saving. This growth in capital stock would not represent overinvestment.

¹⁶See Phelps and Zoega (2001, p. 94) for a description of the basic mechanism of a structural boom in the two-sector growth model.

context in which Phelps's neglect of aggregate demand policies in favor of a supply-side policy agenda, his rejection of European-style corporatism (Phelps 2005a, p. 25), and his plea to prune the welfare state and to pay wage subsidies for low-skilled workers have to be seen (Phelps 1997). Yet, the view that recessions have potentially beneficial cleansing effects and that stabilization policies are counter-productive is nothing new for Austrians as Phelps and Zoega (2001, p. 114) readily admit.

Austrian Elements of Structuralist Unemployment Theory?

Disregarding semantic quibbles, squabbles, and insurmountable methodological differences, one can find *prima facie* a lot of similarities between the Austrian and the Structuralist School (see Table 1). Last but not least is the Structuralist emphasis on the importance of entrepreneurship, innovation, and capitalism for economic activity (Phelps 2005a)—concepts which are at core of the Austrian paradigm.¹⁷ However, if you take a closer look, Structuralist theory has many more elements of the German Historical School (i.e., Cassel 1924,¹⁸ Spiethoff 1903) than of the Austrian School (Phelps 2005a, p. 21). Spiethoff said that from a position of equilibrium, where the natural rate of interest equals the market rate, technical progress increases the natural rate beyond the market rate, and thus sets off an investment boom,¹⁹ is much closer to the spirit of an entrepreneurial expectations-driven Structuralist boom than the Austrian business cycle theory where monetary policy decreases market interest rates below the natural rate.²⁰

The different views of both paradigms can be shown in an admittedly highly stylized way in a diagram in the spirit of Garrison (2005) and (Oppers 2002, pp. 14–15). The Austrian paradigm is represented in the left graph of Fig. 2. The horizontal axis shows aggregate investment, the vertical axis aggregate consumption. The diagram depicts the intertemporal tradeoff between consumption and investment, i.e., the production possibility frontier (PPF) or the NRU. An initial credit-induced increase in investment leads to a mismatch between the structure of

¹⁷Phelps (2006, p. 2) calls Mises—due to his emphasis on imperfect knowledge—“one of the early moderns” and therefore one of the ancestors of Phelps’s “modern theory of equilibrium unemployment, interest, and assets.”

¹⁸See Phelps and Zoega (2001, p. 86):

Spiethoff, Cassel and Schumpeter . . . saw investment as driven by expectations of its profitability and by the unanticipated events that raise or lower those expectations. . . . The nonmonetary links to aggregate employment were not forged by these pioneers, though.

¹⁹See <http://cepa.newschool.edu/het/essays/cycle/overinvestment.htm>.

²⁰Although the German school does not deny the existence of speculative “excesses,” they hold the view that structural booms die of natural causes—with no necessity of a cleansing recession as depicted by the Austrian School (Phelps 2001). The Phillips curve/natural rate paradigm by Phelps (1967), where monetary disturbances create unsustainable booms and a consequent contraction, is much closer to the spirit of the Austrian business cycle theory than the structuralist paradigm. See Oppers (2002, p. 14) and Call et al. (n.d.).

Table 1 Common ground and differences between the Structuralist and the Austrian school²¹

Structuralist Theory	Austrian Macroeconomics
Supply-side/Belief in NRU hypothesis	Supply-Side/Belief in NRU hypothesis
Nonmonetary	Monetary
Decisive role of natural rate of interest and share prices	Decisive role of <i>spread</i> between natural rate and <i>money</i> rate of interest
Decisive role of entrepreneurs' rational expectations	Decisive role of entrepreneurs' "endogenous" expectations
Role of stabilization policy: no intervention	Role of stabilization policy: no intervention
Cause of booms: entrepreneurs' animal spirits	Cause of (artificial) booms: monetary policy
Rational booms if justified by future productivity gains => (no) overinvestment	Artificial booms if credit-induced => mal-investment
Cause of bust: realization of long-anticipated productivity gains	Cause of bust: self-correcting market forces
Policy-wise contra welfare state, corporatism	Policy-wise contra welfare state, corporatism
Pay wage subsidies, decrease pay roll taxes	Sympathy for Phelps's proposal
Focus on wage rigidity/capital markets/structure of aggregate demand	Focus on capital structure and interest rates
Imperfect (entrepreneurial) information entrepreneurial => efficiency wages	Imperfect theoretical knowledge, perfect entrepreneurial knowledge
Intertemporal equilibrium	Intertemporal disequilibrium
Intertemporal coordination	Cycles as instances of intertemporal discoordination
Focus on the medium-run	Focus on the medium-run
(Involuntary) structural vs. cyclical unemployment	Cyclical unemployment as special case of (voluntary) structural unemployment

production and planned future consumption with the consequence of a change in intertemporal relative prices raising the real interest rate which triggers a recession (a position below the PPF). To return to the frontier the economy needs a readjustment via time (i.e., liquidation of malinvestments) and unfettered interest rate signals. Focus of the Austrian macroeconomics is on "the actual market process that translates the *monetary* cause into the real phenomena and hence on the institutional setting in which this process plays itself out" (Garrison 1991a, p. 98).

In contrast, Structuralist theory is *nonmonetary* and does not focus on the possibility of intertemporal discoordination: real interest rates are always "right" and reflect only real forces. The Structuralist paradigm is represented in the right graph of Fig. 2. As in real business cycle theory, real shocks induce changes in asset prices, real interest rates, and wealth which in turn lead to changes of the NRU. There are no departures from equilibrium and the PPF. A Structuralist boom is induced by expectations of future profits which raise the values that entrepreneurs put on new investments in business assets without raising the cost of acquisition.

²¹This table draws on the cited references, esp. Phelps (1997, 2001, 2004a), Phelps and Zoega (2001, 2004), Garrison (2005), Gordon (2004, p. 33).

²²Higher stock prices increase financial wealth of households and therefore induce an adverse shift of the *WS* curve. This effect, however, is weaker than the initial positive effect of higher stock prices on the *PS* curve.

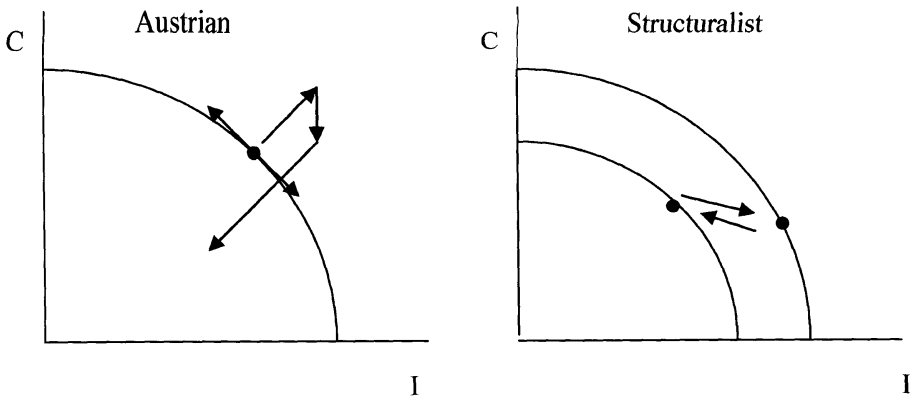


Fig. 2 Different views on the business cycle

These profit expectations raise real share prices, investment, and labor demand.²² If anticipated productivity gains are realized, acquisition costs rise and the boom ends. The economy returns to the old PPF. Both camps, however, allow for movements *along* the production possibility frontier of the economy.

In Austrian terms, booms are artificial if they are created by artificially low interest rates. For monetary inflation leads to an artificial boom as entrepreneurs, misled by distorted interest rate signals, *erroneously* malinvest in higher order capital goods. This artificial boom *must* inevitably be followed by a slump. Higher saving, however, leads in both schools to lower interest rates and gives rise to a genuine or—in Structuralist terms—a rational boom. Booms are also considered by Structuralists as rational if entrepreneurs anticipate *correctly* future productivity gains.²³ Hence, a rational boom should not be followed by a slump.²⁴

From a Structuralist point of view (Phelps 2003a), booms and slumps must not go along with inflation, because the NRU implies that inflation does not accelerate or decelerate. Hence, a boom with no inflation is seen as a healthy development in that it is a sign that the NRU decreased. These booms are sustainable and not artificial in the Austrian sense. Even if some overinvestment has to be corrected in a following recession, these booms are salutary if the gains of the boom outweigh the cost of the recession (Phelps 2005b, p. 23). In contrast, Austrians would see inflation-free growth as a warning sign. For the constancy of the aggregate price level can mask inflationary tendencies in credit aggregates and malinvestments (Garrison 2005).

²³“The [Structuralist] boom is not doomed by the ‘miscalculations’ that some pioneer boom theorists to start and end the boom” (Phelps and Zoega 2001, p. 87). Phelps and Zoega (2001, p. 98) discuss the implications of mistaken expectations by entrepreneurs.

²⁴See Phelps (2003a):

No slump should follow an investment boom inspired by new expectations of some outsize future productivity gain if they prove correct—a sort of rational boom. The capital stock surges up only in proportion to the expected rise of productivity, and when the productivity gain is realized annual investment drops back to its normal ratio to (increased) output—never below its trend-path—and employment falls back to normal.

Austrians stress the policy-induced decrease of market interest rates below the natural rate.²⁵ Structuralists (and Austrians) stress that an increase of the natural rate of interest has to be *followed* by an increase of the market rate via monetary policy tightening if an over-heating of the economy should not take place (Hoon et al. 2005, pp. 118–21 and Garrison 2004, pp. 8–10).

Imperfect information is crucial for both paradigms. Yet, Austrians stress the lack of theoretical knowledge of entrepreneurs which leads to malinvestments (Garrison 1989, p. 20), whereas Structuralists focus on the lack of knowledge about the characteristics of future employees which gives entrepreneurs incentives to pay efficiency wages—a concept which is not seen as relevant by Austrians (Bellante 1994).

Capital and interest is at the core of interest of Austrian macroeconomics. While Phelps (1994, p. 58) claims that the capital market is central to structuralist theory, its core is probably rather the concept of wage rigidity (see Phelps 1994, chap. 1; Garrison 1994).

Structuralist unemployment not only contains unemployment due to institutional rigidities but also due to a “too high” natural rate of interest and due to “too low” asset prices which can give structural unemployment a cyclical component. The Austrian vision sees cyclical unemployment as a special case of structural unemployment as well. Yet, this cyclical part results from the monetary policy-induced gap between market interest rate and the natural rate.

Hence, behind the “Phelps-Cochran controversy” (Phelps 2003a; Cochran 2003) on the validity of Austrian business cycle theory lie crucial differences in assumptions on the economy: (1) overinvestment (structuralist) vs. malinvestment (Austrian); (2) homogeneity of capital (structuralist) vs. heterogeneity (Austrian), (3) nonmonetary (structuralist) vs. monetary (Austrian), (4) rational entrepreneurial expectations (structuralist) vs. entrepreneurial errors (Austrians); (5) evitability (structuralist) vs. nonevitability of a slump (Austrian) (Cwik 2003).

Conclusion

Does Structuralist theory contain Austrian elements? Austrian macroeconomics concerns itself with the intertemporal capital structure and entrepreneurial expectations. Yet, which modern macroeconomic theory is in this regard—in a wider

²⁵In the Austrian paradigm, described in chapter 2, “bottlenecks” characterize the period during which changes in employment and real output give way to changes in wages and prices in the final throes of a boom. Structuralist theory postulates, in principle, that when unemployment is below the natural level, the tightness in the labor market—i.e., “bottlenecks”—will cause prices and wages to be reset above expectations. The inflation rate, then, will exceed the expected inflation rate; i.e., as the economy is approaching the NRU, bottlenecks in goods and labor markets are more and more felt in terms of increasing prices. However, if the natural rate itself is moved down via structural forces (e.g., via an asset price boom), a boom must not manifest itself in a “bottleneck”-induced inflation. Moreover, if households expect a falling inflation rate in the future, a rise in the inflation rate relative to expectations need not translate into an actual rise of the inflation rate if the expected inflation rate is falling. (Phelps 1996). In this context it is crucial to mention, that the Austrian critique (Garrison 1995) of the bottleneck concept of Keynes (1936) applies as well to the structuralist paradigm. For both paradigms do not focus on substitution effects of changes in relative prices. See Shostak (2006) for an Austrian critique of the concept of the NRU and the implied short-term tradeoff between inflation and unemployment.

sense—not Austrian?²⁶ At least, Structuralist theory is “Austrian” in that it is dynamic and that entrepreneurial expectations—yet, rational—matter. However, by neglecting the capital structure and the monetary process which leads to credit-induced booms and bust, structuralist theory misses the core element of Austrian macroeconomics (Cochran 2003).

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²⁶Laidler (2003), Caplan (1997), and Phelps (2006) stress that modern mainstream macroeconomics has absorbed the key insights of Austrian macroeconomics.

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