COMMENT AND ANALYSIS

PRICE RIGIDITIES AND THE MARKET PROCESS

Vaclav Rybacek *

Insufficient price flexibility is considered to be an important reason for conducting monetary policy (Groshen and Gecchetti, 2000). The adjustment of the money supply can supposedly eliminate the negative effect of a nominal demand collapse or of a rise in money demand, and restore equilibrium. Keynes himself placed downward wage rigidity in the centre of his theoretical system as one crucial assumption underlying his theories. Due to the preference of workers to not let nominal wages decline, Keynes proposes to overcome rigidity by letting the price level to rise.

Currently, one of the most important aims of research in this field is to find the so-called 'optimal rate of inflation', which is understood as the rate of inflation at which barriers to price changes (rigidities) are overcome with the low cost of inflation (mainly in form of an impact on growth and unemployment); in other words, an optimal rate of inflation promotes the flexibility of the economic process, and has at the same time a beneficial effect on the allocation of scarce resources (Andersen, 2000).

Because flexibility of the money supply is seen as a tool for overcoming the supposed problem of rigidity in economic activity,

* Vaclav Rybacek, Ph.D., Faculty of Social and Economic Studies at the Jan Evangelista Purkyně University in Usti nad Labem. E-mail: Vaclav.rybacek@centrum.cz.

the problem of rigidities gave rise to long-lasting discussions between proponents of money supply management and critics of monetary policy. In recent discussions, Bagus and Howden (2012) argue that price stickiness is a poor justification for advocating a flexible supply of money. Luther and Salter (2012) oppose that rigidities in the market process are only a question of the speed of adjustment, but it is the cost of adjustment that matters.

In the following paragraphs, we add some important aspects to this interesting and important discussion focusing on the flexible money supply. More specifically, two important insights are elaborated: first, the role of price stickiness in the market process, and second, the crucial argument provided by Luther and Salter (2012), i.e. the relationship between the costs of adjustment. If the costs of adjustment are lower in the flexible money supply regime compared to the alternative, then changes in the money supply are preferred. However, given the shortcomings of price stickiness, this latter consideration, we argue, appears to be useless from a practical point of view.

RIGIDITIES IN THE MARKET PROCESS

From the economic point view, the key role of the price system is to guide economic actors so that scarce resources are used in the most efficient way. First, prices reflect the scarcity of given resources, and also offer information about consumer preferences. Second, changes in prices guide economic variables toward equilibrium, a process in which prices correspond to the real availability of resources and the pattern of preferences. But, if prices do not react immediately to a demand or supply impulse, this situation is referred to as price rigidities, and their existence has an important impact on the overall economic performance (Andersen, 1994).

Such nominal rigidities play central role in the modern mainstream macroeconomics and in monetary theory (Zbaracki,

2007). In theory, three sources of rigidities can be identified—asynchronous price changes, incomplete adjustments to real shocks, and flaws in seasonal adjustments (Groshen and Gecchetti, 2000). According to this understanding of rigidities, prices do not react sufficiently to the new market data, i.e. nominal prices fail to adjust to changing market conditions, and as a result, changes in output and in the use of labour inevitably occur.

Price rigidities are thought of as costs or psychological barriers to price changes (Andersen, 1994). Producers can find it more profitable to keep prices unchanged despite new information having emerged on the market (Groshen and Geschceti, 2000). It cannot be denied that these costs exist and that these costs affect the decision-making of market producers. But it is not clear why monetary policy should avoid these costs which are a natural part of entrepreneurial calculation. Furthermore, transaction costs (of price adjustment or ignorance) are considered to lead the economy away from the equilibrium position. This approach, however, fails to see that the market process is an equilibrating process, which never arrives at an actual static equilibrium (Kirzner, 1992). In equilibrium, underlying market data concerning preferences, resources, or technologies do not induce any changes in the behaviour of entrepreneurs; the alertness of entrepreneurs is completely unnecessary, because entrepreneurs no longer seek profit opportunities. This state of economy is neither real nor desirable.

Instead of focusing on the state of equilibrium, we should perceive the market as a dynamic process of entrepreneurial alertness and discovery (Kirzner, 1992). Price stickiness is based on the preferences of market participants, or in other words, rigidities are a natural characteristic of market prices. On a microeconomic level, to consider the costs of price changes is a completely rational course of action (Zimmerman, 2003). There can be a variety of reasons why producers would not adjust prices in reaction to market forces. For example, Zbaracki (2007) indicates a host of different business strategies concerning list prices and negotiated prices.

In addition, there are still two questions remaining: how are we to identify what prices should be changed to correspond to the underlying data, and — even if we had this kind of (reliable) information — why monetary policy should aim at reducing the costs of these adjustments, i.e. why should it effectively correct the decisions of market participants? If a given price strategy of entrepreneurs will prove to be detrimental to profits, this strategy will soon be revised, or otherwise a producer will eventually have to leave the given market. On the free market, the stickiness of prices is simply part of the calculation process and it will be reduced to the extent that market interaction allows it (Hülsmann, 2003).

In reality, a large part of the underlying data guiding market participants is modified by government regulators. Their policies are the ones which induce changes in the behaviour of market participants toward a stronger preference for price stickiness. Many sources can in fact be identifies as exaggerating the extent of rigidities statistically observed on the market, sources which can hardly be attributed to the functioning of truly free market. Among these sources we can identify inflation, regulated prices, and taxes. First, if a 'price maker' (producer) finds the price of any good or service to be too high, the optimal strategy in an inflationary environment is not to lower this price, but to wait for the effect of inflation to reduce real prices. This strategy reduces the costs of price changes. Persistent inflation thus weakens the incentive to reduce nominal prices (Andersen, 2000). Ball and Mankiw also show that producers more likely react to positive rather than negative shocks (Ball and Mankiw, 1994), such that an inflationary monetary regime will itself induce asymmetries in price changes in this manner.

Second, regulated prices[1] are a very important source of downward rigidity of nominal prices (Lünnemann and Mathä,

[1] The consumer basket used for the calculation of the Consumer Price Index contains about 9% regulated prices of high importance (dwellings, water and sewerage, etc.).

2004). Regulated prices are, by definition, dependent on the decision of the regulator, which this leads to a lower frequency of adjustments to changing economic conditions. Therefore, important abnormalities can be observed in this case—downward rigidity, lower frequency of changes, but also more significant changes. On the other hand, the average inflation in the case of regulated prices is higher than in the case of prices based on the market principles (Lünnemann and Mathä, 2004).

Third, and finally, the 20th century can be called as "the century of taxes", given the rapidly rising amount of taxes collected by governments. On average, redistribution through taxation has risen from a 25.8% of the GDP in 1965 to a current level of 37.4% of the GDP. Rising taxes puts upward pressure on some prices, whereas in a fiat-money inflation regime this does not necessarily cause the decline in other prices.

MENU COSTS VERSUS THE COSTS OF INFLATION

The corrective action of the monetary policy is advocated by comparing the costs associated with this correction to the alternative situation. Luther and Salter (2012) claim that if the costs of adjusting the money supply are lower than the costs of changing prices, then it is reasonable to prefer a flexible money supply regime. But the list of price adjustments costs seems to be rather vague—such as setting new prices (menu costs), opportunity costs, and some other resources. By comparison, the indicated costs of adjusting the money supply (printing notes, deliberation, making entries into accounts (Luther and Salter, 2012) can be find as absolutely insufficient.

Further, Luther and Salter (2012) consider the sources of costs associated with changing prices to be irrelevant. From the perspective of the conclusion — that we are to prefer the *less*

[2] Macroeconomic data of the European Union (2013), database available at www.economicswebinstitute.org.

costly situation —, it is not clear how can we base our decision only on the fact that the price adjustment is just costly. If we do not know these costs, we cannot make the comparison proposed between the costs of inflation and the costs of changing prices (menu costs). Thus, this purely technical rule can be seen as a very vague and unscientific. In fact, Zbaracki (2007) correctly mentions that some costs of the price adjustment process cannot be observedable, which makes testing them practically impossible. As the author elaborates into some depth, there is a variety of costs not addressed in the standard accounting systems, i.e. managerial and customer costs related to time-consuming explorations, managerial considerations, customer´s negotiations, and so forth. Due to the fact that these indirect costs are not clearly observable, we are actually throwing away a great deal of evidence, useful to understand changing prices (Zbaracki, 2007).

Thus, on the one side, there are (menu) costs which cannot be satisfactory calculated because some part of these costs are only of a subjective nature, and to measure them means to make interpersonal comparisons of utility—an unscientific method in any economic discussion. Some entrepreneurs can prefer stable prices for the purpose of a good reputation, or because it can reflect a long-term strategy to stabilize the development of profit (or losses) over time. This means that there are subjective aspects which cannot be measured. If not all costs related to price adjustment are measurable or observable, this logically implies that we do not have a clear idea how significant such costs might be, and we cannot arrive at the conclusion that the amount of these costs could be avoided by the supposed positive effect of inflation.

On the other side of the scale, we have the costs related to inflation, i.e. the costs of money supply adjustment. In the logic of Luther and Salter (2012), with no adjustment in money supply an economy will face an output loss. Consequently, these losses can be avoided with the lower costs of printing new money. The first thing here is that we can never be sure if a loss of output can be

attributed to sticky prices, i.e. to which extent price rigidities are behind the decline in output. It also matters how the output is calculated: the GDP includes high shares of different types of imputation, which are not observable in the sense that these "transactions" are not carried out in reality or are pure statistical guesses. These problems are rather of a technical nature, and associated with the problem of how to correctly measure an economy's output. A second issue, more important from the point of view of the theory, is the effect of flexible money supply on the structure of economy. Clearly put, can prices after the money supply adjustment still reflect the relative scarcity? Pricing is an inevitable part of the market process, which prevents relative prices from being changed by the expansion of money supply, such that we have to insure that the new money will be distributed across the economy in a way in which any new holder will purchase goods and services in the same pattern as they would have without the additional monetary injection. But the central monetary authority does not know these consumer preferences, nor is not it technically able to distribute money in such a deliberate way. To keep the relative scarcity unchanged after monetary adjustment also presupposes making interpersonal comparability of utility, as well as the awareness of the economic subject of the additional emission of fiduciary money being placed into the economy.

Moreover, the relative scarcity or preferences can change in the process. Due to the time lag between changing the money supply and the actual final prices, the ever-changing preferences will probably be very different at the end of the process, thus giving new value to assets and capital goods. The array of relative prices should correspond to scarcity of resources, preferences (including time preferences), and technological equipment. But the data of preferences and technologies underlying these

[3] For example, imputed rents, costs of capital (depreciation) or the non-observed economy. These components of total output can amount up to 50 percent of the GDP.

considerations are constantly changing (Kirzner, 1992). So, even if the array of relative prices will be the same as before the issuance of new money, we can never come to the conclusion that the relative scarcity after adjustment is optimal with regard to consumer preferences. Therefore, introducing new money into the economy always brings about a revolution in the price structure, because it is always introduced at some specific point in the economy. On this basis, inflation bears a considerable cost for the economic system, it unpredictably affects the structure of relative price, as well as the reallocation of productive capital. Distorted price information leads producers to ineffectively allocate the scarce resources, because individual actors cannot perfectly distinguish between real and nominal change in price.

If this is the case, then two scenarios are conceivable. In the first one, the reallocation of capital will be necessarily followed by a loss in production and employment. Or, it will become necessary to maintain the situation of distorted price information by further regulations or subsidising. The disruption of relative prices is the key argument against the inflationary regime. Andersen objects that this argument overlooks the incentives to frequent price changes whereas the dispersion of relative prices is reduced (Andersen, 2000), but this argument is purely arbitrary suggesting that more frequent price changes are preferred. More importantly, the inability to calculate applies also to the case of the costs of money supply adjustment. Thus, there is no convincing way how to identify the most preferred price level of costs, as proposed by Luther and Salter (2012). Suppose that monetary expansion changes the pattern of consumption, then capital goods are rerouted to production lines experiencing rising demand. If not all capital goods are perfectly substitutable, some part of the capital stock will be wasted or destroyed due to inflation. Of course, the same holds true for fully flexible prices regime, but in the inflationary case, there is no information giving us an idea of the costs associated with an alternative situation.

The same holds true for the other factors of production, such labour. The inflationary process distorting relative prices will also

attract workers with given skills to search for better paid jobs. Because labour is also not perfectly substitutable, cost associated with this sub-optimal allocation of labour force will inevitably arise (related to the search for new jobs and the sub-optimal utilisation of given skills). In short, if we assume that inflation will create changes in relative prices, the distribution of both factors of production will result in some costs of the sub-optimal employment of assets and labour.

In conclusion, aggregate demand can be restored to its previous levels only nominally, but there are important changes behind this adjustment (Horwitz, 2000). We should look beyond the aggregates, at the composition of the structure of production and the usage of physical and human capital. Capital and people are not homogenous, and the study of market process enables us to reveal the inability to justify money supply flexibility on the basis of scientific principles. Thus, even if the comparison of costs appears to be a persuasive way to make the optimal choice, it is practically useless, because these costs cannot be quantified, and for this reason this way of argumentation can be rejected.

CONCLUSION

The costs of price adjustment are inherent in the nature of entrepreneurial behaviour on the market. If price-setting is based on the decision of actors on a free market, then it is based on the knowledge of dispersed information which cannot be known to any authority in its entirety. This fact takes us to logically the conclusion that a central authority cannot have a clear idea how prices correspond to preferences or the scarcity of resources. Thus, it remains doubtful if a monetary authority should intervene to correct the decisions of market participants. Furthermore, concerning the comparison of costs of alternative situation, serious flaws can also be found in this reasoning. The information regarding price adjustment costs is unattainable because not all these costs can be observed in reality or are measurable. The

same holds true for the costs of changes in the money supply; money supply adjustment costs are undoubtedly undervalued due to the ignorance to changes on the supply side evoked by the arbitrary changes in the monetary conditions. If some part of these costs is neither observable nor quantifiable, there is no reliable basis for the decision of which of these situation is more preferable.

REFERENCES

Andersen, Torben M. 1994. *Price rigidity. Causes and Macroeconomic Implications*. Oxford: Clarendon Press.

Andersen, Torben M. 2000. Nominal Rigidities and the Optimal Rate of Inflation. Working

Paper No. 19, Centre for Dynamic Modelling in Economics.

Bagus, Phillip and David Howden. 2012. Monetary Equilibrium and Price Stickiness: A Rejoinder. The Review of Austrian Economics. 25 (3): 271-77.

Ball, Laurence, and Gregory N. Mankiw. 1994. Asymmetric Price Adjustment and Economic Fluctuations. The Economic Journal, 104(423): 247-61.

Groshen, Erica L. and Stephen G. Gecchetti. 2000. Understanding Inflation: Implications for Monetary Policy. NBER Working Paper Series No. 7482.

Horwitz, Steven. 2009. *Microfoundations and Macroeconomics: An Austrian Perspective*. London: Routlege.

Hülsmann, Jörg Guido. 2003. New Keynesian Monetary View: A Comment. The Quarterly Journal of Austrian Economics. 6(4): 73-6.

Kirzner, Israel M. 1992. *The Meaning of Market Process. Essays in the Development of Modern Austrian Economics*. London: Routledge.

Lünnemann, Patrick, and Mathä, Thomas Y. 2004. How persistent is disaggregate inflation? An analysis across EU 15 countries and HICP sub-indices. Working Paper Series 0415, European Central Bank.

Luther, William J. and Salter, Alexander W. 2012. Monetary Equilibrium and Price Stickiness Reconsidered: A Reply to Bagus and Howden. Review of Austrian Economics. 25(3): 263-69.

Zbaracki, Mark J. 2007. A Sociological View of Costs of Price Adjustment: Contributions from Grounded Theory Methods. Managerial and Decision Economics. 28 (6): 553-67.

Zimmerman, Guido. 2003. Optimal Monetary Policy: A New Keynesian View. The Quarterly Journal of Austrian Economics, 6(4): 61-72.