In December 1999, the Swiss National Bank (SNB) introduced a new monetary policy strategy involving a formal definition of “price stability”, the publication of inflation forecasts, and the announcement of a target range for the three-months swiss franc Libor (e.g., Jordan, Peytrignet and Rossi, 2010). This new strategy was aimed at communicating more clearly the SNB’s actions, effectively anchoring the public’s inflation expectations, while maintaining some continuity with past policy.

The main objective of the paper by Kugler and Sheldon (2010) (KS) is to characterize the effects of this change in monetary policy strategy on the Swiss labor market (i.e., on the degree of real-wage rigidity, the NAIRU) as well as the sacrifice ratio, the level and the persistence of inflation, using a Phillips relationship. This is a valuable and very ambitious exercise.

The paper sets up ambitious goals because it is a priori difficult to detect a clear effect of a policy change in 1999 on the inflation-unemployment relationship in Switzerland, as suggested by Figure 1. While the inflation-unemployment trade-off has remained remarkably stable since 1999, and below the tradeoff observed in the late 1980s and early 1990s, this tradeoff has stabilized at a low level of inflation at least since 1994. So while the new monetary policy strategy appears to have been successful at maintaining a low inflation-unemployment tradeoff, it is not clear from the figure that it contributed to a change in the inflation-unemployment relationship.

To characterize how the policy change might have affected the Swiss labor market and its relation to inflation dynamics, one thus needs to estimate a model that imposes sufficient restrictions on the processes determining inflation, $\Pi$, and unemployment, $UR$, KS do so by estimating the following two-equation system

$$\begin{align*}
\Pi_t &= \Pi_{t-1} + \Pi_t^\eta + \Pi_t^\pi + \Pi_t^\Delta + \Pi_t^{\text{shocks}} + \varepsilon_t \\
UR_t &= UR_{t-1} + UR_t^\eta + UR_t^\pi + UR_t^\Delta + UR_t^{\text{shocks}} + \zeta_t
\end{align*}$$

\[ \Pi_t = a_0 - \frac{\lambda}{2} (UR_{t-1} - UR^*_t) + \sum_{i=1}^{n} (a_i \Pi_{t-i} + b_i \Pi_{t-j-i}) + \varepsilon_{1t} \]  

(1)

\[ UR_t = UR^*_t + \sum_{i=1}^{m} \varepsilon_i (UR_{t-i} - UR^*_{t-i}) + \varepsilon_{2t}, \]   

(2)

over the periods 1980–1999 and 2000–2009, where the “natural” rate of unemployment (or NAIRU), \( UR^*_t \), is given by proxies of permanent factors affecting the labor market, divided by the parameter \( \lambda \), and \( \Pi_{c,t} \) measures changes in commodity prices meant to represent transitory cost shocks. Equation (1) is a Phillips relationship and (2) is a law of motion for the unemployment rate. KS justify such equations by appealing to the so-called “Battle-of-the-markups” model, a static model involving an equation describing the wage-setting behavior of workers and an equation describing the price-setting behavior of firms.

1. Comments

I won’t discuss the authors’ finding that inflation persistence has decreased following the policy change, as this is addressed by the other discussant, but I will focus on the authors’ conclusion that the monetary policy change has resulted in (i) more wage flexibility, (ii) a lower sacrifice ratio, and (iii) has contributed to a lower NAIRU. I am skeptical of these results.

The Triple Duty of \( \lambda \)

First, all three of these results rely on an increase in the estimate of a single parameter, \( \lambda \), which in the “Battle-of-the-markups” model measures the degree to which workers (firms) are willing to back down from wage (price) demands in face of rising unemployment (falling sales). KS find that the estimated value of \( \lambda \) has increased (from 0.07 to 0.14) since 2000, though not significantly so. Imposing some structure on the data process is necessary to infer any effect of the policy change. However, having \( \lambda \) determine simultaneously wage flexibility, NAIRU and the sacrifice ratio is true only under very special assumptions. It would be nice to have independent evidence providing empirical support for each channel.
Inflation, Unemployment and the Role of Monetary Policy

Second, a serious limitation of the approach taken is that the role of monetary policy is not explicitly specified. As a result, the framework considered does not allow the authors to clearly identify effects of changes in monetary policy strategy. Even if one took the increase in the estimate of $\lambda$ at face value, there is no guarantee that it is caused by the change in monetary policy strategy. The coefficient $\lambda$ may reflect for instance changes in the degree of competition on goods and labor markets or in the degree of wage or price rigidity for reasons entirely unrelated to the monetary policy strategy. So, identifying a change in $\lambda$ after 1999 does not guarantee that one captures the effects of a change in the monetary policy regime, unless one imposes more structure on the model considered, or unless one brings more data (on wages, interest rates, measures of expectations, etc) to bear.

Policy Change and Expectations

Third, given that a key aspect of the policy change has involved a more detailed and transparent communication of policy objectives and of policy actions to the public, it is reasonable to assume that the main effect of the policy change, if any, should appear on the determination of the public’s expectations of future inflation and future interest rates. Unfortunately, the empirical model considered in KS assumes that inflation expectations depend exclusively on past observations of inflation. This has the undesirable implication of excluding any role for the central bank to effectively manage the public’s expectations. In fact, under such backward-looking expectations, none of the SNB’s inflation published forecasts or communications should have any effect on the public’s inflation expectations, as it is assumed that the public revises inflation expectations only when observed past inflation has changed. In such a world, then, there is no reason to expect that a change in policy geared toward improved communication and detailed explanation of the SNB’s actions should lead to any change in the economy and hence on the labor market. Hence, the empirical model does not capture the conventional effect that central bank’s communication and transparency has in affecting the public’s expectations.

To account for the effects of policy on expectations formation, one could alternatively estimate a structural model involving a Phillips relationship of the kind proposed in popular New Keynesian model (e.g., Clarida, Gali and Gertler, 1999; Woodford, 2003). Those models have the advantage of involving expected future inflation in the Phillips relationship, so that the management of the public’s
inflation expectations can play an important role in stabilizing current inflation. While the typical New Keynesian Phillips curve involves a fundamentally latent notion of the output gap, recent work by Gali (2009) proposes a re-interpretation of this model that yields a useful structural relationship between wage inflation, the unemployment gap and expected future wage inflation.

Monetary Policy and the Unemployment Gap

Fourth, by estimating (2), KS implicitly assume that the unemployment gap \( (U_{t} - UR') \) follows an autoregressive process. While they don’t discuss this process, it would be interesting to analyze it, as it may be affected by the monetary policy regime. In fact, one would expect that by committing more to inflation stabilization the central bank would tend to offset more systematically demand-driven (and efficient-supply-driven) fluctuations in \( U_{t} - UR' \). It would thus be interesting to know to what extent this process has changed, and also to impose more structure on it, in order to identify effects of policy.

2. Conclusion

Analyzing the effects of the SNB’s new monetary policy strategy on the Swiss labor market is a very interesting and important issue. However there are many reasons, in my view, to expect such policy change to have little impact on the labor market. First, relatively large changes in monetary policy regimes are usually thought of causing little change in the NAIRU, both on theoretical and empirical grounds. Second, the change in the SNB’s strategy, did not try to establish a clear break from the past policy. While important, the policy change has focused more on improving communication, clarity and consistency, while maintaining continuity in the commitment to keeping low and stable inflation. Therefore, rather than emphasizing that the estimated real wage rigidity, the sacrifice ratio, and the NAIRU have all fallen in Switzerland since the adoption of the new policy regime, I would have emphasized that the analysis finds no significant change.

While I am skeptical that the SNB’s new strategy has affected the NAIRU in Switzerland, I expect it to have altered the way inflation expectations are being formed, and hence to have beneficial effects on anchoring inflation, by providing a more transparent and internally consistent explanation of policy actions.
Figure 1: Inflation-Unemployment Trade-off in Switzerland, 1970–2009

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Discussion
of
“Unemployment and Monetary Policy in Switzerland” by Peter Kugler
and George Sheldon

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In their contribution, Kugler and Sheldon (2010) (henceforth KS) adopt the so-called Battle-of-the-Mark-ups model developed by Layard and his co-authors (1986, 1991) to address a series of issues regarding the link between inflation and the labour market as well as the behaviour of inflation itself (average inflation level, inflation persistency and the role of lagged inflation in shaping expectations). They then bring the model to the data and try to gauge whether the introduction of the new monetary policy framework has brought about any significant changes to these factors.

The core of the model is the Phillips curve of equation (7), in which – in the absence of short-term shocks to either wages or prices – changes in inflation are explained by labour market conditions, where the latter are defined as the difference between the current level of unemployment and an empirically identified equilibrium level, the NAIRU. Hence, at the heart of this model is the idea that the labour market is the scene where tensions between global demand and global supply take form and can thus be readily identified. Accordingly, wages play a key role in the transmission of inflationary pressures. As Layard et al. summarize it (1991, p. 8): “when buoyant demand reduces unemployment, inflationary pressure develops. Firms start bidding against each other for labour, and workers feel more confident in pressing wage claims […]; higher wage rises lead to higher price rises, leading to still higher wage rises, and so on”.

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1. The Approach

The idea of a link between labour market conditions and inflation has been recently resumed by Blanchard and Gali (2008). They construct a New Keynesian model with labour market frictions, real wage rigidities and staggered price settings and formally derive a relation between inflation and labour market tightness. Tighter labour market conditions increase hiring costs which, in turn, affect the marginal cost and thus inflation. Labour market tightness can be determined by both the level and the change in unemployment, depending on the fundamental features of a given labour market.

The NAIRU was born as an empirical concept. It is however, extremely difficult to obtain reliable and precise estimates of it. This point was made convincingly by Steiger, Stock and Watson, 1996 and 1997. As Chang (1997) points out, this might well be the symptom of the weak theoretical foundation of the concept. In the NAIRU spirit, when unemployment goes too low it will lead via higher wages to higher price inflation. The relation between inflation and unemployment, however, appears to be fairly unstable. Unemployment can be either positively or negatively correlated with inflation, depending on the nature of the shocks affecting the economy, including the shocks to inflation expectations. This raises the issues of the correct model specification. The second discussant deals with the question of inflation expectations. Let me thus focus on some other aspects. In KS two variables are meant to capture supply shocks: commodity prices expressed in Swiss francs and a series of dummy variables corresponding to changes in unemployment benefits regulation. A more detailed specification of shocks might be beneficial. First, a broader-defined variable such as the ratio of the imported CPI component over total CPI might be more appropriate to capture the full extent of relative price shocks. Galì and Lopez-Salido (2001), for instance, find evidence that prices of imported intermediate goods matter for both observed and expected inflation. A second important aspect is the role of labour supply shocks. With the implementation of the bilateral agreements with the EU, the Swiss labour market has undergone a major change with this respect (Miguët and Zanetti, 2008). Bentolila, Dolado and Jimeno (2008) find that the immigration boom of the second part of the 1990s has significantly shifted and flattened the Phillips curve in the case of Spain. A third factor that should be explicitly accounted for is productivity. Controlling for VAT effects is also something worth considering.

Even if we admit that the main drivers of inflation are demand shocks, it is still questionable whether the NAIRU concept is the right way to model this mechanism. On an empirical ground, several contributions have questioned the
relevance of wages in the transmission of inflationary pressures. Most of the available research shows little evidence of wages (GRANGER-) causing price inflation. MEHRA (2000) argues that while price inflation helps explain wage growth across various inflation regimes, wage changes help predict price inflation only during period of high and accelerating inflation. Similar results were found for Switzerland (ZANETTI, 2007): price inflation exerts a systematic impact on nominal wages whereas the explanatory power of wages with respect to price inflation has vanished since the beginning of the 1990s. Other factors, such as relative price shocks, clearly dominate wages in explaining the price inflation pattern.

2. Is Unemployment the Right Variable to Measure Labour Market Imbalances in Switzerland?

Figure 1 shows the official unemployment rate since 1975. It clearly appears that unemployment has become a sizeable phenomenon only after the early 90s’ recession. Previous to that date, the Swiss unemployment rate was not only extremely low by international standards but also displayed little volatility. The break in this pattern is largely related to changes in the cyclical flexibility of labour supply in general and of foreign workers’ supply in particular (OECD, 1996). Up to the 1990s employment contractions were matched by significant declines in labour supply, leaving the unemployment rate largely unaffected. This was a Swiss specificity and seems to suggest that the unemployment rate (or deviations from an estimated NAIRU) cannot deliver a consistent picture of labour market imbalances over time. The second time series in Figure 1 is an alternative and broader measure of labour market conditions developed within the Swiss national bank. It defines the labour market gap as the percentage difference between the actual and the potential number of hours worked per quarter. The gap can be influenced by a much larger number of factors than unemployment fluctuations, such as deviations from the potential participation rate or deviations from the optimal number of hours worked for the average worker. Within this concept, a cyclical decline in the participation rate, for instance, contributes to a labour market slack even if the unemployment rate remains constant. This measure clearly shows that movements in the unemployment rate grossly underestimated actual business cycle fluctuations on the Swiss labour market in the 1970s and 1980s.
3. Inflation Persistency and the New Monetary Policy Framework

The strongest piece of evidence obtained by KS relates to inflation persistency. The latter appears to have declined after the introduction of the new monetary policy framework, as the sum of the lagged inflation parameters fell from 0.97 to 0.88 across sample periods. Can a robust causality link between the new monetary policy framework and this result be established? May 2000 is also the point in time when the Federal Statistical Office modified the way in which prices for clothes and footwear (CF) were measured, by taking sales in more explicit account. As it turned out the beginning of the sale season can vary quite substantially from one year to the next. Figure 2 shows how this irregular component has impacted the CF subindex in the CPI (Huwiler and Kaufmann, 2010).

We estimate a simple AR(p) process using the official CPI data. The sum of the (statistically significant) autoregressive parameters is 0.98 for the period 1980–1999 and 0.89 for the period 2000–2009. Hence, the drop in the estimated sum of parameters is of the same order of magnitude as the one found by KS. Next we do the same exercise with the CPI time series excluding the CF component. The estimated sum of coefficients varies from 0.97 in the first sample period to 0.94 in the second sample period. This seems to suggest that although the drop in inflation persistency is simultaneous to the implementation of the
new monetary policy framework it is not necessarily a consequence of it. Elmer and Maag (2009) conduct a detailed analysis of Swiss inflation persistency at the disaggregated level. The come to the conclusion that a significant decline in inflation persistency is indeed observable. The break, however, is located in 1993. No further significant decline is observed in the period after 2000.

4. Conclusion

The issues addressed by the KS paper are crucial from the perspective of the monetary authorities. The authors provide first valuable results that cannot, however, be considered as conclusive evidence. Further investigations – possibly based on an extended data set – are certainly needed for a better understanding of the new monetary policy framework’s impact on actual and expected inflation as well as on the link between various shocks, monetary policy and the labour market outcome.
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