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Discretion Rather than Rules? Binding Commitments versus Discretionary Policymaking

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Abstract

Because optimal plans are time-inconsistent, continuing one from a previous period is not optimal from today's perspective, and may not outperform discretion, even ignoring gains from surprise deviations. Hence, contrary to conventional wisdom, a binding and credible commitment does not always outperform discretion over time, even if a non-credible commitment does. Forward-looking policymakers might therefore not want to irrevocably bind themselves to the optimal plan from any particular period, even if they could. The vast literature proposing different commitment mechanisms illustrates that it is a common misconception that a credible commitment to the optimal plan is always preferable to discretion.

JEL Codes: E61; H30; E52
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1 Introduction

Since the seminal contribution of Kydland and Prescott (1977) showing that the optimal commitment plan is time-inconsistent (see also Calvo (1978) and Barro and Gordon (1983a)), so that policymakers have incentives to deviate in any later period to commit to the new optimal plan, much effort has gone into exploring ways for policymakers to overcome these incentives, thus enabling them to credibly commit. For example, policymakers might be able to bind themselves to follow the original optimal plan by staking their reputation on it (Barro and Gordon (1983b) and Rogoff (1987)), by delegating its implementation (Persson and Tabellini (1993), Rogoff (1985), Svensson (1997) and Walsh (1995)), or by making it too time-consuming, or costly, to change course (Kydland and Prescott (1977) and Kotlikoff, Persson and Svensson (1988)).[1] However, these commitment mechanisms implicitly assume that continuing the original optimal plan will achieve policymakers' objectives to a greater extent than discretion also from the perspective of later periods, making such a commitment desirable also in the future. We show that this is not always the case.

Because optimal plans are time-inconsistent, continuing the one from a previous period is not optimal, and as we show, can even do worse than discretion. Moreover, we show that this is feasible for extremely patient policymakers with arbitrarily low discount rates, or even completely ignoring any potential gains from an unanticipated deviation to discretion. Hence, our point is not that the

[1] The literature on sustainable plans (Chari and Kehoe (1990) and Stokey (1991)) considers situations where policymakers cannot commit, deciding instead policy sequentially one period at a time. However, contrary to standard discretion, it assumes policymakers take into account how their actions affect the publics' behavior, and exploit this influence by employing trigger strategies contingent on past actions.

superiority of commitment over discretion might be insufficient to discourage a deviation to discretion, and the potential gains from a surprise deviation, but rather that, from the perspective of future periods, the original optimal commitment plan might simply not be superior to discretion.[2] Consequently, forward-looking policymakers might not want to bind themselves to the optimal plan from a particular period, even if they could. Our results are relevant in many policy situations, but especially for monetary policy, where commitment solutions are commonly utilized in normative studies, and sometimes even to guide actual policy (Dennis (2010)), taking for granted that a binding once-and-for-all commitment will perform better over time than discretion.

As an example, imagine that the optimal discretionary policy is never to punish for misbehavior, while the optimal commitment plan calls for punishing future misbehavior, so as to discourage it, but not to punish current misbehavior (which has already taken place, and can therefore not be discouraged). We show that while always threatening to punish for future misbehavior, but never actually doing so, does better than a policy of never punishing, as long as the threat remains credible, always punishing for misbehavior might not do better than never punishing. In other words, while commitment is always superior to discretion, since it presumes the benefit of better behavior induced by the threat of punishment without ever actually incurring the cost of carrying it out, a binding, and thus credible, commitment, which does require carrying out the punishment to yield better behavior, might not be superior to discretion. Hence, following through on rules designed so as to shape expectations of future policy, and thus influence

[2]Our study is limited to situations where commitment is superior to discretion, as in the tradition of Kydland and Prescott (1977).

individuals' behavior, does not always outperform discretionary policymaking.

In most decision problems, an individual's optimal present behavior depends on her expectations about the future, including future policy. As a result, most policy problems are dynamic, in that the current outcome does not only depend on the currently implemented policy, but also on that expected to be implemented in the future. The optimal commitment solution exploits these dynamics by committing to a plan of action for all future periods, chosen so as to shape expectations optimally from the perspective of the time at which it is designed. Consequently, from the viewpoint of this original period, it achieves policymakers' objectives to a greater extent than the optimal discretionary policy, which does not attempt to influence expectations. However, from the perspective of any later period, the optimal plan differs, that is, the plan is unchanged in that the prescribed action to implement x periods later remains the same, but the action to implement in a particular period can vary across optimal plans from different times. Specifically, when the time comes to enforce a previously promised action designed to influence expectations prior to its implementation, it has already played its role in terms of shaping these expectations, making it preferable, from the perspective of the current point in time, to implement the optimal discretionary action. This is why policymakers have incentives to deviate from the optimal plan from any previous period, and thus the source of its time-inconsistency.

Policymakers would achieve their objectives to the greatest extent possible if in every period they could credibly commit to the optimal plan from the perspective of that period. But, this would, due to time-inconsistency, require reneging on past commitments in every period, so that these cannot be credible. Ruling out the possibility of systematically misleading the public, the literature has focused on finding ways for policymakers to credibly bind themselves to the original optimal plan. The idea is that policymakers should ignore the urge to reoptimize, since credibly recommitting to a new plan in every period is not feasible, and instead remain faithful to the original optimal plan, thus avoiding the discretionary equilibrium (McCallum (1995), Persson and Tabellini (1994) and Woodford (1999)). However, while the original plan is preferable to discretion from the viewpoint of the original starting point, this might not be the case from the perspective of later periods. If the outdated optimal plan eventually does worse than the discretionary equilibrium, how can the original commitment to follow this plan in all future periods be credible? Since bygones are bygones, the fact that the original plan did better initially is irrelevant, and policymakers would prefer to divert to the discretionary equilibrium. If, instead, the original plan does better over time than discretion, the implicit threat of diverting to the less desirable discretionary equilibrium can motivate policymakers to overcome the temptation to deviate.

We assume a strict trigger-strategy where the public comes to expect discretion in all periods following any deviation from a previous commitment, no matter what policymakers say or do (Chari and Kehoe (1990)). Combined with rational expectations, this implies that policymakers must choose between the original optimal plan and the discretionary equilibrium, there is no other option. Because credibly committing to a new plan in every period is not feasible, the fact that doing so would yield better results than remaining faithful to the original optimal plan is irrelevant. What matters then is whether a binding commitment to the original plan yields better results over time than discretion, the only feasible alternative. It is unclear how realistic the assumption of such a strict trigger strategy of reverting to discretion forever is, or how the public would coordinate on it. On one hand policymakers have incentives to mislead the public, as discussed above, by promising to follow the optimal plan in the future, but then implementing the optimal discretionary policy. On the other hand, individuals have incentives to forecast future policy as accurately as possible, assuming forecast errors lead to suboptimal decisions. Hence, if policymakers were to return to the old commitment plan after a deviation, it would be in individuals best interest to adapt their expectations, if it enables them to forecast better. Of course, the more severe and credible the punishment for deviating from past commitments is, the more it deters these (al-Nowaihi and Levine (1994)).

Each of the three sections below studies a model where continuing the optimal plan from a previous period can lead to worse outcomes than discretion. The first is a stylized model, which while not very realistic, provides the clearest illustration. The second example is a standard new-Keynesian sticky-price model of the inflation-output trade-off, commonly used to analyze and guide monetary policy. The last example is a more general model, where the problem is attenuated.[3] The more distant the policy expectations affecting the current state, the more prone the old optimal plan is to being outperformed by discretion.

[3]The models are borrowed from Jensen and McCallum (2010), who use these to compare two different commitment strategies, timeless perspective and optimal continuation, both of which differ from the optimal commitment plan. Another example, in a more complicated but detailed setting, is that provided by Sleet and Yeltekin (2005). In a dynamic moral hazard economy where a planner allocates goods among agents who have private information about their heterogeneous evaluation of consumption, they find that "the optimal allocation with commitment eventually violates the sustainability constraints and is never credible regardless of the patience of the planner." In these moral hazard models it is standard that the optimal plan eventually leads to immiseration, that is, the worst possible feasible outcome (Green (1987), Thomas and Worrall (1990), Atkeson and Lucas (1992) and Phelan (1998)). While immiseration does not apply in general for dynamic models, the optimal plan can still do worse than discretion over time, even without moral hazard and agent heterogeneity.

2 Stylized model

Imagine a policy problem for which in any period t_0 the objective is to minimize

$$E_{t_0} \sum_{t=t_0}^{\infty} \beta^{t-t_0} \left(\pi_t^2 + \omega y_t^2 \right) \tag{1}$$

subject to

$$\pi_t = \beta^J E_t \pi_{t+J} + \alpha y_t + u_t \tag{2}$$

for $t = t_0, t_0+1, t_0+2, \ldots$ where $\beta \in (0,1), \omega > 0, \alpha > 0$, and J is an integer greater or equal to one. The constraint (2) links the policy instrument π_t to the endogenous variable y_t, which also depends on the exogenous stochastic shock u_t and period-t expectations of the policy to be implemented J periods later, $E_t \pi_{t+J}$.

Exploiting that certainty equivalence prevails in this linear-quadratic framework (Currie and Levine (1993, pp. 95-121)), the optimal commitment policy can be obtained by inserting the constraint (2) into the objective (1), ignoring the expectations operator, and minimizing the resulting sum

$$\sum_{t=t_0}^{\infty} \beta^{t-t_0} \left(\pi_t^2 + \frac{\omega}{\alpha^2} \left(\pi_t - \beta^J \pi_{t+J} - u_t \right)^2 \right) \tag{3}$$

with respect to the policy instrument $\{\pi_t\}_{t=t_0}^{\infty}$. The corresponding first-order conditions yield

$$\pi_t = -\frac{\omega}{\alpha} y_t \tag{4}$$

for $t = t_0, t_0 + 1, t_0 + 2, \ldots, t_0 + J - 1$, and

$$\pi_t = -\frac{\omega}{\alpha} y_t + \frac{\omega}{\alpha} y_{t-J} \tag{5}$$

for $t = t_0 + J, t_0 + J + 1, t_0 + J + 2, \ldots$, the optimal commitment plan from the perspective of any period t_0. This plan is time-inconsistent, because if the policy problem were reconsidered in any later period $t_0' > t_0$, the optimal plan would differ, prescribing equation (4) in periods $t_0', t_0' + 1, t_0' + 2, \ldots, t_0' + J - 1$ and equation (5) in $t = t_0' + J, t_0' + J + 1, t_0' + J + 2, \ldots$, as this would minimize

$$E_{t_0'} \sum_{t=t_0'}^{\infty} \beta^{t-t_0'} \left(\pi_t^2 + \omega y_t^2 \right), \tag{6}$$

the period-t_0' policy objective. The optimal t_0'-plan postpones the implementation of equation (5) relative to the optimal plan from period t_0. The reason is that according to the constraint (2), only expectations of policy J periods into the future matter for the current state, and when policymakers reoptimize at any later time, J periods into the future gets pushed further ahead. When the policy problem is reconsidered in every period, policymakers always implement equation (4), which constitutes the optimal discretionary policy.

The value of the policy objective (1) in any period t_0 depends not just on the policy applied in t_0, but also on that expected to be implemented in all subsequent periods $t_0 + 1, t_0 + 2, t_0 + 3, \ldots$ This is what the optimal commitment solution exploits to outperform the discretionary one. Over time, the best possible outcome for policymakers arises when they can commit in each period to the optimal plan from the perspective of that period. This implies implementing equation (4) in every period, while simultaneously convincing people that they will switch to equation (5) J periods later. Of course, continuously promising a policy switch in the future that gets pushed off in the subsequent period, cannot be credible. Sooner or later the public would realize that the switch will never happen, and come to expect equation (4) to be implemented in all future periods. As a result, we would go from the commitment solution to the discretionary one.

Ruling out the possibility of systematically misleading the public period after period, focus has been on finding ways for policymakers to credibly commit to the original optimal plan, thus avoiding the discretionary equilibrium. What we ask is whether it is desirable to bind oneself to the original optimal plan, i.e., is it superior to discretion over time? The discretionary solution matches the optimal plan from the perspective of period t_0 for $t = t_0, t_0 + 1, t_0 + 2, \ldots, t_0 + J - 1$, but deviates from it for $t = t_0 + J, t_0 + J + 1, t_0 + J + 2, \ldots$ The optimal plan from $t_0 - 1$ matches that from t_0 for all periods except $t_0 + J - 1$. The optimal plan from $t_0 - 2$ matches that from t_0 in all periods except $t_0 + J - 1$ and t_0+J-2. Any optimal plan from t_0-J or earlier deviates from the one from t_0 for $t = t_0, t_0+1, t_0+2, \ldots t_0+J-1$, but matches it for $t = t_0+J, t_0+J+1, t_0+J+2, \ldots$ Hence, the old plan deviates more the more outdated it is, and the larger is J.

Given that a credible, once-and-for all, commitment would eventually require implementing the optimal plan from more than J periods ago, how will that compare with the optimal discretionary policy from the perspective of the policy objective in that future period? Assuming that the plan originated in t_0, and that t_0' is any period such that $t_0' \geq t_0 + J$, continuing the original commitment plan would require implementing equation (5) in all periods $t_0', t_0' + 1, t_0' + 2, \ldots$ that are relevant for the period-t_0' policy objective (6). Consequently, its value will depend on the initial conditions $y_{t_0'-J}, y_{t_0'-J+1}, y_{t_0'-J+2}, \ldots, y_{t_0'-1}$ and $u_{t_0'}$, which are unknown at time t_0, and would vary with the choice of t_0'.[4] Integrating the policy objective (6) over all feasible initial conditions, yields

$$E \sum_{t=t_0'}^{\infty} \beta^{t-t_0'} \left(\pi_t^2 + \omega y_t^2\right), \tag{7}$$

the unconditional loss function. While policymakers can use current conditions to predict future initial conditions, looking far enough ahead, which is necessary due to the once-and-for-all nature of the optimal commitment policy, these become irrelevant, and the pertinent objective is the unconditional expected value of the loss.[5] Its value when continuing the optimal plan from period t_0, enforcing equation (5) in all periods $t = t_0', t_0' + 1, t_0' + 2, \ldots$, is

$$L_c = \frac{8\omega^3 \beta^{2J} \left(\omega p - \alpha^2 \rho^J \left(\alpha^2 - r\right)\right) s}{\left(\omega \left(1 + \beta^J \left(1 - 2\rho^J\right)\right) + \alpha^2 + r\right)^2 \left(2\omega\beta^J - \rho^J \left(\omega \left(1 + \beta^J\right) + \alpha^2 - r\right)\right) q} \tag{8}$$

where

$$s = \frac{\sigma^2}{\left(1 - \rho^2\right)\left(1 - \beta\right)}, \tag{9}$$

$$p = 2\omega \left(1 - \beta^J\right)\left(1 - \rho^J\right) + \alpha^2 \left(2\left(1 - \beta^J\right) - \rho^J \left(\beta^J + 3\right)\right) + 2r \left(\rho^J - 1\right), \tag{10}$$

$$q = \omega \left(1 + \beta^J\right)\left(\omega \left(1 - \beta^J\right) + 2\alpha^2 - r\right) + \alpha^2 \left(\alpha^2 - r\right), \tag{11}$$

$$r = \sqrt{\omega^2 \left(1 - \beta^J\right)^2 + \alpha^2 \left(\alpha^2 + 2\omega\left(1 + \beta^J\right)\right)}, \tag{12}$$

[4] If initial conditions $y_{t_0'-J}, y_{t_0'-J+1}, y_{t_0'-J+2}, \ldots, y_{t_0'-1}$ all equal zero, the optimal commitment plan from t_0 would implement the exact same conditions as the optimal plan from t_0', and cannot be improved upon. However, given the stochastic shock u_t, this is highly unlikely, especially for large J.

[5] This exploits that $E_{t_0} \sum_{t=t_0'}^{\infty} \beta^{t-t_0'}(\pi_t^2 + \omega y_t^2) = E \sum_{t=t_0'}^{\infty} \beta^{t-t_0'}(\pi_t^2 + \omega y_t^2)$ for large enough $t_0' - t_0$. Due to certainty equivalence, the optimal discretionary and commitment policies with respect to the unconditional objective (7) are the same as with the conditional one (6).

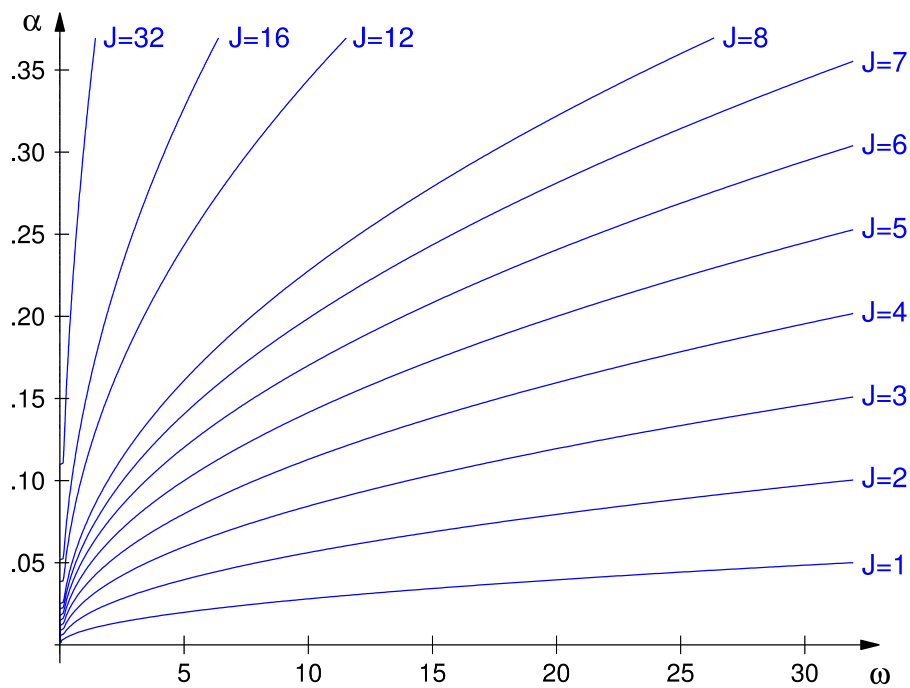

Figure 1: Old commitment plan vs. discretion, $L_c = L_d$.

assuming a persistent shock

$$u_t = \rho u_{t-1} + a_t \tag{13}$$

where a_t is white noise with variance σ^2 and $\rho \in (0, 1)$. When the optimal discretionary policy (4) is implemented in all periods $t = t_0', t_0' + 1, t_0' + 2, \ldots$, its value is

$$L_d = \frac{\omega\left(\omega + \alpha^2\right)s}{\left(\omega\left(1 - \beta^J \rho^J\right) + \alpha^2\right)^2}. \tag{14}$$

Assuming $\beta = .99$ and $\rho = .9$, figure 1 plots iso-loss curves for different values of J, that is, combinations of α and ω for which $L_d = L_c$, so that the expected loss (7) is the same for optimal discretion and any optimal commitment plan that is at least J periods old.[6] For each of the curves, and corresponding value of J, the

[6] The values $\beta = .99$ and $\rho = .9$ are standard in the New-Keynesian sticky-price literature of the monetary policy problem, which is identical to our model when $J = 1$ (see next

optimal commitment plan from t_0 does better than discretion for combinations of α and ω above the curve, and worse than discretion for parameter combinations below the curve. As is evident from the figure, it is possible for discretion to do better, on average, than the optimal plan from t_0. In particular, this is more prone to occurring, the larger J is. The reason is, as discussed above, that from the perspective of the period-t_0' objective (6), the commitment plan from t_0 implements a suboptimal equation in the first J periods, implementing the optimal one after that, while discretion implements the optimal equation in the first J periods, implementing a suboptimal one afterwards. Hence, the larger J is, the greater the advantage of discretion over the optimal commitment plan from t_0, and the larger the set of parameter values for which it dominates.[7]

The assumed trigger strategy requires that the discretionary solution (4) pertain in all periods following a deviation from previous commitments. Consequently, if policymakers deviate from the optimal t_0-plan in any later period t_0', the policy objective (6) would on average take the value L_d from then on. If instead they remain truthful to the optimal t_0-plan, the policy objective would on average take the value L_c. Looking forward, predicting whether policymakers will want to deviate from the once-and-for-all commitment to the optimal t_0-plan

section). Lowering β rotates the curves up around their intercept on the α-axis, making the area where discretion dominates larger. Raising β has the opposite effect, as does lowering ρ. The standard deviation σ has no impact on L_c/L_d, or the figure. Estimates of α and ω for the monetary policy model vary across studies and countries, with $\alpha \in (.001, .37)$ and $\omega \in (.001, 31.37)$, see Assenmacher-Wesche (2006), Dennis (2004), Givens (2012), Schorfheide (2008), and Söderström, Söderlind and Vredin (2005). Most studies find parameter values towards the lower ends. While these values are not necessarily relevant for $J \neq 1$, or outside the New-Keynesian model, we use these as a benchmark throughout.

[7] A similar figure can be computed comparing the two policies from the perspective of the conditional objective (6). It would be sensitive to the assumed initial conditions $y_{t_0'-J}, y_{t_0'-J+1}, y_{t_0'-J+2}, \ldots, y_{t_0'-1}$ and $u_{t_0'}$, but unless these are all zero, it remains true that raising J increases the set of parameter values for which discretion dominates.

in any later period t_0' far enough into the future (so that the unconditional objective becomes relevant), depends on L_d and L_c. If $L_d < L_c$, policymakers will eventually want to deviate from the optimal t_0-plan because it would eventually do worse, on average, than discretion, from the perspective of expected future policy objectives (6). The fact that the t_0-plan did better than discretion originally, would be irrelevant, as bygones are bygones. If $L_d > L_c$, policymakers might not want to deviate from the optimal t_0-plan, as it does better, on average, than the only viable alternative, the discretionary equilibrium. Moreover, the implicit threat of ending up at the inferior discretionary equilibrium might act as a deterrent to deviating. However, $L_d > L_c$ is insufficient to guarantee that policymakers would not deviate from the original optimal plan, since there can be additional gains from an unanticipated deviation. If large enough, these gains might more than compensate for any expected future gains from remaining faithful to the original optimal plan, especially for impatient policymakers.

Contrary to Taylor (1979a), Woodford (1999, 2003) and Jensen and McCallum (2010), we are not suggesting that policymakers should ignore present initial conditions when evaluating different policies. Also, our point is not that once outdated, the original optimal plan can do worse than discretion from an unconditional point of view, but that looking forward, it would be expected to eventually do worse, on average, in terms of the original conditional objective. Since bygones are bygones, policymakers would then want to deviate from the original plan, despite knowing that they would never be able to commit again (due to the assumed trigger strategy). That is, they would from then on prefer the discretionary equilibrium in all future periods rather than maintaining a credible commitment to the original plan, even ignoring any short-term gains from a surprise deviation. Hence, they would not deviate in an attempt to commit to the new optimal plan, which is by assumption unfeasible, but rather to settle on the discretionary equilibrium.

3 Contemporary model

The New-Keynesian sticky-price model of the inflation-output trade-off is extensively used to study monetary policy. In its simplest version, it is identical to the model above when $J = 1$, π_t denotes inflation and y_t is output, both measured in terms of period-t deviations from their respective flexible-price values. The variable u_t is a cost-push shock. The policy objective (1) is derived as a quadratic approximation to a representative household's expected life-time utility in period t_0, so in each period, policymakers seek to maximize the discounted sum of households' present and expected future utility. The parameters α and ω depend on the degree of price-stickiness, while β is a discount factor.[8]

Since $J = 1$, continuing the optimal plan from any previous period t_0 in any later period $t_0' > t_0$ only deviates from the optimal t_0'-plan in terms of the action implemented in t_0', equation (5) instead of (4). The impact this has on the t_0' policy objective (6) depends on the conditions that happen to prevail at the time (Dennis (2001, 2010)). When $y_{t_0'-1} = 0$, the optimal plan from any previous period is identical to that from t_0', and cannot be improved upon. The more $y_{t_0'-1}$ differs from zero, the more the implemented action (5) differs from the

[8] See for example Clarida, Gali and Gertler (1999), King and Wolman (1999), Svensson and Woodford (2002, 2005) and Woodford (2000, 2003). For details on the derivation of the model see also Calvo (1983), Rotemberg (1982), Rotemberg and Woodford (1999) and Woodford (2003). In line with much of the literature, we ignore a motive for interest-rate smoothing to simplify the analysis.

optimal one (4), and the less desirable the objective value (6) becomes. The discretionary solution only matches the optimal t'_0-plan in terms of the initial-period action, differing in all later periods. Hence, from the perspective of any period t'_0, whether the discretionary solution does better or worse than any optimal plan from the past, depends on the initial condition $y_{t'_0-1}$. As initial conditions vary over time, whether discretion or the outdated plan is preferable, will also vary. But, integrating over these initial conditions, as above, figure 1 shows that even in this case ($J = 1$), discretion can, on average, do better than an outdated optimal commitment plan, despite doing worse for most parameter values.[9] It is just that when $J = 1$, the expectational dynamics are so simple that it is difficult for discretion to outdo the outdated optimal plan, since the latter only differs from the updated optimal plan in the initial period.

4 More general models

The simple expectational dynamics in current and past policy models, exemplified in the previous section, favor a credible once-and-for-all commitment over discretion. However, there are examples, beyond the stylized one in the second section, of relevant models that are less favorable to commitment. Replacing the constraint above (2) with

$$\pi_t = \sum_{j=1}^{J} \beta^j E_t \pi_{t+j} + \alpha y_t + u_t, \tag{15}$$

[9]That equation (5) can yield a lower unconditionally expected loss (7) than discretion (4) when $J = 1$ was first discussed by Blake (2001) and Jensen (2001).

yields a model with more complicated, and maybe more realistic, expectational dynamics, where expectations about policy in all J future periods are relevant, instead of just in one particular future period. Keeping the objective (1) unchanged, the optimal commitment plan from the perspective of period t_0 becomes

$$\pi_{t_0} = -\frac{\omega}{\alpha} y_{t_0} \tag{16}$$

$$\pi_{t_0+1} = -\frac{\omega}{\alpha} y_{t_0+1} + \frac{\omega}{\alpha} y_{t_0} \tag{17}$$

$$\pi_{t_0+2} = -\frac{\omega}{\alpha} y_{t_0+2} + \frac{\omega}{\alpha} y_{t_0+1} + \frac{\omega}{\alpha} y_{t_0} \tag{18}$$

$$\vdots$$

$$\pi_t = -\frac{\omega}{\alpha} y_t + \frac{\omega}{\alpha} y_{t-1} + \frac{\omega}{\alpha} y_{t-2} + \cdots + \frac{\omega}{\alpha} y_{t-J} \tag{19}$$

where the latter equation (19) applies for $t = t_0 + J, t_0 + J + 1, t_0 + J + 2, \ldots$ In this case, the optimal plan prescribes a different policy equation for each of the initial J periods, so continuing the optimal plan from any earlier time implements a suboptimal equation in the first J periods. The discretionary solution matches the currently optimal plan only in the initial period. Which does better, the old plan or discretion, again depends on how outdated the old plan is, the conditions that happen to prevail at the time, and the parameter values, in particular J. However, these more complicated expectational dynamics illustrate more clearly how the optimal plan from a previous period fails to shape expectations of future policy optimally from the perspective of the present period, thus making it more prone to doing worse than discretion, which makes no attempt at influencing expectations.

The relevance of this more complicated type of expectational dynamics in policy problems has been suggested in the literature, at least for monetary policy, arising with alternative models of price-setting, for example with multi-period Taylor (1979b) contracts, or for Calvo-pricing with time-varying trend inflation (Sbordone (2007)). Another example is the sticky-information model (Mankiw and Reis (2002)), where the Phillips curve constraint is

$$\pi_t = \sum_{j=1}^{J} b_j E_{t-j}(\pi_t + cy_t) + ay_t + u_t \tag{20}$$

with strictly positive $b_1, b_2, \ldots, b_J, c$ and a, where J is a strictly positive integer denoting the maximum number of periods producers go without updating their information sets. While the timing of the policy expectations differ, $E_{t-j}\pi_t$ instead of $E_t\pi_{t+j}$, the commitment solutions are similar in that the optimal t_0-plan implements discretion in t_0, but proposes gradually more complicated policy equations for $t_0 + 1$ through $t_0 + J$, as it takes into account the effects policy expectations have on the t_0-policy objective (1), which are more complex the longer ahead the policy is known (up to J).

5 Conclusions

Optimal plans are time-inconsistent, so continuing the one from a previous period is not optimal from today's perspective, and can do worse, we show, in terms of achieving policymakers' contemporary objectives, than the discretionary equilibrium. Thinking ahead, policymakers might therefore not wish to irreversibly commit to the optimal plan from any given period, even if they could, but instead decide policy period-by-period in a discretionary manner. Hence, we find that whether or not a binding commitment is desirable, depends on the policy problem at hand. In particular, it depends on how complicated the expectational dynamics are, especially how long it takes for the optimal plan to settle on a particular policy action, but can even vary with the parameter values.

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