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**Politicians and soft
budget constraints**

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Politicians and soft budget constraints

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Abstract

We study soft budget constraints from the perspective of political economics. A partly partisan government confronts a budget crisis in a politically important sector, e.g. like the health care sector. To what extent the government wants to make additional grants to the sector depends on economic conditions and on the preferences of the government, both unknown to the electorate. Thus, the government's budget response gives a signal of its preferences, and may thereby influence the probability that the government is re-elected. As a result, the handling of a budget crisis becomes inefficient even from an *ex post* point of view, in the sense that it does not react adequately to changing economic conditions.

1 Introduction

The presence of soft budget constraints is often held as an important obstacle to efficiency within the public sector. If for example a hospital or a state-owned railway company runs into economic problems due to higher costs than initially assumed, the level of activity may be maintained due to additional transfers approved by the politicians. One may argue that the government (or the tax payers) are best suited for carrying the risk of cost overruns, and that the patients or the commuters should be fully insured. However, the risk of cost overruns is not exogenous. Decisions made by the hospital management are important for the probability of running into deficits during a budgetary period. If higher costs do not hurt the hospital or the patients,

the incentives to produce the services cost efficiently are weakened. This is by now well-known, and many governmental reports touching upon the issue of public sector efficiency very often end up recommending harder budget constraints.

But why is the budget soft in the first place? The most common explanation views soft budget constraints as an endogenous problem arising from the time-inconsistency problem. Despite the fact that a commitment not to deviate from the original contract may be preferable *ex ante*, politicians may nevertheless find it in their own interest to make additional grants when a deficit shows up *ex post*. The benefit of financial assistance exceeds the costs of down-sizing production - or more dramatically, closing down. For instance, if part of the costs leading up to a deficit are sunk, these costs are irrelevant from a public interest point of view when the politicians look at the case with fresh eyes. The relevant question is then whether the benefit of continuation exceeds the requested increase in the budget. In this case, budgets are soft because benevolent politicians are not able to abstain from choosing efficient solutions for the economy *ex post*. See Dewatripont and Maskin (1995) and Qian and Roland (1998) for analysis along these lines. In Dewatripont and Maskin's paper the bail-out policy is carried out by profit-maximizing banks. These banks may have an incentive to help a firm *ex post* by making further infusion of capital. Anticipating this, firms may undertake bad projects *ex ante*. In Qian and Roland' paper, firms are instead bailed out by the government. The degree soft budget constraints depends on the opportunity costs of governmental funds. As decentralization of government makes these costs increase, federalism serves as a commitment device for harder budget constraints.

In this paper, we study soft budget constraints from a different perspective. Even if politicians for some reason were able to overcome the time-inconsistency problem, the political system with elections may not give them incentives to do so. As pointed out by Kornai (1986), one reason for having soft budgets are that the government seeks political support. When politicians are acting, for instance by making up a deficit in the health care sector, the electorate will update their beliefs about the politicians political stand on health care issues more generally, and this in turn may influence the probability of re-election. Facing financial problems in hospitals, there is, potentially, a conflict between the degree of hard budgets and patients' welfare. If high costs are not pure *slack* that might be reduced without reducing the level of activity, it seems impossible to stay *tough* without at the same time hurting

the patients.

If the electorate had the true information about the trade-off between the degree of softness and patient welfare, the political budget decision would be informative with regard to political preferences. For example, by choosing a hard budget *ex post*, politicians send a message that this particular sector is not high on the political agenda. More realistically, however, is a situation in which the electorate is not fully informed about the trade-off. The electorate does not know to what extent a hard budget will hurt the patients. Therefore, observing a *tough* government sticking to the original budget, the electorate does not know whether this is due to economic factors (i.e. a weak trade-off) or due to political factors (i.e. the sector is not given priority by the political party).

Let us give some examples. In 1997 the Norwegian government introduced prospective payment contracts. According to these contracts, around 50 percent of county-owned hospitals' income is now determined by fixed payments based on the diagnosis-related groups (DRG-prices). However, within this new regime hospitals have recently generated large deficits, and, consequently, the government had to handle requests for more money. If the government is *tough* in such a situation, this may be interpreted as a signal that the government does not give high priority to the health care sector.

The literature on soft budget constraints following Kornai (1980,1986) is more concerned with bail-out policies (by banks or governments) towards enterprises. In our political economy framework, a refusal to bail out a large state-owned enterprise may signal that the government does not care about unemployment.

Governmental signalling may cause soft budget constraints in the private sector as well. Companies in important sectors are often thought to be operating under an implicit too big-to-fail protection. The wave of banking crises in the Nordic countries in the early 1990s, showed us that large banks were bailed out, whereas smaller banks often were allowed to fail. Although imperfections in the credit market may explain why rescue operations in the banking sector might be socially efficient *ex post*, another candidate is the political costs of allowing banks to fail. Even though most depositors are insured against losses, the industry receiving loans or credit lines may be hurt by a bank failure. An extensive capital injection by the government, therefore, may signal a pro-industry attitude by the government. Knowing that the electorate interprets the handling of deficits in key sectors as signals about political preferences, politicians are "forced into" a strategic bail-out

policy. The politicians' concern about re-election guides the message they should send to the electorate, and this in turn guides their preferred bail-out policy.

As in the time-inconsistency explanation, budgets are possibly soft due to the existence of *ex post* beneficial moves by the government. The source of benefit is different, though. In our model, the benefit stems from the prospect of election success, and not from the possibility of making socially efficient moves. In fact, one of the main results is that the *ex post* policy by the government, may by itself be costly, and, therefore, add to the *ex ante* costs of lack of commitment power. The budget policy may become inflexible in the sense that the size of extraordinary transfers reacts inadequately to changes in the *ex post* trade-off between hard budgets and consumer welfare.

Political signalling is not new within political economy. Cukierman and Tommasi (1998) analyze the incentives of governments of different political color in a relatively general setting. In their model, parties have private information about their preferences (and economic fundamentals), and the incumbent party distorts its policy in order to conceal its true type. In Harrington (1993), the voters know the parties' preferences, but they are uncertain about the parties' beliefs about how the economy works. Schultz (1996) analyzes how parties may have an incentive to misrepresent the cost of providing public services. In his model, voters know the parties' valuation of a public good, but not the costs of providing the good. Before the election, each party announces policies (the level of the public good). In a pooling equilibrium, the parties announced policy does not vary with the costs of production. In his model, announced policy by the winning party is always implemented after election. In Swank (1998), an incumbent party signals the cost of providing the public good by its actual policy prior to the election. With a similar set up to that of our paper, Dalen et al. (2000) study public ownerships as a signalling device.

2 Political signalling

In this section we develop the main features of a two-period political economy model of soft budget constraints. In the first period, the government experiences a budget deficit in a public sector. For the purpose of illustration, this could be the deficit of the hospitals in the middle of a budgetary period. The model seeks to explain the behavior of the government *ex post*,

whereas the size of the budget deficit are kept exogenous.

From an *ex post* point of view, the government's non-strategic response to such a deficit would both depend on the financial costs of making additional transfers and the welfare effect for the patients (due to a reduced quality of services or a reduced number of treatments by the hospital). However, since their actual decision in the first period influences the probability of winning the next election, the government may have an incentive to behave strategically. If the government is re-elected, it is given the opportunity to implement their preferred policy for the sector and enjoy the intrinsic value of staying in office.

Following Harrington (1993), Cukierman and Tommasi (1998), and Swank (1998), the electorate is not fully informed about the economic consequences of sticking to a fixed budget *ex post*. As pointed out by Cukierman and Tommasi, the government deals with the problem on a daily basis, it has access to the advises of both their own and independent experts, and, of course, they receive information from those experiencing a deficit. We also assume that the government's political preferences are not fully known by the electorate.

The timing of the game is as follows:

1. The government confronts a budget deficit and observes the trade-off between the cost of spending more money and the costs of reduced activity.
2. The government chooses the size of additional transfers.
3. The electorate observes both the deficit and the size of additional transfers approved by the government, and updates its beliefs about the government's preferences.
4. An election is held.
5. If the government is re-elected, it implements its preferred policy in the same sector, and the game ends.

Since the game ends afterwards, the elected government will implement its first best policy for the sector that recently experienced a budget crises. We assume that the incumbent party's preferences, if re-elected, do not change after the election. Thus, the electorate may learn about the incumbent party's preferences by observing its handling of a budget deficit. Still, the observed

rescue operation is at best a noisy signal of political preferences since the electorate does not know the actual *ex post* costs of a hard budget constraint.

We assume that the governing party is a partisan government, with preferences over policy outcomes.¹ The government's objective function consists of two parts: The first-period outcome of the budget crisis, and the second-period policy outcome after the election.

The government's evaluation of the first-period outcome is given the following reduced-form function:

$$W_1 = - \left[\Delta B - \left(\frac{D}{2} + eD + gD \right) \right]^2 = \left[\Delta B - D \left(\frac{1}{2} + e + g \right) \right]^2. \quad (1)$$

D denotes the budget deficit (which is exogenous). Everything else being equal, the government would prefer to make additional transfers, ΔB , of size $D(\frac{1}{2} + e + g)$. The parameter g reflects the trade-off between the cost of spending more tax money and the cost of reducing the activity in the sector *ex post*. A low value of g means that it is possible to stick to a rather tight budget constraint without creating too many problems (e.g. for the patients). This may be the case if part of the problems are due to inefficient management² Contrary, a high value of g means that a hard budget constraint will affect the patients harder *ex post*. A crucial assumption is that the government is privately informed about this trade-off. We assume that the trade-off parameter is either $-\frac{1}{4}$ (low *ex post* costs of a hard budget constraint), 0 (intermediate costs), or $\frac{1}{4}$ (high costs). We assume that the electorate's prior beliefs put equally large probabilities on each of the three alternatives $\{-\frac{1}{4}, 0, \frac{1}{4}\}$.

e captures the part of the preferences of the government that is unknown to the electorate. In our hospital example, a low value of e would reflect a political party that gives less weight to the service provided by the health care sector. A high value of e reflects the opposite. Parties give either strong ($e = \frac{1}{4}$), intermediate ($e = 0$), or low ($e = -\frac{1}{4}$) priority to the sector experiencing a budget crisis.

¹For an overview of political economy and the preferences of government, see Tabellini and Persson (2000).

²In the case of the Norwegian hospitals, the government, in fact, responds by saying that part of the budget problem should be solved by increasing cost efficiency.

For the sake of simplicity ΔB , is assumed to be a discrete choice variable that may take values in $\{0, \frac{D}{4}, \frac{D}{2}, \frac{3D}{4}, D\}$. Later on, these values will be referred to as a hard, moderately hard, medium, moderately soft and soft budget constraint, respectively.

If re-elected, the government chooses how much money it will spend on the health care sector in the future. A crucial assumption is the transition of preferences over time. If the government choose to make up the deficit because health care is high on the political agenda for the government, the health care sector will turn up as a "winning sector" in the next budget proposed by the government. At reduced-form, the optimal policy in the second period, if re-elected, follows from preferences:

$$W_2 = - [B - B^*(1 + e)]^2, \quad (2)$$

where B is the government's spending on this sector for the next period. It follows that the government prefers to set $B = B^*(1 + e)$ in period 2. Denoting the probability of re-election by p , the reduced-form intertemporal preferences of the incumbent can be written as

$$W = - \left[\Delta B - D\left(\frac{1}{2} + e + g\right) \right]^2 + p [\Omega - (B - B^*(1 + e))^2]. \quad (3)$$

In addition to implementing the policy $B^*(1 + e)$, the government obtains a utility Ω of staying in office. Note that the incumbent has no preferences over what policy the opposition will implement if there is a change of government. The assumption simplifies the algebra, and is rationalized by the fact that parties after an electoral defeat often reorganize and change their political platform (and thus preferences) anyway.

Let us then turn to the electorate. We assume that the voters' preferences are of the same structure as that of the political parties. Thus, each voter has a preferred policy B^i showing his preferred public spending on this sector. The voters view on the handling of the budget deficit does not matter in this model, since this is "history" at the time of election. We assume that there are two parties only, and since political preferences are one-dimensional and single-peaked it follows that the median voter theorem holds. We denote the median voter's preferences by B^m . In order to avoid too strong results we

introduce probabilistic voting, which means that the politicians do not know exactly the preferences of the median voter (see e.g. Persson and Tabellini (2000)). We formalize this by assuming that the median voter's preferences are drawn from a uniform distribution $[B^*(1 - c), B^*(1 + c)]$, where $c > 1$.

The electorate has no information about the opposition's preferences, and thus assumes that it is equal to B^* . The reason is that actual policy is assumed to be the only way of communicating with the voters. An announcement of a policy would suffer from lack of credibility.

If the electorate, after observing ΔB , draws the conclusion that the incumbent's bliss point is expected to be B' , the incumbent is preferred by the median voter if and only if $|B^m - B^*| > |B' - B^*|$ which happens with probability³

$$p(B') = \frac{1}{2} - \frac{|B' - B^*|}{4B^*c} \quad (4)$$

It follows that the incumbent's probability of winning is maximized if the electorate believes that the government's bliss point is equal to the expected bliss point of the median voter.

3 Equilibria

In this section we characterize equilibria of the model. The game is a sequential game of incomplete information. Since the government moves first and has private information, this is a signalling game. A perfect Bayesian equilibrium of the game consists of a strategy for the government, a strategy for the median voter, and beliefs about the incumbent party's preferences for the voter which satisfy three properties. (i) Beliefs are consistent with the government's strategy and the priors. (ii) The voter's strategy (at the election) is optimal given these beliefs. (iii) The government's strategy (handling of the budget deficit) is optimal given the voter's strategy and beliefs.

3.1 A non-responsive budget constraint

There are two important forces affecting the preferred policy by the government in period one. First of all, given political preferences and type of budget

³Here we assume that the voters' loss function (i.e. loss from deviation from preferred policy) is linear.

deficit, the government has its own preferred solution for the budget deficit. However, following this solution may be in conflict with the benefit of concealing political preferences. The best election strategy will be to convince the electorate that your party is in the "middle of the road". What type of response the government gives to a budget deficit, will depend on which of these two forces dominates. A non-responsive budget constraint refers to a situation in which the government adopts the same bail-out policy no matter what is their political preferences and *ex post* costs of a hard budget constraint.

Relying on reasonable out-of-equilibrium beliefs as proposed by the intuitive criterion of Cho and Kreps (1987), such a pooling equilibrium in which a budget deficit always provokes an extraordinary transfer of medium size may exist:

Proposition 1 *If the budget deficit D does not exceed $\sqrt{\frac{\Omega}{6c}}$, the government responds by a medium sized transfer, $\Delta B = \frac{D}{2}$, no matter what is the *ex post* costs of a hard budget constraint.*

Proof. See appendix. ■

The equilibrium response does not provide any new information about the government's preferences. Hence, the electorate does not update beliefs when observing $\Delta B = \frac{D}{2}$. Crucially, however, is the electorate's response to an out-of-equilibrium move by the government. The following set of out-of-equilibrium beliefs follows from the use of the intuitive criterion:

1. Suppose the incumbent party chooses a soft budget strategy *ex post* ($\Delta B = D$). Then the electorate updates its beliefs about the preferences of the incumbent party, and believes with certainty that it gives high priority to the sector ($e = \frac{1}{4}$).
2. Symmetrically, if the incumbent party chooses a hard budget strategy *ex post* ($\Delta B = 0$), the electorate believes with certainty that the government will give low priority to the sector during the next term of election ($e = -\frac{1}{4}$).
3. If the policy chosen is moderately soft ($\Delta B = \frac{3}{4}D$), the electorate believes with certainty that the government will not give low priority to the sector in the future. However, whether the government is neutral or pro-sector is viewed as equally likely by the electorate.

4. Finally, if the policy chosen is moderately hard ($\Delta B = \frac{1}{4}D$), the electorate believes with certainty that the government will not give high priority to the sector in the future. Whether the government is neutral or contra-sector is viewed as equally likely by the electorate.

Given these beliefs, both a soft and a hard budget constraint is costly for the incumbent government. In both cases, the electorate will recognize them as "extreme" in one or the other direction, and the probability of being elected falls from $1/2$ to $1/2 - \frac{1}{16c}$, that is, with $\frac{1}{16c}$ units. Thus, the cost of choosing a soft (or a hard) budget policy caused by a reduced probability of re-election is $\frac{\Omega}{16c}$.⁴ The result says that if the budget deficit is not too large, the costs of reduced re-election probability dominates.

As explained earlier, the common explanation for soft budget constraints is the existence of *ex post* efficiency gains from renegotiating the original budget. However, these gains will not always be important. For example, if the financial problem in the sector is due to increased internal slack, the *ex post* efficient solution will perhaps be to change the management and the internal governance instead of just making up the deficit by infusing more money. By definition (of slack) this will not hurt the quality of service. The proposition above identifies a political failure in that the handling of the budget crisis does not respond to differences in *ex post* costs of a hard budget. In order not to scare away the median voter, the politicians end up being medium soft, no matter what is the economic reality behind the deficit.

3.2 A responsive budget constraint

The opposite of a non-responsive equilibrium would be a situation in which all types of governments, solved the budget crisis in an *ex post* politically efficient way. If a hard budget constraint were costly *ex post* (for example in terms of reduced patient welfare), all types of governments would move in the direction of soft budgets. A contra-sector party, however, would end up with a neutral policy. From the above analysis it follows that such an equilibrium will only exist if the political costs of moving away from the party's intrinsically most preferred response is sufficiently large. When the size of the deficit becomes large, there is more at stake, and, hence, the costs of concealing its true

⁴Note that the government chooses $B = B^*(1 + e)$ if it is re-elected. Hence, the second term of the second-period objective function disappears.

political preferences become larger. Therefore, if the budget deficit becomes sufficiently large, the government gives up acting strategically and instead chooses to solve the budget crisis in an politically efficient way. The beliefs of the electorate supporting a fully responsive equilibrium are identical to the beliefs specified in the non-responsive equilibrium.⁵ Using the analysis of the non-responsive equilibrium (see appendix), we get the following result:

Proposition 2 *If the size of the budget deficit D exceeds $\sqrt{\frac{\Omega}{2c}}$, the government solves the budget crisis in a politically efficient way, i.e. $\Delta B = D(1 + e + g) \forall e$ and g .*

Note that the electorate does not become fully informed in a responsive equilibrium. Uncertainty about the costs of hard budget constraints (g) makes the handling of the crisis politically overlapping.

The size effect of the budget deficit makes it interesting to see whether we can identify an implicit too-big-to-fail policy in the political handling of a budget deficit. The only way of reaching a complete bail-out solution in this model, is to confront the politicians with a sufficiently large budget deficit. In this respect, one might say there is a too-big-to-fail policy. However, from an *ex ante* point of view of the sector, the expected reaction to a deficit is independent of size. If they come up with a small budget deficit, we have shown that the government always responds by $\Delta B = \frac{D}{2}$. However, if the deficit is sufficiently large, the response is dependent on both party preferences and the *ex post* costs of a hard budget. This gives an expected policy $E\Delta B = \frac{D}{2}$. Hence,

Corollary 3 *The expected degree of cost sharing ex post is independent of the size of the budget deficit.*

4 Discussion

In the previous sections we have seen, within a very stylized model, how political signalling (or actually more correct, a desire by the incumbent political party to *avoid* signalling) distorts their response to a budget deficit

⁵Note, however, that all possible responses, $\{0, \frac{D}{4}, \frac{D}{2}, \frac{3D}{4}, D\}$ have a non-zero probability of being chosen in equilibrium.

in a public sector. In order not to reveal its preferences for the electorate, the government chooses a medium sized money infusion independently of the economic environment. Although this is costly for the government, as it sincerely wants the budget response to be in accordance with the type of situation in the sector, the cost of allowing for a flexible policy rule in terms of a reduced probability of re-election is even bigger. As a result, the government's budget response is not only inefficient from an *ex ante* point of view - the response is inadequately designed from an *ex post* point of view as well. It is important to note that this result is not driven by an assumption that the government is populist and only wants to stay in office. A populist government of this kind has no incentives other than doing whatever the median voter prefers at any time, and as it has no political preferences of its own it has nothing to signal. Our results actually hinge on our assumption that the government is partisan and really wants to push through its preferred policy after the election. This is why it is important for the electorate to know the true preferences of the competing political parties and why signalling is meaningful.

Admittedly, the model gives a stylized picture of political decision-making. Still, we believe that the flavor of our results should go through more generally. If the electorate believes that the government's preferences are not in tune with its own, the government may want to signal its preferences. For instance, it seems that the health care sector is a politically important sector in many countries, and that voters often express discontent with the governments willingness to allocate resources to the sector. In this case, parties not traditionally associated with public spending may have an incentive to go for a soft policy to signal their new preferences. However, the desire to signal may lead such a government to pursue a soft budget policy even if the situation actually calls for a hard budget policy. Furthermore, in order to signal truthfully, the party may actually have to oversell its message by choosing a policy that is even softer than the preferred policy for a pro-health-care party. In any case, the *ex post* handling of budget crises becomes inefficient as it is insensitive to the economic environment.

Finally, if the electorate's preferences changes over time, the government, in an effort to show that it is still in line with the median voter, may budget deficits in a way that is erratic and inconsistent over time.

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Appendix

Consider first the party at the centre ($e = 0$). Suppose that history behind the deficit calls for a medium sized rescue operation *ex post* ($g = 0$). The intrinsically best policy for the party will then be $\Delta B = \frac{D}{2}$. Furthermore, since this also maximizes the probability of re-election, it will surely be the preferred policy.

Suppose instead that the *ex post* costs of hard budget constraints move the preferred policy away from the medium response. If $g = -\frac{1}{4}$, in which case the intrinsically best response, given neutral party preferences, is to be moderately hard ($\Delta B = \frac{1}{4}D$). The gain from choosing $\frac{1}{4}D$ instead of $\frac{1}{2}D$ in terms of improved first period utility will be $(\frac{1}{4}D)^2$. However, by following this policy, the electorate will draw the conclusion that the government is either neutral or contra-sector, and this reduces the probability of winning the election. The expected policy by the government, if re-elected, is $\frac{7}{8}B^*$. Using (4), we see that the probability of winning the election is reduced by $\frac{1}{32c}$. The associated cost of reduced probability of winning is given by $\frac{\Omega}{32c}$. In order for the government (at the center) to choose a medium sized budget response, $(\frac{1}{4}D)^2 < \frac{\Omega}{32c}$. This holds true if $D < \sqrt{\frac{\Omega}{2c}} \equiv D_1$. Note that exactly the same argument holds when the *ex post* costs of a hard budgets calls for a moderate soft budget constraint (i.e. $g = \frac{1}{4}$).

Consider then a party whose preferences give low priority to the sector experiencing a budget crisis ($e = -\frac{1}{4}$). Suppose first that the $g = \frac{1}{4}$. Then the optimal response, given the incumbent's preferences, is a medium sized budget response, $\Delta B = \frac{D}{2}$. Given this policy, the incumbent party also maximizes its probability of re-election. The medium response, therefore, maximizes the incumbent's utility. However, if the *ex post* costs of a hard budget constraint call for a hard or moderately hard budget constraint ($g = -\frac{1}{4}$ or $g = 0$) things become more interesting. Suppose first that $g = -\frac{1}{4}$. Given its intrinsic preferences, the government wants to stick to the original budget ($\Delta B = 0$) as the gain from this is $(\frac{D}{2})^2$. However, if it does so, its disguise as a potentially moderate party will be destroyed, and the electorate (correctly) infers that the current government will not give priority to the sector after the election. This reduces the probability of winning the election, and the cost associated with this is $\frac{1}{16c}\Omega$. This means that if $D < \sqrt{\frac{\Omega}{4c}} \equiv D_2$, a government experiencing a deficit in a low-priority sector will choose to grant more money even when the *ex post* costs call for hard

budget constraints.

It remains to make sure that the incumbent (with type $e = -\frac{1}{4}$ and $g = -\frac{1}{4}$) does not want deviate from the equilibrium response ($\frac{D}{2}$) to a moderately hard budget ($\Delta B = \frac{1}{4}D$) instead of a neutral response. This would bring the party closer to its intrinsically preferred first-period policy, giving a benefit of the amount $\frac{3}{16}D^2$. The costs in terms of reduced probability of winning the election is $\frac{\Omega}{32c}$. Hence, if $D < \sqrt{\frac{\Omega}{6c}} \equiv D_3$, the government does not want to deviate from a medium sized rescue operation to a moderately hard budget constraint $\frac{D}{4}$. Comparing the three different critical values of D , we find that $D_3 < D_2 < D_1$. Hence, proposition 1 follows.