Does privatisation of public services reduce government accountability for quality problems?

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Abstract

Privatising public services shifts control rights and contractual obligations to providers. This paper shows that privatisation can (1) demotivate the government from investigating and responding to public demands because privatisation allows the provider to hold up the government's service adaptations, (2) demotivate the public from mobilising to pressure for service adaptations through an indirect holdup – when the government pays an inflated price for an adaptation, this reduces public funds. Furthermore, public mobilisation and government receptiveness are complementary, so these demotivation effects are mutually reinforcing. Privatisation can also (3) reduce the degree of government involvement in service provision and therefore shift the attribution of responsibility for outcomes from the government onto the provider. A fourth negative effect on accountability (for contractually unanticipated service adaptations) arises when outsourcing contracts span an election, because this deters service quality commitment by opposition parties who would risk facing an extreme inherited holdup.

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1 Introduction

> "[T]he key to reforming the public sector is not the profit motive, but democracy and accountability."[1]

The waves of privatisation reported in Vickers and Wright (1989) and Megginson and Netter (2001) were generally restricted to activities where costs could be covered by charging consumers, however, privatised provision is becoming increasingly common in services that are heavily and even fully publicly funded (see e.g. Jacobson and Tarr (1995) and Shleifer (1998)). Since full public funding rules out the direct, market price, accountability of providers to individual consumers, political accountability becomes crucial. The public must pressure the political actors who in their turn must pressure the service providers. In this paper, I analyse how privatising service provision affects this accountability mechanism.

I investigate two principal concerns voiced in the recent informal political debate. First, privatising provision may make it more difficult for the government to adapt service provision in response to problems or changing public demand. The recent experience of the British government with free school dinners offers a good example. In the aftermath of a series of television reports on school dinners by celebrity chef Jamie Oliver in early 2005, the government rushed to quench mounting public discontent over low quality committing to make improvements. However, "new schools locked into 25-year contracts through private finance initiatives (PFIs) are finding that they cannot rid their menus of junk food despite the government's pledge" (Lawrence and Quarmby (2005)). For non-PFI schools, the contracts with catering companies are typically shorter at five years, but this is still problematic, because it is hard for activists to stay mobilised and keep the issue salient through the media for more than a short time period.[2]

Second, privatising provision may enable politicians to escape responsibility for public service quality: critics claim that people often blame service problems on the private provider, instead of punishing the government at the polling station. Governments have often been accused of privatising as a strategic ploy to deflect responsibility for an unpopular change (such as a mass layoff, a quality reduction or evasion of safety regulations), but well-informed voters might see through this ploy: voters might blame the government for choosing to privatise in

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[1]David Hinchliffe, Chair of House of Commons Health Select Committee, in Pollock, Shaoul and Player (2001).

[2]For instance, in Islington, London, where a private company, called Cambridge Education Authority (CEA) runs all the state schools, CEA signed 5-year contracts outsourcing provision of the free school dinners to a private caterer called Scolarest and CEA's schools have neither managed to negotiate an opt out from Scolarest, nor an improvement in Scolarest's service quality.

spite of its implications, and even if privatisation were fixed beforehand, voters might blame the current government for failing to negotiate improvements. Nonetheless, I demonstrate plausible informational conditions under which privatision shifts responsibility from government to provider even in the eyes of rational voters.

To analyse the adaptation inflexibilities suggested by the first example, I present a model of service provision that adds two novel features to Hart, Shleifer and Vishny's (1997) model, henceforth denoted HSV. In existing work, the public are passive bystanders and the government is not involved in adaptation.[3] However, politicians must investigate public demands and ways to satisfy them if they are to be accountable. Furthermore, if the public want to hold their politicians accountable, the public must discover their own preferences, communicate these preferences to the politicians, and mobilise to pressure for service improvements (say by raising public awareness to increase the likelihood that voters will take account of service quality when voting over the mayor's reelection). So in my model: (1) the government (e.g. town mayor) exerts effort to understand and calculate how to respond to public demands; (2) third parties – the public – exert efforts to evaluate service quality, discover feasible alternatives and pressure for change. I show that when the government cannot anticipate desirable service adaptations in its outsourcing contracts, it has to pay more for these adaptations under private than public provision. My main result is that this cost inflation demotivates the government and the public from exerting the above efforts that are central to accountable service provision.

To treat the topic of responsibility shifting, I model how voting depends on the incumbent government's public/private choice and service outcomes. I show that privatisation can reduce government involvement in service provision and therefore shift the attribution of immediate responsibility for service outcomes onto the private provider. This results in a transfer of responsibility away from government and hence a reduction in accountability.

My main contributions are readily illustrated by the case of school dinner provision in a small village school. A village mayor runs the local government. The mayor is too busy to manage the catering directly so she pays a manager to provide the school dinners.[4] In the case of public provision, the mayor retains control of the assets needed for catering and pays the manager to devote time to run the service according to her orders. By contrast, when the mayor opts for private provision, she gives the manager significant control rights and signs a long-term contract guaranteeing the manager a fixed payment in return for a well-defined

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[3]Hart (2003) explains the existing focus as follows: "the idea that government ownership leads to more entrepreneurship by bureaucrats seems less [plausible]."

[4]The public pay for the service indirectly through taxation, but the mayor spends the money on their behalf. (The absence of user charges is unavoidable in the case of pure public goods. Also this is often chosen on the grounds of efficiency (because of externalities) or ethics.)

catering service. As in HSV, privatising provision increases the manager's incentive to invest to cut costs: under public provision, the mayor can hold up the manager by paying less after the manager cuts his cost, whereas a private provision contract fixes what the mayor must pay for the basic catering service.

Unlike in HSV, the underlying problem with privatisation is that it often prevents the mayor from exploiting adaptation gains in the absence of the manager's cooperation. For instance, if activists convince the mayor that healthier ingredients are crucial, the mayor cannot oblige the private manager to adapt the menus and it is usually ineffective for the mayor to pay an alternative manager to provide healthier food alongside the basic service from the incumbent manager, since that would waste economies of scope in catering (as well as much of the incumbent's basic food service).[5] By contrast, under public provision, the mayor can usually replace or sideline the incumbent catering manager for disobeying orders to adapt to healthier ingredients. So only a private manager can hold up the mayor for a share of the mayor's gain from adaptation. This holdup demotivates the mayor from attentively listening to public demands and working out how to satisfy them.

The private manager can also indirectly hold up the activists. Activist pressure raises the mayor's adaptation benefit. The private manager therefore charges the mayor an inflated price for adaptation.[6] Since the mayor pays using public money, this has a negative externality on the activist public. In essence, privatisation inflates the cost of adaptation and this demotivates the public from participating in service evaluation and pressuring for service improvements. Privatisation therefore exacerbates the free-rider problem faced by the public in mobilising for public goods.

Furthermore, these direct and indirect holdup effects are mutually reinforcing: the mayor has no incentive to investigate public concerns if the public do not mobilise enough to hold the mayor accountable for service quality; conversely, the public only benefit from mobilising if the mayor is receptive to pressure. I demonstrate this problem in the case with simultaneous effort choices. Overall, there is a clear tradeoff between keeping catering in-house to raise accountability and outsourcing to raise cost-cutting incentives.[7] The sharpness of this tradeoff depends on the difficulty of accessing alternative providers alongside a long-term contract. I

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[5]The basic service contract may even contain an exclusive territory clause that directly prevents the mayor from side-trading with alternative caterers.

[6]The public cannot negotiate directly over service adaptation, except in extreme cases of direct democracy (see discussion).

[7]Given the ambiguity in empirical evidence on cost, it is noteworthy that in my model, the total service cost may actually be higher under privatisation, in spite of greater provider efficiency, owing to adaptation cost mark-ups (inflation).

therefore apply Ellman (2005) to predict where privatisation will be particularly harmful to accountability. Since increasing the length of the contract used to privatise provision increases the difference between the private and public modes, the accountability concern is particularly serious for privatisation projects, such as build-and-operate public-private partnerships (PPPs), that require very long-term contracts. Indeed, there is an additional problem with such contracts in the electoral context: if a candidate for mayor wins the election on a ticket committing to fix the service problem, this new mayor would inherit a particularly pernicious holdup, since her entire reputation for honesty is at stake.

My model also permits a simple positive analysis of the privatisation decision. Since voters cannot negotiate with the mayor, the mayor may not do what voters want. The mayor may benefit from being able to please the public by implementing adaptations, so the mayor does not always prefer to privatise. However, the mayor's preference for privatisation is often stronger than that of the median voter. Private provision is then less likely when privatisation is decided by referendum and when mayors can commit to a public or private policy in their electoral platforms.

In the second half of the paper, I analyse voting explicitly. Voters study the incumbent mayor's performance in order to predict their expected payoffs from reelecting this mayor. The nature of voter uncertainty about possible mayors is critical[8] since it determines whether service outcomes are informative about the mayor's type. I begin by developing foundations for the assumptions about the government's payoff function used in the first half of the paper. I then extend the service model to show how privatisation can reduce the mayor's involvement in service provision. Service outcomes are then less informative about the mayor's ability, benevolence and effort. So voters are less able to hold mayors accountable by identifying and reelecting better mayors. In addition, the incumbent mayor has a lower incentive to exert effort to improve service quality. I call this the "shifted responsibility" effect of privatisation, but in an extension of the model where voters are uncertain about the government's contracting ability and service goals, the government is at least held responsible for its choice of contract and provider and the provision mode. So privatising to deflect blame will not always work. I apply my results to shed light on the above claims that outsourcing (i.e. privatising provision) externalises responsibility for outcomes from the mayor to the private provider.

The paper is organised as follows. Section 2 presents the basic model of service provision. Section 3 solves the model for subgame-perfect equilibria when the provision mode is predetermined. Section 4 solves for the provision mode, first when chosen by the government and then when chosen by the people. Section 5 introduces the second part of the paper with explicit

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[8]It can matter whether political types vary in terms of benevolence or capability.

electoral models and voter inference of political type. Section 6 demonstrates the inherited holdup problem from contracts that span elections. Section 7 discusses the results and applies them to help understand specific case studies of privatised services. Section 8 concludes.

1.1   Related Literature

As noted above, the building block for my analysis of privatisation and residual control rights is HSV. Hart, Shleifer and Vishny identify a tradeoff between privatising to raise cost-cutting incentives and public ownership to increase quality investments. However, the mechanism by which privatisation reduces quality is very different. In HSV, the government makes no investment, but privatisation can lead to excessive incentives to cut cost because cost-cutting lowers quality in their model. Hart (2003) extends the analysis by studying the bundling of construction and service provision in PPPs, but retains the view that government ownership is unlikely to lead to more entrepreneurship.

In contrast with these papers and the ensuing literature, my argument is that politicians do play an important role in generating change, even if it is only by investigating public preferences and activism to learn what changes will help them win future elections. I also build on the adaptation cost theory of Ellman (2005), applying the optimal duration results to the case of contracts between government and firms with - whereas Ellman (2005) looked at contracts in non-political situations. Furthermore, I explicitly model the public's activist and voting roles.[9]

The quality problem revealed in HSV's analysis is very important, but I believe the accountability mechanism studied is also critical. In addition to the above motivation, there is a limited amount of statistical evidence that suggests public pressure changes with provision mode. For instance, privatisation of electricity utilities was widely predicted to lower consumer prices, but Kwoka (2002 and 2005) compares public and private provision of electricity in the U.S. and finds that "public ownership is associated with significantly lower [residential consumer] prices" as well as higher quality (see Kwoka (2005)). A possible explanation is that the public are more active and effective in pressuring the government to subsidise or regulate consumer prices when the utility is publicly owned. HSV cannot offer such a direct explanation as to why privatisation should lead to lower prices.

There is a host of other related work on privatisation in the case of standard production. One important alternative perspective maintains that privatisation reduces government access to information (see e.g. Shapiro and Willig (1990) and Schmidt (1996)). My analysis can

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[9]In a sense, my results on public activism and participation captures the idea of Milgrom and Roberts (1988) that reducing the mayor's discretion reduces the degree to which the public exert effort to influence the mayor's choices. the difference is that here influence is desirable, because I look at influence by the affected public.

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be consistent with this approach because if privatisation increases the risk of asymmetric information, it should increase the risk that asymmetric information arises and prevents the government and provider from agreeing on the terms of trade valuable for adaptation – the "undertrading problem". The government is then less responsive to public demands and the public have less incentive to mobilise.[10]

My work also builds on the literature on political economy. Bennedsen (2000) offers the most important related analysis. He develops a common agency model where politicians adjust/distort their policies to earn contributions from lobbyists. The public are passive except at elections where they are susceptible to persuasion by well-funded polititical parties, but the behaviour of the union lobby has some parallels with the activist public in my model. Bennedsen shows that privatising control demotivates lobbying by unions which, in his model, raises efficiency (by reducing employment levels). This reflects the intuition, common to my results, that increasing governmental control rights makes it more worthwhile to apply pressure on the government. My analysis demonstrates in a simpler model (based on incomplete contracts rather than restricted negotiation[11]) that this intuition holds for pressure (or participation) from the general public and not just pressure from organised lobbyists.[12]

I offered two interpretations of the public's role in service adaptation. In the first interpretation, the public participate by giving the mayor information and the mayor has a fixed electoral or ethical incentive to respond. In the second interpretation, the public apply pressure on the mayor. This interpretation is founded on Besley and Burgess's (2001 and 2002) approach to accountability: the government is more responsive if people are more aware of how government actions affect them. In Besley and Burgess's work, the freedom of the press determines public awareness and hence government accountability. In my analysis, it is activist members of the public who determine awareness and accountability. For instance, activists can encourage, persuade and help newspapers to report on the public service issue.

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[10]Another important perspective is that of Laffont and Tirole (1991) who show that privatisation introduces a common agency problem because of the new set of principals - the shareholders. My analysis effectively adds yet another set of principals - the voters - whose control is limited to voting in elections.

[11]My alternative approach applies best to effective democracies where money from lobbyists is restricted by law and campaign spending is much less effective at convincing voters than good performance and attractive policies. Bennedsen's (2000) very different mechanism applies in settings where shareholders, government and union are unable to negotiate directly.

[12]Bennedsen (2000) also analyses a separate aspect of privatisation: the role of shareholders. He shows how privatising ownership of cash-flow rights (corporatisation) creates a shareholder lobby that counterbalances the union lobby (because high employment reduces shareholder profits). As in HSV, the manager is also full owner in my model of privatisation, so I do not separately analyse cash-flow rights, but I do capture how privatisation raises the manager's cost-cutting incentives.

My analysis in subsection 5.3, where voters infer political ability from performance is related to Alesina and Tabellini's (2003) result on political delegation, but in their analysis there is no agency relationship in the case of non-delegation and no negotiation after delegation. By contrast, I assume that the mayor always needs to find an agent to manage the service, and I allow for negotiation between the mayor and the manager even under privatisation (which corresponds to delegation). Also my results hold when politicians can commit over their delegation choices (here the privatisation decision).

2 Basic model of service provision

This section presents the underlying model of service provision. Before setting out the formal structure of the model, I use the first subsection to motivate my representation of political accountability for service adaptations.

2.1 Accountability and adaptation

The government G - which could be a local government, a mayor or the elected head of a public agency - pays for a public service. G can choose between "outsourcing" the provision of this service to a private organisation and organising provision "in-house". I refer to outsourcing as "privatisation" of service provision, but note that service funding is always public – consumers never pay. Under public provision, G retains control and negotiates M's service provision over time (paying M's managerial compensation and other input costs). Under private provision, M has sufficient residual rights of control to provide the service free of interference by G and G commits to pay M a fixed price for provision of a basic public service over a defined time horizon. Even with this long-term contract, G and M may still need to negotiate to adapt their contract over time. So ongoing negotiation is needed for adaptation in both cases.

Adaptation is important when public preferences change and improved policies or technologies are discovered. The hope is that G, as elected delegate of the public, will pressure M to adapt the public service to satisfy these changes in the effective public demand. Unfortunately, G may fail to implement adaptations for a number of reasons: i) G may be unaware of changes in public demand; ii) G may not value the changes, because G is not politically pressured to respond; iii) G might wish to respond, but be unsure which changes will satisfy the public. Furthermore, M might refuse to make the changes at a reasonable price and G might have difficulty getting a substitute M′ for M to implement the changes.

In sum, G must learn of attractive adaptation opportunities and then G must negotiate implementation with M or substitute partners. The public play an active role in G's learn-

ing process. Public participation in the research and discovery process raises the likelihood of discovering valuable adaptations. The public can also be active in communicating their preferences to G. A secondary role for the public is to apply pressure on G, for instance, by monitoring, evaluating and publicising information about G's service provision performance so that voters take G's performance into account in the next election.[13] These activities are related in that they both involve investigation to discover what they public want (e.g. by finding problems and possible improvements) and they both involve some communication with G - in the case of simple participation, the communication is just to let G know of the improvement options; in the case of activist pressure, the goal is to communicate with the maximal number of voters and let G know that the voters are watching.

To model the public's role in creating accountability, I introduce an action group, A, to represent the aggregate behaviour of the active public or an activist subset of the public: A internalises a fraction a of the public benefits and chooses an investment effort j that represents the cost of A's efforts to raise accountability.

> Usually $a < 1$, because of free-riding in mobilising for the public good of holding G accountable. (I defer discussion of a heterogeneous public and special interest lobbies to section 7.) If the public is homogeneous and uncoordinated and aggregate mobilisation $j = \Sigma_{n=1}^{N} j_n$ determines the overall activism, then free-riding implies that the outcome is the same as if one agent chose the aggregate effort j but received only a fraction $\frac{1}{N}$ of the aggregate social returns. This case is represented by setting $a = \frac{1}{N}$. If instead m members of the same public could coordinate their joint efforts to pressure for quality improvements in the interests of the group, then, in equilibrium (of the simultaneous efforts game), other members of the public would exert no effort and the outcome is represented by setting $a = \frac{m}{N}$.

G also plays an active role in creating adaptation opportunities. G can exert effort to discover what the public want and how to satisfy their demands. I represent G's adaptation efforts by the payoff cost i that they impose on G. In combination with A's effort j, this determines the probability and degree to which G gains from implementing an adaptation. I denote G's expected gain from implementing the best available service adaptations (when implemented at actual cost) by $v(i, j)$.[14]

I pay special attention to the case where i and j are complementary: $v_{ij} > 0$ in addition to $v_i, v_j > 0$. This is plausible for two reasons. First, communication is a two-sided activity:

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[13]The public also apply pressure by working with opposition parties to help them credibly commit to improve the public service, thereby competing more effectively against the incumbent G.

[14]'Best' is defined from M and G's bilateral perspective since A cannot negotiate directly with them.

G must exert effort to listen to the demands of A (e.g. by inviting public participation and conducting surveys) or at least to monitor their political significance (in the case of public pressure on a reluctant government). Second, G's awareness of public preferences and public pressure only leads to adaptations if G knows how to satisfy these demands, so G' efforts in monitoring service provision and alternative provision options complement A's efforts to communicate and apply pressure.

Since adaptations follow from combining an informed public that knows what to demand and how to apply political pressure, with an informed government that learns of these demands, knows how to respond and is motivated to do so, the probability and value of adaptations are useful measures of effective accountability. In my model, G and M agree on all adaptations that are efficient from their bilateral perspective, so the expected public value from equilibrium service improvements is tightly linked to $v(i,j)$ and $v(i,j)$ is a good proxy for effective accountability.

The link between public value and $v(i,j)$ is particularly clear when j and i simply represent efforts to discover and communicate changing public preferences. In this case, I can assume G internalises a fraction g of public welfare, where g represents a combination of G's benevolence (public-service orientation) and G's electoral motivation to gain public approval (see section 5). If i and j lead to discovery and communication of adaptations that are more valuable to the public, then they raise public welfare and hence also G's payoff. If G's value from the best feasible adaptations is $v(i,j)$, the public's value is $\frac{1}{g}v(i,j)$ and A's value is $\frac{a}{g}v(i,j)$. In equilibrium, G may have to share its adaptation surplus with M by paying a transfer exceeding M's adaptation cost by t, but this reduces public welfare by λt and G's payoff by lt where $l = \frac{\lambda}{g}$ and $\lambda > 1$ represents the distortionary cost of taxation) so the payoffs remain proportional. In this special case, apart from G and A's private effort costs i and j, G and A's payoffs are exactly proportional with a ratio of $g : a$.

In the case where j represents A's efforts to impose pressure on G, G's electoral concerns are endogenous. Nonetheless, there is again a strong correlation between G and A's equilibrium returns on adaptation, because G only performs adaptations that are attractive to G and A only pressures G to perform adaptations that are attractive to A. A's pressure j raises G's value from adaptation; this increases the probability of adaptation and hence A's expected return on the adaptations that are performed in equilibrium. Conversely, if G's efforts i increase G's ability to recognise and respond to A's pressure j, then i raises A's benefit from expected

adaptations, as well as raising G's benefit. As I show in subsection 3.4, the assumption of exact proportionality between G and A's expected payoffs from implemented services remains reasonable as a special but neutral base case under the pressure interpretation. So in the basic model, I assume G and A's expected payoffs from all services that G considers implementing with M are exactly proportional in a ratio which I again denote by $g : a$.

2.2 Formal model

G, M and A interact within a minor extension of the incomplete contracts game analysed in Ellman (2005). Ellman (2005) adds adaptation investments (with limited relationship-specificity) and variable contract length to HSV. The extension here is to add a third party (A) that can influence the principal actors, G and M, but cannot negotiate contracts with them. G and M can always write a basic service contract which generates b_0 payoff units for G per unit of time, while costing $c_0 - W(e)$ per unit of time when M is the provider and has invested effort at a private payoff cost of e. To capture the possible incentive advantage of privatisation, I assume that this cost-reduction investment by M is fully relationship-specific: i.e. if M does not provide some service for G, neither M nor G gets any benefit from e. Meanwhile, as motivated in 2.1, G and A make adaptation investments at private costs i and j, respectively . These investments permit G and M to implement an adapted service agreement that generates an additional surplus of $v(i,j)$ for G if G just compensates M for M's adaptation cost and potentially also generate benefits for G when trading with alternative providers as explained below. M's adaptation cost is independent of e: e reduces M's costs by the same amount whether providing the basic or the adapted service.

The focal investments, e, i and j, are not contractible and nor are their payoff implications $W(e)$ and $v(i,j)$. I normalise time-discounting to zero and assume all payoffs are additively separable. The following regularity assumptions simplify by guaranteeing sufficiency of first-order conditions.

Assumption 1 $W''(e) < 0 < W'(e)\ \forall e \geq 0$ and $\lim_{e \to 0_+} W'(e) = \infty$, $\lim_{e \to \infty} W'(e) = 0$.

Assumption 2 $v(i,j)$ is negative semi-definite and $\lim_{i \to 0_+} v_i(i,j) = \lim_{j \to 0_+} v_j(i,j) = \infty$, $\lim_{i \to \infty} v_i(i,j) = \lim_{j \to \infty} v_j(i,j) = 0$, $\forall i, j \geq 0$.

After M, G and A sink the investments e, i, j, M could switch to its best alternative activity, which generates an alternative payoff of 0, and G could switch to trading with a substitute M′ of M. I assume M′ can provide the basic service at a cost c_0' that weakly exceeds c_0, since M

may have had a prior cost advantage or sunk contractible relationship-specific investments (in addition to the optional relationship-specific investment e). I assume that M′'s additional cost of providing the adapted service is the same as for M. Furthermore, I assume competition is such that G need only compensate M′'s costs. So G's payoff from switching to M′ is $b_0 + v(i, j) - lc_0'$.[15] I assume $c_0' < \frac{b_0}{l}$, so this payoff always exceeds G's payoff from doing nothing (and G credibly replaces or sidelines an uncooperative manager M).

If G and M commit to the basic service through a long-term contract (with prohibitive breach penalties), then they cannot switch to alternative trading. Nonetheless, since this basic contract only implements the basic service, in default of renegotiation with M, G might gain by engaging in a "side-trade" whereby a substitute provider M′ provides the service adaptation alongside the basic public service provided by M. G's market access tends to be much less effective under side-trading than when switching – switching refers to substituting M by M′ when M has no long-term contract). The main reasons are that: 1) duplicating the basic service is usually too wasteful to be credible, and it may be technologically impossible to provide the adaptation separately from the basic service; 2) even when it is technologically feasible to have M′ provide the adaptation alone, to do so wastes economies of scope that accrue when a single party provides and coordinates the basic and adaptation services; 3) the long-term contract used to motivate M's performance under private provision may temporarily transfer control rights from G to M or simply restrict G to buy exclusively from M. I refer to Ellman (2005) for formal details and section 7 for a discussion of these problems in common public service settings. Here, I capture G's reduced market access by assuming that side-trading only increases G's payoff from the basic contract $b_0 - p$ (at transfer price p) by $(1 - k) v(i, j)$, where $k \in (0, 1]$. I refer to $1 - k$ as the "side-compatibility" of the adaptation investment with the basic service contract; side-compatibility is full if $k = 0$ and zero if $k = 1$. Meanwhile, M's payoff from the basic contract is $p - c_0 + W(e)$ and M's payoff from side-trading is independent of e, i, j so I assume it is zero.

Public welfare from the service and its tax implications is simply given by adding i to G's payoff and multiplying by $\frac{1}{g}$. Multiplying this by A's internalisation factor a and subtracting j gives A's payoff.[16] For instance, if G pays M for the adapted service with monetary transfers

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[15]Recall that $v(i, j)$ is G's benefit when G pays M a transfer that exactly compensates for M's costs of adaptation. E.g. an adaptation worth S to G but costing c to the provider M offers G a potential gain of $v = S - lc$. (The results are fully robust to the extension where i and j are partially specific to M.)

[16]In the case where j changes the political pressure on G, this statement only holds true when restricting to adaptations that are attractive to G and M – see 3.4. This weaker statement is sufficient for my results since A cannot negotiate with G and M during service provision.

exceeding M's costs by t, the overall payoffs of G, M and A are

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\begin{aligned}
u_G &= b_0 + v\left(i, j\right) - lt - i \\
u_M &= t - c_0 + W\left(e\right) - e \\
u_A &= \frac{a}{g}\left(b_0 + v\left(i, j\right) - lt\right) - j
\end{aligned}
$$

where, in equilibrium, t may depend on e, i, j since t is (partly) determined through negotiation after e, i, j are chosen.

Timing: In stage 0, G chooses whether to outsource the public service or produce it in-house and G negotiates a preliminary agreement with the public or private provider (managed by) M. At this stage, G and M only have sufficient knowledge to agree on the basic service contract. I characterise private provision by G and M's choice to sign this contract committing M to provide the basic service, generating the value b_0 per unit of time for G, over a period of time $\alpha \in [0, 1]$ in return for a fixed payment, which I denote by $p_0\left(\alpha\right)$.[17] I characterise public provision by G and M's choice to avoid the basic service contract; instead, M commits to work for G in return for a compensation package that includes an initial transfer w_0 for M's exclusive dedication to G during stage 1. In stage 1, G, M and A choose their investments i, e and j. In stage 2, G and M learn about possible service adaptations and also learn each other's payoffs from each feasible agreement. At this point and throughout stage 3, which lasts for 1 unit of time, G and M can (re)negotiate to implement either the basic service or the best adapted service discovered.

G and M have symmetric information throughout. I assume they reach agreements for stage 3 that are efficient from their bilateral perspective and they divide renegotiation surplus according to a symmetric Nash bargain. Unlike most incomplete contract models, utility is not transferable because while M gains t from G's transfer t, G's payoff only falls by lt. If G is nonchalant about the cost of public funds, i.e. if l is small, G is a weak bargainer and M extracts a higher share of the renegotiation surplus. For instance, in the Nash bargain over the transfer $t + c$ from G to M for an adaptation worth $v + lc$ and costing c, t will be chosen to maximise $\left(v - lt\right)t$. So $t = \frac{v}{2l}$; G's payoff share is $\frac{v}{2}$ but M's payoff share t is decreasing in l. Notice that when the direct incidence of a surplus opportunity falls on M instead of G, as with M's cost advantage $W\left(e\right) + c_0' - c_0$, the maximal value for G is $l\left(W\left(e\right) + c_0' - c_0\right)$ rather than $W\left(e\right) + c_0' - c_0$.

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[17]I follow HSV in simplifying by treating manager owned firms. Notice that private provision often also involves transfer of residual rights of control from G to M, at least for the duration, α, of the contract. The reason is that delegating control rights to M and long-term contracting with M are complementary tools in protecting M's self-investments from holdup. I discuss this simple extension below.

In all cases, it is ex post (stage 3) optimal for G to get M to provide the service, since c_0' strictly exceeds $c_0 - W(e)$ for any $e > 0$. So adaptations are always implemented by M whenever attractive to G and M. The next three subsections show that privatisation still matters, because the governance structure determines the equilibrium levels of e, i and j.

2.3 Effort under public provision

Under public provision, M has to be continually motivated to implement the basic trade so, in default of renegotiation with M, G would turn to an alternative manager M′ who implements the adapted service. In this default, G exploits i and j but cannot exploit M's specific investment e.[18] G's default payoff is

$$b_0 - lw_0 - lc_0' + v(i,j)$$

M's default payoff is simply w_0.[19] So G's maximal gain from renegotiation is $l(W(e) + c_0' - c_0)$. G's actual renegotiation gain is therefore $\frac{l(W(e) + c_0' - c_0)}{2}$ and M gains $\frac{W(e) + c_0' - c_0}{2}$. To solve for the subgame perfect equilibrium, I add the default payoffs to each party's renegotiation gain. G chooses i to maximise

$$b_0 + v(i,j) - l(w_0 + c_0') + \frac{l(W(e) + c_0' - c_0)}{2} - i \tag{1}$$

and M chooses e to maximise

$$w_0 + \frac{W(e) + c_0' - c_0}{2} - e \tag{2}$$

Since adaptations have an externality on A, A chooses j to optimally influence the outcome: j maximises

$$\frac{a}{g}\left(b_0 + v(i,j) - l(w_0 + c_0') + \frac{l(W(e) + c_0' - c_0)}{2}\right) - j \tag{3}$$

The efforts sunk at the investment stage (stage 1) are therefore characterised by the first-order conditions,

$$v_i(i,j) = 1 \quad W'(e) = 2 \quad \tfrac{a}{g} v_j(i,j) = 1 \tag{FOCpublic}$$

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[18]My assumption that e is fully specific to M as well as to G is valid when M has specific knowledge or e is a human capital investment, but does not allow for the possibility that public provision might permit G to appropriate some of the returns on M's investment e by exploiting M's ideas and asset-specific investments without M's cooperation (c.f. HSV). This would increase the holdup of e under public provision.

[19]These are the payoffs in default of renegotiation throughout the whole of stage 3. Ellman (2005) proves that for payoff structures that are stationary during stage 3, the game with ongoing renegotiation is equivalent to the game with renegotiation at stage 2 alone.

2.4 Effort under private provision

Under the long-term contract used for privatisation, in default of renegotiation, G can only appropriate a fraction $1 - k$ of the adaptation return $v(i, j)$ for the duration of the contract. So if the contract has length α, G's default payoff is

$$b_0 - lp_0(\alpha) - l(1 - \alpha)c_0' + (\alpha(1 - k) + (1 - \alpha))v(i, j)$$
$$= b_0 - l(p_0(\alpha) + (1 - \alpha)c_0') + (1 - \alpha k)v(i, j)$$

Meanwhile, the contract, while it lasts, protects M's cost-reduction efforts: the contract forces G to pay a fixed price for the basic service and M appropriates the full cost reduction $W(e)$ over fraction α of stage 3; M's default payoff under privatisation is

$$p_0(\alpha) - \alpha(c_0 - W(e))$$

G's maximal gain from renegotiation is therefore $l(1 - \alpha)(W(e) + c_0' - c_0) + \alpha k v(i, j)$. G and M's respective renegotiation gain equal $\frac{1}{2}$ and $\frac{1}{2l}$ of this sum. So G chooses i to maximise

$$b_0 - l(p_0(\alpha) + (1 - \alpha)c_0') + \left(1 - \frac{\alpha k}{2}\right)v(i, j) + \frac{l(1 - \alpha)}{2}(W(e) + c_0' - c_0) - i \qquad (4)$$

and M chooses e to maximise

$$p_0(\alpha) - \alpha(c_0 - W(e)) + \frac{l(1 - \alpha)(W(e) + c_0' - c_0) + \alpha k v(i, j)}{2l} - e$$
$$= p_0(\alpha) + \frac{1 + \alpha}{2}(W(e) - c_0) + \frac{1 - \alpha}{2}c_0' + \frac{\alpha k v(i, j)}{2l} - e \qquad (5)$$

Again A responds to the externalities by choosing j to maximise

$$\frac{a}{g}\left(b_0 - lp_0(\alpha) - (1 - \alpha)lc_0' + \left(1 - \frac{\alpha k}{2}\right)v(i, j) + \frac{l(1 - \alpha)}{2}(W(e) + c_0' - c_0)\right) - j \qquad (6)$$

This generates the first-order conditions

$$v_i(i, j) = \frac{2}{2 - \alpha k} \quad W'(e) = \frac{2}{1 + \alpha} \quad \frac{a}{g}v_j(i, j) = \frac{2}{2 - \alpha k} \qquad \text{(FOCprivate,}\alpha\text{)}$$

3 Accountability comparisons

The above two sets of first-order conditions demonstrate how privatisation increases M's incentives to cut cost from half of $W'(e)$ in (FOCpublic) to the higher fraction $\frac{1 + \alpha}{2}$ of $W'(e)$ in (FOCprivate,α), but at the same time decreases G's incentives to support adaptations down from the full marginal incentive $v_i(i, j)$ to the fraction $\frac{2 - \alpha k}{2}$ of $v_i(i, j)$. Privatisation also

decreases A's incentives to work for adaptations - owing to the indirect holdup explained in subsection 3.2 - from the full margin $\frac{g}{a} v_j(i,j)$ down to the fraction $\frac{2-\alpha k}{2}$ of $\frac{g}{a} v_j(i,j)$. Furthermore, when i and j are strategic complements, privatisation's negative effects on i and j are mutually reinforcing as I show in subsection 3.3. To clarify the accountability interpretations of these effects, I describe in turn the cases where A takes no action, where G takes no action and then the common case where A and G's efforts are strategic complements.

Notice that, by ruling out permanent transfer of control rights, I have ensured that public provision is equivalent to setting $\alpha = 0$. If instead I assumed that privatisation involves transfer of specific assets from G to M, public provision would generate higher adaptation incentives than private provision even at $\alpha = 0$, because M could then hold up the asset-specific component of i and j even after the contract expires. G rarely transfers ownership of unique assets to M, since that would preclude competition among alternative providers - one of the intended goals of provider privatisation. Nonetheless, in addition to conceding significant control rights to M on a temporary basis, G may let M own some specific assets under privatisation. In addition to the fact that employment (here public provision) often imposes increased obligations on M (because G has to buy M's time by restricting M's alternative activities in stage 1 – see Ellman (1999) and Levin and Tadelis (2005)), this augments the contrast between public and private provision, reinforcing the results that I derive here. Another contrast is that the public mode of provision avoids the transaction costs of designing a reasonable private contract – see Levin and Tadelis (2005). This increases the likelihood of the corner solution $\alpha = 0$ representing the public mode of provision.

3.1 Government attentiveness

To isolate the effect of privatisation on G's incentives, I first analyse the case where $v = v(i)$, independent of j. I interpret $v(i)$ as a measure of G's success in identifying adaptations that are valued by the public. So i represents G's efforts to pay attention to public concerns about service quality. These efforts enable G to discover adaptations that are valued by the public and likely to be salient at the time of G's re-election. For instance, when there is a public demand for a concrete change, i raises the probability that G recognises that the demand is serious (enough to affect G's reelection) and/or i raises the probability that G works out how to satisfy public demands.[20] So $v(i)$ can be interpreted as a measure of G's responsiveness to

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[20]Notice that I plausibly assume G does nothing when unsure what adjustments are demanded. My model would need a minor change if G's prior beliefs induce G to make the adaptation when only able to access

public demand - how likely it is that G manages to at least placate the general public. The more attentive G is, the more likely G can and will respond.

Under public provision, G's effort i is determined by the first order condition, $v'(i) = 1$ (as shown in equation (FOCpublic)). M is unable to hold up G, because investment i is general and G can therefore exploit i by replacing or sidelining an uncooperative M. In contrast, under private provision, M can hold up G, because i is an adaptation investment and the greater the basic contract's duration α, the longer G must wait before able to access effective market alternatives. G's incentive is thereby reduced by the fraction $1 - \frac{\alpha k}{2}$, as shown in equation (FOCprivate,α). Accordingly, $i^{public} > i^{private,\alpha}$ for any contract of length $\alpha > 0$ and privatisation reduces G's attentiveness by more, the greater is α (since $1 - \frac{\alpha k}{2}$ falls with α). Since the social return on i is given by $\frac{1}{g}v(i)$ and $g < 1$, public provision also generates under-attentiveness. So private provision, by exacerbating this problem, is clearly harmful to accountability. The following proposition records these points along with the, now well-known, advantage of privatisation – namely, that long-term contracting increases M's incentive $(\frac{1+\alpha}{2}W'(e))$ to cut provision costs.

Proposition 1 *For a fixed level of public pressure j or for v independent of j, government attentiveness and equilibrium responsiveness to public demand are higher, but cost efficiency is lower, when the service is publicly provided than when the service-provider is private. Increasing the contract length α of a private provider augments these differences. $e^{public} < e^{private}(\alpha), i^{public} > i^{private}(\alpha), \forall \alpha > 0$ and $\frac{de^{private}(\alpha)}{d\alpha} > 0$, $\frac{di^{private}(\alpha)}{d\alpha} < 0$.*

In sum, privatisation requires long-term contracts and transfer of control rights to protect M's investments e in cost reduction from G's market threats, but these long-term contracts and reduced control rights reduce G's access to market alternatives that protect G's adaptation investments. So privatisation reduces G's holdup of M's self-investments (in cost-reduction), but increases holdup of G's adaptation investments at the hands of the private provider. The message of this subsection is that privatisation encourages M's cost reduction but demotivates G from working to understand and satisfy changing public demand. Proposition 1 demonstrates the tradeoff in section 4 between privatising to raise cost-efficiency and keeping provision public to raise accountability.

This result is directly relevant for situations where public pressure is essentially independent of government attentiveness and of service privatisation. For instance, where voters are passive

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the prior. G's investigation efforts would then reduce the probability that G responds to the public demand for adaptation. However, in this case, it is easy to show that G would investigate *more* rather than less under privatisation - the reason is that G's investigations would then reduce exposure to holdup by M. So privatisation still reduces accountability.

except during elections or A is an action group whose members have a fixed time and budget constraint. However, in general the public, or at least some of its members, play an important role in generating political accountability as I explain next.

3.2   Public mobilisation

The holdup of G by M derived in the previous subsection hurts A because adaptations have a positive externality on A. In this subsection, I explain how the public/private choice determines whether M can also exert an indirect hold up on A.

> I now focus on the case where v only depends on j. The effect is independent of the two interpretations of j so I describe only for the first interpretation, but here record again the two interpretations for completeness: (1) political pressure – j represents A's efforts to mobilise to pressure G over the public service, and $v(j)$ reflects the degree to which the public manage to hold G accountable for making valuable service adaptations (e.g. $v(j)$ might measure the sensitivity of G's future electoral success to current implementation of socially desirable adaptations); (2) simple participation – j represents public efforts to work out what service adjustments would be advantageous and communicate these ideas to the government (e.g. by participating in public service surveys and open decision-making processes, such as have been implemented in Porto Alegre and post-crisis Buenos Aires – see Baiocchi (2001), Heller (2001) and GCBA (2003)).

The indirect holdup is implicit in A's first-order conditions – private provision reduces A's adaptation incentives by the fraction $\frac{2}{2-\alpha k}$ – but I first describe the mechanics of the problem to clarify why I call this an indirect holdup. A invests effort j to pressure G to make an adaptation. This raises G's value from adapting. Under private provision, G relies on M to implement the adaptation, so M can demand a share of G's benefit. Because G transfers utility to M using public funds, A suffers when M holds up G. Since A is the investor, the real holdup is perpetrated by M against A, but it is indirect since A cannot negotiate with A. The basic intuition is that A only gains from pressuring its agent, G, if G can respond; while M allows G to respond in return for a payoff, when M demands a share of G's adaptation return, this has a negative externality on A because G pays up using public funds.

Under public provision, G can force M to implement the adaptation at actual cost, so A evades the indirect holdup and A's incentives to apply pressure are higher than under private provision. So again public provision has a clear advantage in terms of inducing accountability.

The following proposition records this result and repeats the tradeoff of public accountability against privatisation's cost-efficiency.[21]

Proposition 2 *If v is independent of i or the level of government attentiveness i is fixed, both public mobilisation and the government's equilibrium responsiveness to public demand for service adaptation are higher when the service is publicly provided than when the service provider is private. Furthermore, mobilisation decreases with the length of contract α used to motivate the private provider. There is a tradeoff betweeen privatisation with a long-term service contract which raises cost efficiency and public provision which leads to greater mobilisation and political accountability. Mathematically, $e^{public} < e^{private}(\alpha), j^{public} > j^{private}(\alpha), \forall \alpha > 0$ and $\frac{de^{private}(\alpha)}{d\alpha} > 0, \frac{dj^{private}(\alpha)}{d\alpha} < 0.$*

The formal derivation is exactly as for the previous subsection, except that A's incentives are scaled up by the multiplicative factor $\frac{a}{g}$ in both the public and private modes. As in the previous subsection, privatisation reduces the cost of the basic service by protecting cost-reduction investments, but it raises the equilibrium costs of service adaptation. This reduces the public's incentive to mobilise to pressure for adaptations. The new message is that privatisation exacerbates the problem of motivating the public to impose accountability on the government.

3.3 Strategic complementarity in accountability

As argued above, there are strong reasons to expect i and j to be strategic complements: the greater is G's attentiveness, the more sense it makes for A to investigate and communicate public preferences and to apply pressure on G; conversely, the more active is A, the more G can gain from being attentive. In this subsection, I show how strategic complementarity between i and j exacerbates the problem of privatisation, by analysing the mutual reinforcing knock-on effects of privatisation's direct effects on i and j. Even though i and j are chosen simultaneously, my assumptions ensure that equilibria are unique, and it is straightforward to prove that the effects identified in propositions 1 and 2 continue to hold, with an increase in the advantages from public provision.

Proposition 3 *If public pressure and government attentives are strategic complements – i.e. $v_{ij}(i,j) > 0$ – then: (i) $e^{public} < e^{private}(\alpha), j^{public} > j^{private}(\alpha), \forall \alpha > 0, \frac{de^{private}(\alpha)}{d\alpha} > 0,$*

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[21]Strictly-speaking, I should say cost-reduction rather than efficiency, but in section 4 I prove that the incentives for e, i, j are never too high so increasing incentives raises efficiency and the statement is valid, albeit premature.

$\frac{dj^{private}(\alpha)}{d\alpha} < 0$; (ii) v_{ij} raises $i^{public} - i^{private}(\alpha)$ and $j^{public} - j^{private}(\alpha)$ but has no effect on $e^{private}(\alpha) - e^{public}$.

Because of these complementarities, the timing of play is important. A sequential set-up in which the public move first (and the government observe this before moving) is plausible if one interprets the government's main receptiveness choice as one over effort to work out how to satisfy the mobilised public's demands. Having the public move second is relevant if, e.g., the government organises public meetings about service preferences and the public respond by supplying effort to actively participate in these meetings. The simultaneous setup that I treat here is relevant if the public cannot observe government efforts and the government must exert effort to discover the effectiveness of a mobilisation. The sequential time orderings reduce the likelihood of multiple equilibria and shift the effort levels, but do not interfere with the qualitative nature of my results.

3.4 Preliminary discussion

I have given two alternative interpretations of the accountability mechanism. In the first interpretation, accountability is enhanced by discovery and communication of adaptation alternatives. In the second interpretation, accountability is increased by pressure that increases G's sensitivity to public concerns. In this subsection, I show how the pressure and communication interpretations can be consistent with my payoff assumptions. I then generalise to allow pressure to decrease G's payoff. I close by discussing accountability for cost efficiency.

When i and j represent pressure and communication, the degree to which G internalises public welfare becomes endogenous. The correlation between G and A's payoffs is, in general, more complicated in this case. For instance, publicity that affects G's value of an adaptation, need not have any effect on the public's value of that adaptation. Nonetheless, publicity raises the likelihood that the adaptation will be implemented by G and M *in equilibrium*. It is as if adaptations that are not sufficiently politically salient to be attractive to G had not been discovered. So publicity investments have a similar effect to participatory investments that help discover useful adaptations. I illustrate how G and A's payoffs may be proportional with the case of a single possible service adjustment, such as fixing a problem in the public service that becomes apparent over time. Suppose that j raises the probability $q(j)$ that the service adaptation is as politically salient as the basic service value. For instance, the majority of the public might observe the adaptation decision before voting with probability $q(j)$ and otherwise not observe it at all, whereas the basic service value and the use of public funds (captured by the public surplus/deficit) are always politically salient (so adaptations are never performed

when non-salient). In this case, G implements the adaptation with probability $q(j)$. If G's electoral concerns (see section 5) lead G to internalise the fraction g of the public value from the basic service and to internalise, *when politically salient,* the same fraction of the public value S from adaptation, then G's maximal expected gain from the adaptations that G finds attractive to implement is $gSq(j)$. A's gain from implementation of the adaptation is aS – independent of whether j succeeds in creating political salience – but since adaptations are only implemented when salience is high, A's expected gain is given by $aSq(j)$. In this special case, G and A's expected payoffs remain exactly proportional in the ratio $\frac{g}{a}$.[22]

I believe this special case is representative, but it helps to see how it can go wrong. Suppose v only depends on j and A is able to choose j to make a valued adaptation just politically salient enough for G to implement it – i.e. A can choose j so that $v(j)$ is just above 0. In this case, the impact of M's indirect holdup would be trivial and the private/public choice would have no effect on j. However, in general, A's efforts to pressure G usually have stochastic success, as in the example just given. Furthermore, even in a deterministic setting, if A wants to pressure for many changes, G's benefit from inframarginal adaptations will generally be significantly positive when G's benefit for marginal adaptations is approximately zero. Finally, if v depends on G's efforts i as well as on j, then G only chooses $i > 0$, if there is a possibility of v significantly exceeding 0. So the holdup problem is sure to be present. The exact relationship between G and A's payoffs may vary, but since A only pushes for adaptations that A values and G only implements adaptations that G values, correlation in value of equilibrium adaptations will occur quite generally. What may change are the other effects of i and j.

Public pressure j reduces G's payoff in the contingency where G fails to make the adaptation. This can be captured by lowering G's payoff function by $y(j) \geq 0$ with $y'(j) > 0 \; \forall j \geq 0$. In section 5.1, I discuss and provide a model to justify why G's payoff might be affected in this way. It is clear from that discussion that the public benefit from holding G more accountable so public welfare and A's own payoff do not include the subtracted term $-y(j)$ and may include an additional term increasing in j. Such changes remove the exact proportionality between G and A's returns on j, but do not interfere with the holdup results which only depend on G and A both benefitting from equilibrium adaptations and G and A both losing from transfers of public funds to M.

When G's valuation of adaptations *relative* to public transfers and other benefits (such as b_0) varies more continuously with i and j, privatisation still reduces i and j and hence the

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[22]This example is readily extended. E.g. G is only sufficiently aware of public pressure and how to respond with probability $q(i)$, then the probability of an adaption in equilibrium is $q(i)q(j)$. Again G and A's expected gains remain proportional.

degree of G's accountability for service quality improvements. However, if i and j could reduce the salience of other political decisions, there is a risk of creating an imbalance in accountability. In section 7, I argue that (while there is no risk of A taking excessive efforts when A's goals are fully aligned with other members of the public) when A is replaced by a special interest lobby and when G is able to divert attention onto selected public services, there is a risk that G and A's efforts reduce social welfare. Privatisation might then be advantageous by reducing the risk of over-politicising the public service.[23]

This adjustment suggests that accountability for low taxation could be higher under privatisation (but see also subsection 6.3). My focus has been purely on accountability for adapting to changing public preferences that cannot be contractually anticipated in advance by G and M. In the next section, I show that the public may indeed prefer privatisation if their main concern is to keep taxation low and they do not care much about service quality - i.e. if $\frac{l}{g}$ is very high. Nonetheless, public activism is clearly lower under privatisation and this is the endogenous component of accountability that I am seeking to emphasise. Notice, in particular, how the next section reveals G to have a stronger preference for privatising than does A.

4   The privatisation decision

The previous section solved for the implications of the public and private provision alternatives. In this section, I analyse the choice between these alternatives in two cases: first, when the government decides the provision mode and second, when voters decide. Note that voters decide if the private/public decision is made through a referendum. Voter preferences are also particularly influential when political parties are able to make electoral commitments over their plans to privatise or nationalise/municipalise. While costs of switching between private and public modes of provision (say from expertise and organisational capital that build up in support of the current provision mode) may generate a strong status quo bias not captured here, these costs make it all the more important to be able to predict the long-run comparative levels of social welfare under the alternative provision modes. This section helps to answer this question, because the endogenous level of accountability for adaptations is a key component of long-run service quality.

If both the markets for employee managers and service contractors are perfectly competitive at stage 0, the negotiation over w_0 (in the case where M is a public employee) or $p_0(\alpha)$ (in the

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[23]On the other hand, enhancing e may not always be advantageous either. Privatisation could then be damaging by over-motivating e. For instance, if M's investments in cost-cutting reduce G's payoff from the basic service contract, there is a risk that long-term contracting leads to excessive investment by M – see HSV or Ellman (2005) who categorises this as a negative cross effect.

case where M is a service contractor) ensures that M's average equilibrium payoff equals M's market opportunity cost which I denote by r. So w_0 and $p_0(\alpha)$ are determined by equating the expressions for u_M^{public} and $u_M^{private}$ from equations 2 and 5 with r. Substituting for w_0 and $p_0(\alpha)$ into equations 1 and 4, respectively, reveals that G's payoff is given by the bilateral surplus with M evaluated at the subgame-perfect levels of (e, i, j):

$$
\begin{aligned}
u_G^{private,\alpha} &= b_0 + v(i,j) - l(c_0 + r + e - W(e)) - i \ \text{ at } (e,i,j) \ \text{ satisfying FOCprivate,}\alpha \\
u_G^{public} &= b_0 + v(i,j) - l(c_0 + r + e - W(e)) - i \ \text{ at } (e,i,j) \ \text{ satisfying FOCpublic}
\end{aligned}
$$

Whenever G chooses the private mode of governance, G chooses the contract length α that maximises $u_G^{private,\alpha}$. As explained in section 3 (indented text), I have set up the model so that public provision is represented by the corner solution in which it is optimal for G to set $\alpha = 0$. This permits almost direct application of the results from proposition 4a of Ellman (2005): increasing l is equivalent to raising the "importance" of self-investment e, so from G and M's perspective, the optimal contract length increases with l. In particular, there exists $\hat{l}$ such that it is optimal to set $\alpha = 0$, i.e. to adopt the public provision mode, for all $l > \hat{l}$. (Since this cut-off is determined by G's preference, I write $\hat{l}^G$.) To simplify, I assume $W'''(e)W'(e) < 4(W''(e))^2$ and the same for v with respect to i and j – these are sufficient conditions for all the problems of (G and A and the public) optimising over α to be regular.[24]

Proposition 4 *If the government places sufficient weight on the quality of the public service relative to the cost of public funds, the government prefers public to private provision:*

$$
\exists \hat{l}^G : l \leq \hat{l}^G \Rightarrow u_G^{public} \geq \sup_\alpha u_G^{private,\alpha}
$$

This result is intuitive. From G and M's perspective, i and e should be such that $W'(e) = 1$ and $v_i(i,j) = 1$ and the higher is j, the better. So they are concerned about underinvestment in e, i and j. Privatisation raises e towards the optimum level, but exacerbates the under-investment in i and j since it reduces G's ability to appropriate the returns from improving service quality.

As argued in 3.4 and formally justified in 6.1, it is often more plausible to assume that public pressure j also has a negative (adaptation-independent) effect on G's payoff that can

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[24]The proof of proposition 4 reveals one minor complication for applying the proofs from Ellman (2005): since j is chosen by a third party (A), the costs of j are neglected by G and M; this changes the form of the optimand, but the benefit through j from increasing α ($v_j(i,j)j'(\alpha) > 0$) is independent of l, so the proposition remains valid. (One could generate more general results about G's, A's and society's, preferred value $\hat{\alpha}$, but instead I focus on the public versus private choice.)

be captured by lowering G's payoff function by $y(j) \geq 0$ with $y'(j) > 0$. If $v_j(i,j) - y'(j) > 0$ then G benefits from higher j in equilibrium and G is more likely to choose public provision than when j is fixed. On the other hand, if $v_j(i,j) - y'(j) < 0$, then raising α benefits G by improving the bilateral efficiency (from G and M's perspective) of i, but it hurts G by inducing a higher j from A. In this second case, the likelihood that G privatises increases beyond that suggested in proposition 4, because G seeks to reduce A's motivation to monitor and apply pressure. In order to demonstrate this effect, I substitute $y(j)$ by $Jy(j)$ and characterise the effect of varying J - a measure of the significance of this effect of j:

Proposition 5 *If A's pressure j has a direct negative effect on G's rents of size $Jy(j)$ – then increases in J make G more likely to privatise. Formally, $\frac{d\hat{l}^G(J)}{dJ} < 0$.*

This proposition reflects how G may use privatisation as a way to escape accountability pressures (even when G's marginal cost l of public funds is relatively low).

The utilitarian measure of social welfare is given by

$$\frac{1}{g}\left(b_0 + v(i,j) - l(c_0 + r + e - W(e))\right) + r - i - j$$

Notice that the socially optimal levels of i and j satisfy $v_i(i,j) = v_j(i,j) = g$, so given that $g, a < 1$, public provision and, a fortiori, private provision always generate underinvestment in i and j. This implies that from a social perspective, there is always a clear tradeoff: privatisation raises e towards the first-best level but exacerbates the underinvestment in i and j. Since the public are not fully homogeneous, this measure of social welfare may not determine the outcome of a vote over the privatisation decision: G and M, and perhaps even A, may have negligible weight in the referendum. Assuming there is no difficulty in inducing political participation (and hence no value for allowing G to extract rents from adaptations) and assuming the referendum outcome coincides with the preference of a median voter who is not a member of A, the referendum decision would maximise the above expression without the subtracted the effort costs $-(i+j)$. So the median voter (MV) would maximise

$$b_0 + v(i,j) - l(c_0 + r + e - W(e))$$

Increases in the importance l of cost efficiency again raise the relative benefit of privatisation, and there exists a cut-off value at which privatisation becomes optimal for the median voter.[25] It is intuitive that this cut-off $\hat{l}^{MV}$ exceeds the cut-off $\hat{l}^G$ that would be dictated when

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[25] For simplicity, I treat the case where the referendum fixes the precise value of α in the case of opting for private provision. Notice that the concern is again to avoid underinvestment: the social first-best has $W'(e) = 1$

G controls the decision, because the advantage of public provision is in inducing more adaptation investments i and j and this advantage is greater for the median voter who, in contrast to G, neglects G's cost i (that mitigates the advantage of public provision from G's perspective). Notice that even if the median voter cared about i, say to ensure that good politicians are willing to participate, this voter would place a lower weight on i relative to v than does G, because $\frac{1}{g} > 1$ and usually by a large difference.

Proposition 6 *When the public decide whether to privatise service provision or to engage public providers, public provision is more likely than it is when the government controls this governance choice. In particular, the public value privatisation only when the importance of non-contractible service quality improvements is very low and the need to restrain public expenditure is very large, whereas incumbent governments opt for privatisation sooner (i.e. at a lower relative cost of public expenditure). Formally, $\hat{l}^{MV} > \hat{l}^{G}$.*

This result is sensitive to the assumption that the median voter does not internalise A's cost of effort j. In the opposite situation, for instance where the median voter is a member of A, the relative tendency to privatise is ambiguous: G neglects the increase in costs j from public provision, but G overweights the increase in costs i associated with public provision. One can imagine a setting in which G values a socially excessive level of public scrutiny and is therefore unwilling to privatise when private provision is socially optimal. For instance, public scrutiny may enhance G's incumbency advantage of being familiar to voters. However, as noted above in the motivation for subtracting a factor $-J(j)$ from G, it is probably more common for governments to prefer to control their publicity rather than be actively monitored by voters. In this case, the general public (and even A) for whom the equilibrium incentives on j are always too low, will certainly have a stronger aversion to private provision than does G.

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as for M and G's bilateral optimum; the social first-best demands a higher level of i ($v_i(i,j) = g > 1$) and it demands $v_j(i,j) = g$ which is also higher than the highest possible outcome (given that $a < 1$). If the median voter neglects the costs i and j, this raises (to infinity) the levels of i and j preferred by the median voter, making it even more obvious that the problem is to avoid underinvestment, and not overinvestment.

5   Endogenous political incentives

5.1   A retrospective voting model with forward-looking voters who infer political ability from service outcomes

In this subsection, I endogenise the political benefits implicit in G's payoff assumed above. One possibility is to assume that voters are retrospective as in Ferejohn (1974), but instead I point to a simple rational choice derivation. Suppose that G's only goal is to take ego rents R from holding office. The median voter's payoff from G depends additive separably on the quality of public service, the use of public funds and a random term of uniform density ρ that is not observed by G or A until election time. The expected value from alternative political parties is fixed and G and A's problem is stationary over time: G is an infinitely lived political party; voter uncertainty about G depends on G's current and last-period ability shocks, a_t and a_{t-1}, but only on G's current effort i_t. [to complete:[26]] the median voter's payoff in period t is $(v(a_{t-1}, i_t) + \varepsilon_{t-1}) + (v(a_t, i_t) + \varepsilon_t)$ and the median voter only observes $(v(a_t, i_t) + \varepsilon_t)$ as a sum, so G chooses i_t to raise the median voter's expectations about a_t. The distribution of each new ability shock a_t is fixed, as is that of the noise term ε_t.

G anticipates reelection whenever the median voter's payoff exceeds the reservation level y determined by the common stationary equilibrium effort and average ability of G's opponents. Since G wins if $\varepsilon > y - K$ where K is the non-stochastic component of the median voter's payoff, for a sufficiently diffuse uniform distribution on ε, G's payoff is equal to $R\rho(K-y)$ plus a constant. Apart from G's private effort costs, G's variable payoff is therefore proportional to the average payoff K of the median voter and the aggregate social welfare NK. Letting $g = \frac{R\rho}{N}$ gives the payoff formulations used above.

A minor complication: When A's efforts j are interpreted in terms of pressure, raising the political salience of the service quality issue, or voters' ability to observe performance with low noise, G's payoff is no longer exactly proportional to that of A. A only benefits from j to the extent that j shifts G from inaction into implementing the adaptation demanded by A. Meanwhile, G benefits from j contingent on implementing the adaptation and G is likely to suffer a loss, which I denoted by $-y(j)$ contingent on not implementing the adaptation. There are several interpretations of $y(j)$.

(1) Information. (a) Public mobilisations may allow voters to learn more about alternative parties, so they can better select alternative politicians. This raises the median voter's reservation value so $y = y(j)$ with $y'(j) > 0$. G's payoff therefore decreases by a multiple of $y(j)$.

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[26]Also consider standard Normal formulation but exact formulation then may need additive separable effort and ability.

Voter's expected utility, by contrast, is weakly increasing in $y(j)$. (b) Voters may also learn more about the party in power - the incumbent, G. If mobilisation efforts j reduce observation noise ε, ρ rises and G suffers if $v(i)$ is below the prior and gains if $v(i)$ is above the prior. (2) Salience. One can view j as a measure of the political salience of public service issues at the time of voting. For instance, voters might compare their utility from a subset of public policy outcomes with a benchmark, reservation value that they expect from a substitute government. This policy subset could be those that are salient at the time of election (or those that are viewed as the responsibility of government). The formal analysis is similar. Again, it is appropriate to subtract a term, $y(j)$, to capture the fact that while politicians may gain from salience of a service when they plan to perform valuable adaptations, politicians suffer when attention is drawn to a service on which they have or will perform below par. Note: Given that G can only benefit from j by exerting effort to perform above par, it seems plausible that, on average, G will prefer to induce low levels of j, or at least that A values increases in j more than G does. (In terms of the model, I am suggesting $y(j)$ is steeper than j.) Nonetheless, if voters are risk averse and G gains an incumbency advantage provided that voters get informed about G (as through j), it is possible that G's equilibrium gain from j exceeds that of A, since A internalises the cost of effort j and G does not. (3) G may extract rents that hurt the public interest to a degree that is limited by fixed legislations and public scrutiny: if increases in j reduce G's ability to extract rents then G's payoff falls by some term $y(j)$ (possibly distinct from the voter's reservation value y) while voter payoffs rise (possibly much greater than $y(j)$).

5.2 Bayesian inference and uncertainty about politician's benevolence

The previous subsection studied the case of uncertainty over politicians' abilities. I now briefly look at voter uncertainty over politicians' benevolence by extending the model of variable political salience analysed by Besley and Burgess (2001). These authors study political competition where G is a politician and is either "good" - and always responds to welfare shocks - or "bad" in which case G only responds to shocks if G anticipates electoral gains from responding that exceed the response costs. Besley and Burgess show that G's electoral gains from responding are greater when the public is more informed. So, for low response costs, bad politicians pool with the good politicians by responding to shocks.

Besley and Burgess do not endogenise political salience, but they make the plausible claim that the public are better informed when the media is independent of government (and business). My model contributes by treating public information as an endogenous variable: public mobilisation j raises the level of public awareness about policy outcomes. This is consistent with the model of Besley and Burgess, because one of the key strategies in an activist's tool-

box is to diffuse information through the media and spreading news through informal networks has the same political effect. Also, the adaptation opportunities in my model could include the (natural disaster) shocks studied in Besley and Burgess. Given that G is more likely to respond to a shock when j is high, the activist public, A, has an incentive to apply pressure through mobilisation j, as depicted above. The only model adjustment required is subtraction of some term "$y\left(j\right)$" from G's payoff function (as in the previous subsection), representing how G suffers from j if G does not perform adaptations.

The main result from Besley and Burgess is that exogenous increases in news lead to greater accountability because the bad politicians have a stronger incentive to pool with the good ones. In my endogenous set-up, privatisation generates an indirect holdup so $j^{private} < j^{public}$. Privatisation therefore lowers the pooling incentive. However, there are two further effects: privatisation generates a direct holdup of the good politicans, so $i^{private} < i^{public}$ for the good politicians and this makes pooling cheaper for the bad politicians who always seek to minimise their effort; on the other hand, this direct holdup raises the transfer cost of mimicking the good politician by implementing adaptations and that makes pooling costlier. The impact of the holdup on the adaptation cost is most direct and plausibly dominates the effect on i, so pooling is likely to decrease with privatisation, both from the indirect holdup and the net effect of the direct holdup. Again privatisation lowers accountability.

5.3   Voter attribution of responsibility

In this subsection, I return to the ability uncertainty setting of 5.1 but now allow for both G and M make efforts, by extending the underlying model of service provision. I assume that G and M's efforts are perfect substitutes. For instance, either G or M should monitor and fix small but potentially serious problems, in a setting where both monitoring just duplicates efforts and does not improve monitoring. Under privatisation, M has strong incentives to monitor service provision to reduce the risk of failing to satisfy the basic contract. Knowing this G desists from monitoring, but under public provision, M has no formal responsibility for service outcomes so M has little incentive to monitor and G's electoral incentives induce G to do the monitoring. Under public provision, voters therefore attribute outcomes to G's ability as a monitor, whereas under private provision, they attribute outcomes to M's ability. Since voters only vote over G, their ability to select is greater under public provision. Accountability is therefore higher under public provision.

I demonstrate this situation formally in the case where G and M's efforts are perfect substitutes and G and M do not observe their abilities until after both choose their efforts. In the more general model that I [to do] provide afterwards, results are less extreme and there can

be multiple equilibria. I show how privatisation directly reduces G's effort incentives (through holdup) and this so reduces voter attention to service outcomes that G's effort incentives fall to zero. [to do].

6 Contract length and inherited holdup

Ellman (2005) identifies a tradeoff between lengthening performance contracts to better motivate cost-cutting investments by the provider and shortening the contracts to reduce holdup of adaptation investments. Here, I extend this result by analysing the possibility that an incumbent government is replaced by an opposition party, before the incumbent's performance contract with a private provider has come to an end.

Analysis of the electoral competition reveals a particularly worrying effect of contracts that span across elections. Accountability is much enhanced when opposition parties can make specific policy commitments – see Austen-Smith and Banks (1989 and 2005). For instance, the public are more likely to oust an incumbent mayor for failing to fix a service problem (such as water quality falling below a recognised standard) when the opposition mayor has credibly committed to fix the problem. Unfortunately, if the service is managed by a private provider under a performance contract that spans the electoral cycle, this mayor suffers from a particularly pernicious holdup problem: if she wins after committing to solve the service problem, the service provider can hold her up over the entire value of her reputation for keeping promises. If voters anticipate the tax implications of this "inherited holdup", such commitments are less attractive to voters as well as opposition parties. Privatisation therefore reduces the likelihood that opposition mayors make firm policy commitments to improve service quality. This concern is particularly significant in Public-Private Partnerships (PPPs) where the private service provider is also responsible for building the facilities to be used (see Hart (2003)), because the private party usually then needs a contract in excess of five years to properly exploit its non-contractible sunk cost investments.

[add formal model here] In conclusion, for settings where effective privatisation requires contracts that exceed the four or five year term limit on governments, my analysis suggests that privatisation is particularly damaging - at least if political accountability is important.

7   Discussion

7.1   Infeasible and undesirable accountability

Pragmatists may point out that all my arguments are invalid or inverted in situations where public pressure is infeasible or undesirable. Acknowledging these problems helps to refine the theory's empirical predictions and policy recommendations. First, in settings where public pressure possibilities are remote, the accountability benefits of public provision may be small and with partial market pricing to buttress private provision, privatisation may be preferred by many. Consistent with this, Jacobson and Tarr (1995) point out that in the U.S., water supply tends to be privatised when the recipient public are subdivided by political boundaries. However, since democratic accountability builds up over time, public provision's tendency to induce public activism may have vital long-run benefits in settings where democratic pressure is initially limited.

Second, accountability can reduce welfare if the public are sufficiently myopic or manipulated by strong interest groups. For instance, economists have long argued that central bankers should be immunised against myopic electoral pressures and more recently, Maskin and Tirole (2004) have analysed the problem of "pandering" when public servants are elected ("politicians") rather than appointed (like a judge). (They study information problems rather than moral hazard.) Bennedsen's (2000) lobbying model and Milrom and Roberts' (1988) influence cost model point to related concerns.

7.2   Problems with public accountability - bureaucracy

It is possible for accountability to be lower under public provision if the mayor has difficulty monitoring and controlling public servants who are self-interested. However, these accountability problems could be avoided by forcing the relevant bureaucrats to be more responsive to politicians - what Adams and Hess (2000) call "de-Sir-Humphreying" the civil service. [To complete.] Furthermore, it is possible to make the heads of service providing agencies directly accountable to the public by having the public elect these heads. This step towards direct democracy has been studied by Besley and Coate (2003) among others.

7.3   Direct democracy

My analysis suggests unusual questions, such as what would happen if the public could vote directly to select a firm to provide services under a long-term contract, and perhaps also vote directly to oust the firm if activists manage to collect enough signatures of discontent? Given

that the public benefits are dispersed across many people, monitoring possible providers and writing effective contracts tends to require specialised agents, such as the mayor or a service agency head, but asking this question can illuminate related design questions. The mayor is only useful if effectively monitored by the public. Is it easier to monitor the mayor than the service provider? Would application on private firms of the restrictions imposed on the mayor and other public servants to prevent expropriation render the private firms non-viable? (see Reiner (199X) for background discussion).

7.4 Access to information

Accountability might simply be enhanced under public provision, because voters then have better access to information, but why should public provision have this effect? One possibility is that private service providers demand the standard privacy rights of private firms. Is it plausible that without these rights, the mayor could hold them up or competing firms could expropriate their ideas? If so, the benefits of privatisation would be lost, but the need for firms to have such strong privacy protections is much disputed. Another possibility is that information disclosure cannot be forced by contract. The mayor needs to monitor and pressure for transparency. If private provision shifts most responsibilities as argued above, then the mayor may more often manage to excuse herself for not forcing information disclosure, by pleading ignorance. Several questions arise. Are the standard privacy rights of private firms dispensable? How do the restrictions on public providers compare with the restrictions imposed on private but not-for-profit providers?

7.5 Asymmetric information between politicians and managers

7.6 Applications to selected public services

8 Conclusion

Critics have claimed that under privatisation, the government will wash its hands of service problems and quality will decline. This paper demonstrates that there may be a rigorous foundation to less extreme versions of this concern. The blunt version of this pessimistic view - maintaining that people will not hold the government responsible for policy outcomes because privatisation places control in the hands of a private company - is incomplete. The government's role (as holder of the purse-strings) remains critical under privatisation. In particular, the government can choose to which private company to delegate (just as it may control which civil servant is in charge of the relevant public agency under public provision)

and even during a given provider's contractual term, the government can at least negotiate (offering to pay additional costs if need be).[27] A more refined version of the argument therefore had to explain *why*, under privatisation, the government might be held less responsible and/or *why* pressuring the government should be less effective.

Privatisation of public services transfers control rights and contractual obligations to providers. I showed that, while improving cost reduction incentives, privatisation may decrease accountability and responsiveness of government to public concerns about service quality. I endogenised public mobilisations that can make government accountable for service quality. Political accountability induces the incumbent government to adapt services to meet public demand, but under privatisation, the provider can hold up the government by charging an inflated price for service adaptation. This holdup has an externality on the public, because the government pays using public funds. The holdup therefore reduces the public's incentive to mobilise to apply pressure on the government. The holdup also directly demotivates the government from exerting effort to evaluate public demands and their electoral implications. Finally, public mobilisation and government receptiveness are complementary and the two effects are mutually reinforcing.

My analysis has a number of policy implications - in particular, the concern that privatisation contracts that span an election inhibit the ability of opposition parties to commit to resolve service problems, because of the (inherited) holdup problem. However, the research project suggests a number of further issues, such as the role of direct elections of the public servants controlling services in the case of public provision and the possibilities of restricting private provision to not-for-profits and enhancing public involvement in the regulation of control of these alternative organisations.

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[27]The government can also regulate to some degree. Regulation is necessarily limited, because the extreme case of unlimited regulation - where the government retains full residual control rights - is effectively public provision.

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10 Appendix

Proof of proposition 3

The first-order condition for e is unchanged so proposition 1 gives the result for e. The first-order conditions for i and j can be written as $Dv\left(i\left(\alpha\right),j\left(\alpha\right)\right)=\frac{2}{2-\alpha k}\begin{pmatrix}1\\\frac{g}{a}\end{pmatrix}$. Differentiating this identity with respect to α,

$$
\begin{aligned}
D^2v\left(i\left(\alpha\right),j\left(\alpha\right)\right)\begin{pmatrix}\frac{di}{d\alpha}\\\frac{dj}{d\alpha}\end{pmatrix} &= \frac{2k}{\left(2-\alpha k\right)^2}\begin{pmatrix}1\\\frac{g}{a}\end{pmatrix}\text{ so}\\
\begin{pmatrix}\frac{di}{d\alpha}\\\frac{dj}{d\alpha}\end{pmatrix} &= \frac{2k}{\left(2-\alpha k\right)^2}\frac{1}{\Delta}\begin{pmatrix}v_{jj}\left(i\left(\alpha\right),j\left(\alpha\right)\right) & -v_{ij}\left(i\left(\alpha\right),j\left(\alpha\right)\right)\\-v_{ij}\left(i\left(\alpha\right),j\left(\alpha\right)\right) & v_{ii}\left(i\left(\alpha\right),j\left(\alpha\right)\right)\end{pmatrix}\begin{pmatrix}1\\\frac{g}{a}\end{pmatrix}\\
&= \frac{2k}{a\left(2-\alpha k\right)^2\Delta}\begin{pmatrix}av_{jj}\left(i\left(\alpha\right),j\left(\alpha\right)\right)-gv_{ij}\left(i\left(\alpha\right),j\left(\alpha\right)\right)\\gv_{ii}\left(i\left(\alpha\right),j\left(\alpha\right)\right)-av_{ij}\left(i\left(\alpha\right),j\left(\alpha\right)\right)\end{pmatrix}
\end{aligned}
$$

where $\Delta = v_{ii}\left(i\left(\alpha\right),j\left(\alpha\right)\right)v_{jj}\left(i\left(\alpha\right),j\left(\alpha\right)\right)-\left(v_{ij}\left(i\left(\alpha\right),j\left(\alpha\right)\right)\right)^2 > 0$ by assumption 2. Assumption 2 implies that both i and j decrease with α. Furthermore, the rate of decrease is increasing in v_{ij} as claimed.

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