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# Promoting the best as an incentive: Reply to Pluchino et al. on the Peter Principle

Erik J. Olsson and Carlo Proietti

Abstract: The Peter Principle states that employees tend to be promoted until they reach their level of incompetence. In a sophisticated simulation study, Pluchino et al (2010) confirmed a version of the principle. However, they also noted that their model has the counterintuitive consequence that “the best ways for improving the efficiency of a given organization are either to promote each time an agent at random or to promote randomly the best and the worst members”. We argue that what promotion rule is used can in general influence employee productivity (which is here seen as part of competence). Accommodating this psychological aspect of promotion is noted as an open problem by Pluchino et al. Using an amended simulation model we verify that if the incentive induced by promoting the best is strong enough, then that strategy will be optimal. In a final simulation experiment we consider the effect on the efficiency of an organization of using “double standard” promotion strategies, i.e., strategies that depend on the official promotion rule being different from the *de facto* promotion rule. We show that double standard promotion strategies can be highly efficient, although we also note that in using such strategies the employer may take an unacceptable medium to long term risk.

## 1. Introduction

This article is about a kind of social choice which sooner or later affects many of us, whether we are employees or employers: the choice of whom to promote for a higher position in the organization. Common sense dictates that if a position becomes vacant at a given level in a hierarchical organization, then the most competent worker at the next lower level should be promoted to that position. In this way, the global competence and efficiency of the organization is secured, or so conventional wisdom suggests. The underlying assumption here is that an employee who is highly competent at a certain level will be able to transfer her competence when she is promoted to a higher level.

Unfortunately, this assumption is not always true. As famously noted by Canadian psychologist Laurence J. Peter, a position at a higher level in the organization may require skills that are quite different from those required at the lower level (Peter and Hull, 1969). For instance, the skills required of a sales person are very different from those required of a sales manager (Andersen et al, 1999). In such cases, competences at different levels should rather be seen as independent variables and the common sense promotion rule leads to workers climbing in the organization until they lack the competence required for further promotion. Hence the Peter Principle, which states, in its original form, that in a hierarchy every employee tends to rise to his level of incompetence.<sup>1</sup>

By the Common Sense Hypothesis (CS) we will mean the claim that competences at various levels are dependent and transmitted from one level to the next. The Peter Hypothesis (PH), by contrast, denotes the claim that competences at various levels are independent. We will refer to the strategy of promoting the most competent as the Best strategy. The problem now is: assuming that PH is true and we shouldn't use the Best strategy, what strategy *should* we use?

In an innovative study, Pluchino et al (2010) conducted an agent-based simulation study exploring alternative promotion strategies in order to find the optimal strategy for improving the global competence of the organization. Here are the options they consider, neither of which may strike the reader as very plausible:

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<sup>1</sup> See Peter and Hull (1969). For mathematical confirmations of (versions of) the Peter Principle, see for instance Kane (1970) and Lazear (2001).

Worst strategy: promoting the worst

Random strategy: promoting someone at random

Alternate strategy: alternating between promoting the best and the worst

Their first finding was, surprisingly, that the Worst strategy is optimal if PH holds. Hence, if the Peter Hypothesis is true, we should promote, not the most, but the least competent! They went on to study cases where there is uncertainty about what competence transmission mechanism is operating in the organization: either PH or CS is true but we do not know which. Once more the result was unexpected: “if one does not know what mechanism of competence transmission is operative in a given organization, the best promotion strategy seems to be that of choosing a member at random or, at least, that of choosing alternately, in a random sequence, the best or the worst members” (Pluchino et al, 2010, p. 470).

The results sound paradoxical but, on reflection, they make sense. If PH is true, it is not unreasonable to use the Worst strategy. An employee who is not of much use in his or her current lower level position as sales person may turn out to be a decent sales manager, a position which requires different skills altogether. If, by contrast, there is uncertainty whether PH or CS is true, it is defensible to choose someone at random, as opposed to choosing the best or the worst, in an effort to minimize risk. It should be noted that the relevant feature of the Random strategy is not randomness *per se* but rather the fact that the promotee is selected on grounds uncorrelated with competence. This includes throwing a die, flipping a coin et cetera, but it also includes, in many cases, promotion by seniority, friendship or relation. Hence, the Random strategy may in fact be the most common promotion rule worldwide.<sup>2</sup>

Our main criticism is rather that we believe that the model put forward by Pluchino et al seriously underestimates the value of the Best strategy. Their model tacitly assumes that workers cannot influence their own productivity (which in the model is seen as part of competence). In particular, workers’ knowledge of what promotion rule is used cannot affect worker productivity. But this seems questionable: we would expect workers’ perception that the Best strategy is in place to act as a psychological incentive for workers to increase productivity. By the same reasoning, the Worst strategy should give workers an incentive to decrease productivity.

We will show that given some plausible assumptions, if the Best strategy acts as an incentive to increase productivity, then, if that incentive is sufficiently strong, the Best strategy will be optimal even under PH for conditions that are otherwise identical to those used in the Pluchino model. In the discussion section we will return to the assumptions under which we believe that our model is reasonably realistic.

Before we proceed to the details we would like to make two additional remarks. First, it is important to note that we do not wish to repudiate the Pluchino model but rather to seriously question its generality. The model may still be realistic for cases in which workers cannot influence their own productivity, e.g. in cases of assembly-line style work. Second, in Pluchino et al (2011), the authors obtain results similar to those reported in their first study but this time for “a more realistic hierarchical and modular

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<sup>2</sup> Peter himself acknowledged the frequent use in practice of the Random strategy, referring to it as the strategy of “random placement”. Cf. Peter and Hull (1969), p. 82: “In olden days, entry into most careers was governed by random placement, based on the employer’s prejudices, on the employee’s wishes or on chance (an applicant happens to turn up seeking work just at the moment when a vacancy occurs). Random placement is still operative in some hierarchies, particular the smaller ones.”

organization” (p. 3496). However, the new model, too, fails to take the psychological effect of promotion strategies into account, although accommodating such effects is stated, in their paper, as an open problem for future research.<sup>3</sup> It is this problem that we are addressing in the present article.<sup>4 5</sup>

In section 2, we describe the model and results in Pluchino et al (2010). In section 3, we discuss, mainly for clarificatory purposes, the role of decision theory and the dismissal threshold in their study (dismissal threshold = the degree of competence under which workers are dismissed). Our main criticism is given in section 4 where we introduce an amended model taking into account the psychological incentive induced by a given promotion rule. A by-product of our model is that it enables us to define “double standard” promotion strategies. These strategies purport to involve promoting the best, thereby inducing the same incentive as the Best strategy, but in reality one of the other strategies is used instead. Double standard strategies and their possible decision-theoretic justification are studied in section 5.

## 2. Pluchino et al (2010): model and results

Pluchino et al. studies a prototypical pyramidal organization illustrated in Figure 1 comprising a total of 160 positions distributed over six levels numbered from 6 (the bottom level) to 1 (the top level), with 81 employees (“agents”) in level 6, 41 in level 5, 21 in level 4, 11 in level 3, 5 in level 2 and 1 in level 1. Each employee is characterized by age and degree of competence. Age is an integer variable taking values in the range 18-60, which increases by one unit per each time step. The degree of competence is a real variable taking values from 1 to 10. It includes “all the features (efficiency, productivity, care, diligence, ability to acquire new skills) characterizing the average performance of an agent in a given position at a given level” (p. 468).

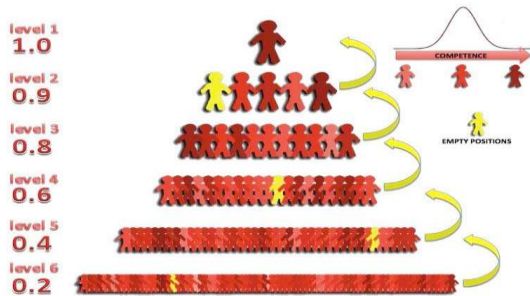


Figure 1 (Pluchino et al, 2010)

Both age and competence are selected randomly from two normal distributions with means 7.0 and 25 and standard deviations 2.0 and 5, respectively. At each time step, agents with a competence under a fixed dismissal-threshold or with an age over a fixed retirement-threshold leave the organization

<sup>3</sup> See Pluchino et al (2011), p. 3510: “it is also true that no psychological effects of random promotions have been taken into account in our simulations and that these could be non-negligible for real organizations. We will certainly consider them in future studies, but, anyway, we believe that random selection with different possible refinements ... could be an interesting promotion strategy to improve the performance of a hierarchical organization, not only to contrast the Peter principle effects but also nepotism and corruption.”

<sup>4</sup> Our concern in the present article is orthogonal to the robustness concern motivating the investigation in Pluchino et al (2011). For this reason, we have chosen here to take their earlier model, which has the virtue of simplicity, as our theoretical starting point.

<sup>5</sup> Koch and Nafziger (2012) studies the effect of individual effort, for an analogous case, within a different statistical framework. Based on their calculations, they argue that “[w]hile promotions are desirable for most employees, they make the least able in a hierarchy level worse off: for them earnings increase only because they work harder to compensate for their ‘incompetence’ ” (p. 1029).

leaving their positions vacant. The dismissal threshold is arbitrarily fixed at 4 and the retirement-threshold at 60. Vacant positions are filled by promoting one member from the level immediately below, going down progressively from the top of the hierarchy until the bottom level has been reached. Finally, vacancies at the bottom level are filled through recruiting new employees with the same normal distribution of competences as described before.

As a measure of the global performance of the organization, Pluchino et al introduce a parameter, called global efficiency, which is calculated by summing the competences of the members level by level, multiplied by a level-dependent factor of responsibility ( $r_i$ , with  $i = 1, 2, \dots, 6$ ) ranging from 0 to 1 and increasing on climbing the hierarchy. This factor, shown at the left side of Figure1, takes into account the weights that the performances of the agents of different levels have in the global efficiency of the organization. Finally, the result is normalized to its maximum possible value ( $Max(E)$ ) and to the total number of agents ( $N$ ), so that the global efficiency ( $E$ ) can be expressed as a percentage. Therefore, if  $C_i$  is the total competence of level  $i$ , the resulting expression for the efficiency is

$$E(\%) = \frac{\sum_{i=1}^6 C_i r_i}{Max(E) \cdot N} \cdot 100,$$

where

$$Max(E) = \sum_{i=1}^6 10 \cdot n_i r_i / N ,$$

$n_i$  being the number of employees at level  $i$ .<sup>6</sup>

Pluchino et al are now in a position to verify a statistical version of the Peter Principle. If competences at different levels are independent and the most competent are promoted, then “[e]very new member in a hierarchical organization climbs the hierarchy until [on average] he/she reaches his/her level of maximum incompetence” (p. 471). To be more precise: employees will tend to end up in positions for which they are less qualified than they were for their previous positions. Thus, incompetence is maximized (or, equivalently, competence minimized) over positions previously and currently held when a worker reaches “final placement” (to use a term from Peter and Hull, 1969). We will refer to this effect as the *Peter effect*.

Pluchino et al. were not only interested in verifying a version of the Peter Principle; they also wanted to find out what promotion rule is optimal under realistic circumstances. These circumstances involve, in their view, uncertainty about which competence transmission mechanism is operative. On CS, competence is transmitted from one level to the next, with a small random variation. On PH, the competence at the higher level is independent of the competence at the lower level and is assigned randomly (with the same normal distribution as before). For each case, they initially considered the Best, Worst and Random strategies.

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<sup>6</sup> Sobkowicz (2010) introduces an alternative “multiplicative” approach to calculating the effective work in an organization which combines the results of the manager and his or her subordinates. The revised model makes it possible for the agents to choose to “self-promote” rather than to contribute to effective productivity. The main purpose of Sobkowicz’ study is to analyze the effect on global productivity induced by changes in the balance of self-promotion and productivity.

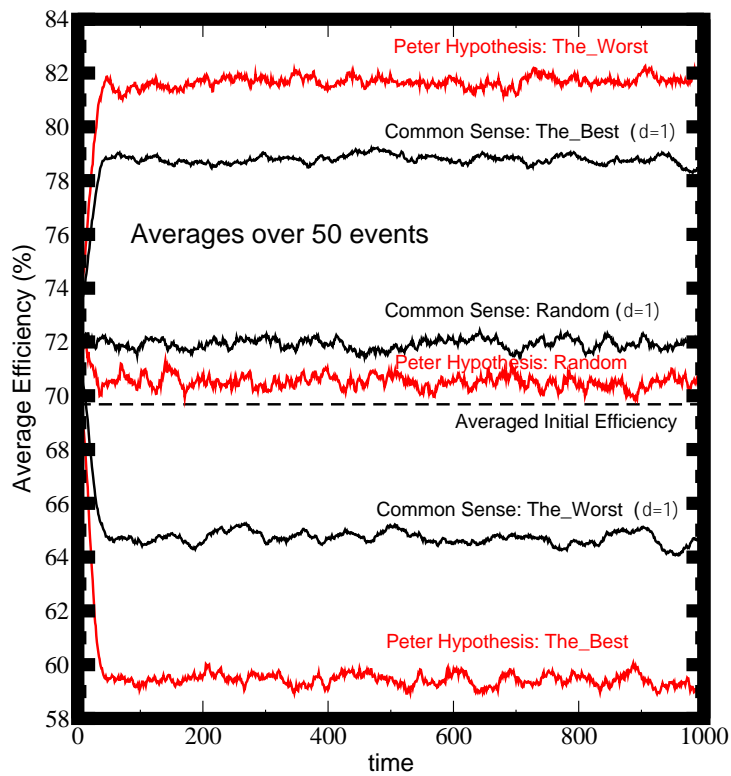


Figure 2 (Pluchino et al, 2010): The time evolution of the global efficiency considering the six possible combinations among the mechanisms of competence transmission and the promotion strategies. The evolution is calculated for 1,000 time steps averaged over 50 repetitions.

As Pluchino et al. note, referring to Figure 2, if the Best strategy is adopted the asymptotic value of the average efficiency (AE) significantly increases (+9%) with respect to the initial efficiency under CS. Under PH, by contrast, a significant decrement of AE occurs (−10%). Consider instead the Worst strategy. Again, we get different results depending on the transmission mechanism but the situation is, in a sense, reversed. Under PH, this strategy is a winning one (+12%), while it is a losing one for CS (−5%). The effect of the Random strategy, which promotes one agent at random, is not as dependent on the transmission mechanism, but its effect on global efficiency is also limited (+2% under CS, +1% under PH). A similar result is obtained using the Alternate strategy whereby the best and worst employees are chosen alternately. The results are summarized in Figure 3.

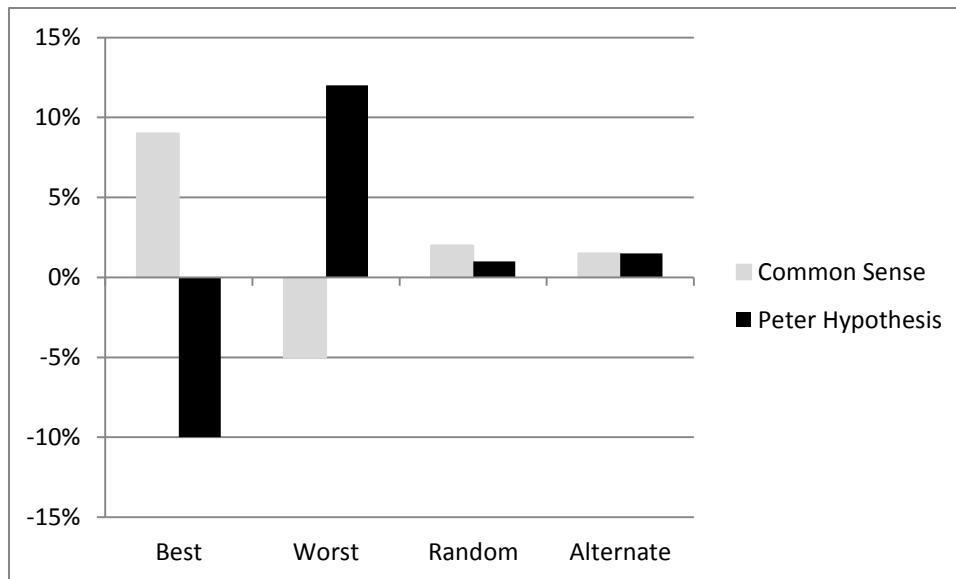


Figure 3 (Pluchino et al, 2010): Effect on global efficiency of various promotion strategies under the common sense and Peter hypothesis, respectively, for dismissal threshold = 4 (average over 50 simulations á 1,000 time steps).

Pluchino et al conclude (p. 470):

These results confirm that, within a game theory-like approach, if one does not know what mechanism of competence transmission is operative in a given organization, the best promotion strategy seems to be that of choosing a member at random or, at least, that of choosing alternately, in a random sequence, the best or the worst members. This result is quite unexpected and counterintuitive, since the common sense tendency would be that of always promoting the best member, a choice that, if the Peter hypothesis holds, turns out to be completely wrong. On the other hand, by applying one of the two strategies Random and Best-Worst, losses can be successfully avoided without any further (possibly expensive) precaution of the organization’s managers (such as specialization or updating courses).

These conclusions are in need of critical scrutiny in three different respects. First, there is an issue concerning which decision rule to use in arguing for the optimality of a given promotion strategy. Second, we need to consider the role of the dismissal threshold. These issues are dealt with in section 3 below. Third, it is assumed, as we noted before, that workers’ productivity, which is here seen as part of their competence, is not affected by the promotion rule used. In other words, workers are assumed to be as productive, if the most competent are promoted, as they are, if the least competent are promoted, or workers are promoted randomly. This may well be a realistic assumption in cases in which workers have little or no control over their own productivity, e.g. if they work on an assembly line. However, it should be clear that workers can in general influence their own productivity, in which case we would expect the fact that a certain promotion rule is operative to affect productivity and general performance. For instance, knowing that the most competent are promoted should normally act as an effective incentive for workers to increase effort and productivity. In section 4, we will propose an amendment of the model that accommodates this insight.

### 3. The role of the decision rule and dismissal threshold

Pluchino et al. seem to think that the reason why Random or the Alternate strategies are optimal is that in both cases “losses can be successfully avoided”. From a decision-theoretic perspective, however, an exclusive concern with loss-avoidance is often not very helpful. A decision problem need not involve

any outcome that represents a loss, in which case the loss-avoidance rule fails to give any recommendation. A more informative rule with a similar focus on risk aversion is the maximin decision rule which recommends maximizing the minimal payoff. This rule recommends the Alternate strategy given the payoffs in Figure 3. A still more common rule is to maximize expected utility (MEU), i.e. to choose the alternative which maximizes the sum of the utilities of the outcomes multiplied by their probabilities. If, applying the Principle of Indifference, CS and PH are considered equally probably, then, as the reader can easily verify, MEU recommends promoting the worst in the case of Figure 3.

Let us now turn to the role of the dismissal threshold, i.e. the competence threshold below which workers are dismissed. The results in Figure 3 were obtained using a dismissal threshold of 4. What happens if we instead set the dismissal threshold to a much higher value, 8 say? The answer can be found in Figure 4.

In the following all efficiency values are averaged over 50 simulations (using NetLogo random seed 1-50) and 1,000 time steps. The initial average efficiency was, in all cases, 69.463.

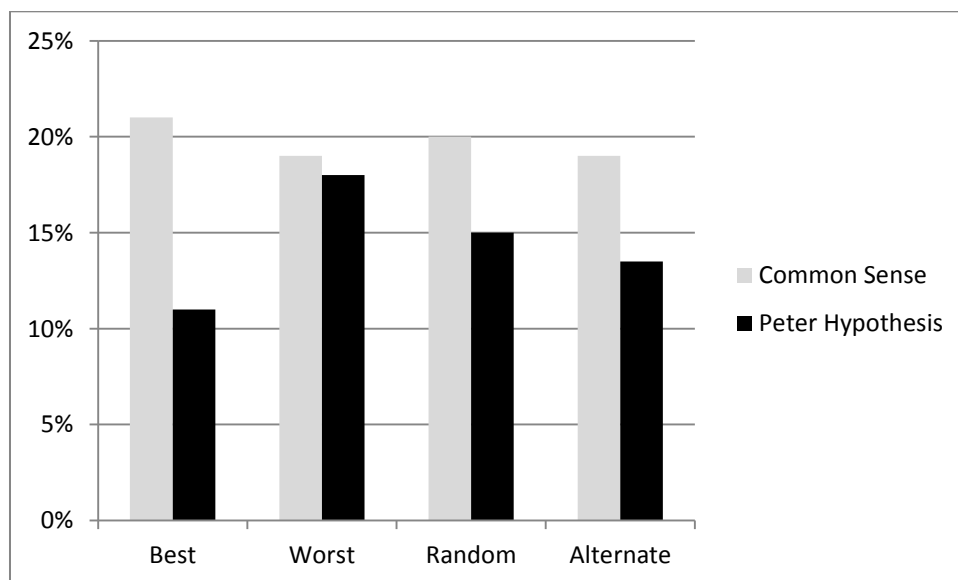


Figure 4: Effect on global efficiency of various promotion strategies under the common sense and Peter hypothesis, respectively, for dismissal threshold = 8.

Here we have a case in which there is no risk of loss. Whatever strategy we choose “losses can be successfully avoided”, meaning, again, that the decision criterion explicitly used by Pluchino et al gives us no practical guidance. If we apply MEU, we must conclude that the Worst strategy should be chosen. The same outcome was obtained for a dismissal threshold of 4, as in Figure 3. However, while maximin recommended the best-worst strategy for a dismissal threshold of 4, the result changes if, instead, we raise the dismissal threshold to 8, in which case both maximin and MEU recommend the Worst strategy, as seen in Figure 4. Hence, raising the dismissal threshold can affect what promotion strategy is optimal, if the maximin method is used.

A further observation is that given the higher dismissal threshold, it now seems exaggerated to claim that the Best strategy is “completely wrong”. It is true that the Best strategy is still not optimal given the decision rules we have described. However, the differences in payoffs for the candidate strategies are much less dramatic for an ambitious dismissal threshold (Figure 4) than they are for a modest dismissal threshold (Figure 3). Above all, the Best strategy is no longer associated with an unattractive



risk of substantial loss. While the Best strategy does not become optimal merely by raising the dismissal threshold, the impression that its deficiency be *serious* is thereby weakened.

The second effect of raising the dismissal threshold is that the Peter effect is affected. The Peter effect, we recall, is the tendency for a worker to end up in a position for which she only has average competence, and for which she is less qualified than she was for her earlier positions. The reason why raising the dismissal threshold has this effect is obvious: employees who turn out not to be qualified for the positions to which they have been promoted are dismissed. By raising the dismissal threshold to 8.5, we can make the Peter effect practically disappear altogether. Once more, raising the dismissal threshold undermines the impression that it would be “completely wrong” to use the Best strategy under the Peter hypothesis. Still, it must be conceded that raising the dismissal threshold to a very high value is often not a practically viable move for an employer to make. It means, for instance, that many workers will be dismissed before reaching retirement age. These workers will have to be replaced by other workers, which may be problematic if qualified workers are in short supply.

#### **4. Promoting the best as an incentive**

Our goal was to modify the model used by Pluchino et al so that it would take into account the role of the promotion rule as an incentive to increase effort and productivity. For that purpose we introduced an incentive parameter, taking values between 0 and 100. The relationship between promotion rule and incentive was supposed to be the following. If a most competent worker is promoted, this will be viewed favorably by that worker, who will increase her effort and productivity, and hence also her competence once promoted. If a least competent workers is promoted, by contrast, this will have the opposite effect of discouraging that worker, who will consequently reduce her effort and productivity, and hence also her competence in the new position. We assumed, moreover, that the random and alternating strategies will have no effect on the affected worker’s mind-set: she will be neither encouraged nor discouraged by being randomly selected for promotion.

Technically, we assumed that if a best worker is promoted, or enters the organization, her competence is multiplied by  $(100+\text{incentive})/100$ ; and if a worst worker is promoted, her competence is multiplied by  $(100-\text{incentive})/100$ . Thus we assume that workers will be as encouraged by the Best strategy as they will be discouraged by the Worst strategy. If an employee during simulation receives a degree of competence higher than 10, her degree of competence is set to 10.

We will now come to our simulation results. We first verified that we get the same results as Pluchino et al, if the incentive is set to 0. Then we confirmed that under CS the incentive only serves to accentuate their results. In other words, the Best strategy will be an even more attractive strategy, the Worst even less attractive, while the Random and Best-Worst strategies will not be affected. The effect of the incentive is more interesting if we assume PH, so that the competence at one level is essentially unrelated to that at the next level. If the Best strategy is used, then the detrimental effect this strategy has on global efficiency is offset by the fact that workers are more encouraged to make an effort. Using the same background assumptions as in Pluchino et al (2010), an incentive of 20 makes the Best strategy practically neutral with respect to global efficiency, as shown in Figure 5.

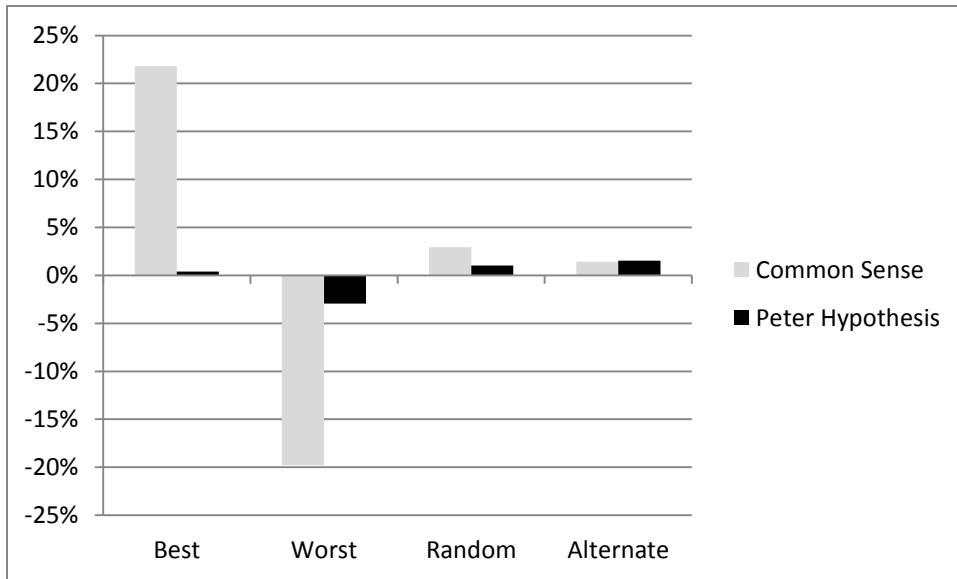


Figure 5: Effect on global efficiency of various promotion strategies under the common sense and Peter hypothesis, respectively, for dismissal threshold = 4 and incentive = 20.

As shown in Figure 5, an incentive of 20% is sufficient to make the Best strategy optimal from the point of view of MEU. At higher incentive values, promoting the most competent has a distinct positive effect on global efficiency even under PH, making it optimal also given the maximin rule. This effect is illustrated in Figure 6 for an incentive value of 30%.

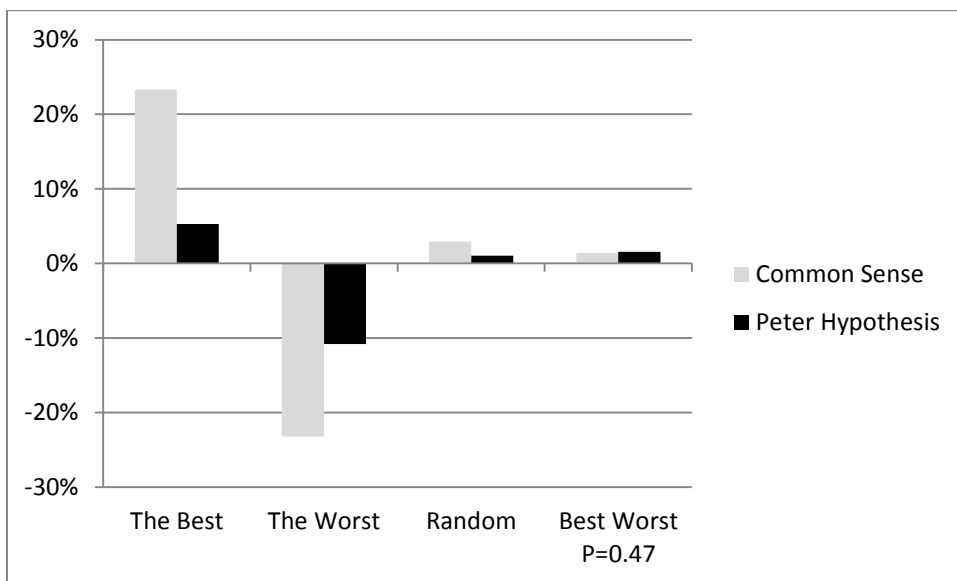


Figure 6: Effect on global efficiency of various promotion strategies under the common sense and Peter hypothesis, respectively, for dismissal threshold = 4 and incentive = 30.

Note that we have assumed that workers are informed about the promotion rule *upon being promoted*. The rationale for this assumption is that the promoted individual is informed about the reasons for her promotion, or capable of making an educated guess, whereupon her new competence is raised, lowered or left intact depending on what promotion strategy was used. This is our Model 1. We also constructed a second model, Model 2, in which this assumption does not hold. There it is assumed that workers are informed about the promotion rule that is operative *upon entering the organization*,

whereupon their initial competence is set accordingly: if the organization employs the Best strategy, the whole organization will be “energized”: everyone’s initial competence will be higher, and so on. New employees entering the organization during its lifetime are also informed about the promotion rule and get their initial competence set depending on the incentive.

The effect of using Model 2 is that we get exactly the same type of behavior over time as in the original model of Puchino et al (2010). However, the initial global efficiency will vary greatly depending on what promotion rule is used, and this may lead to different recommendations. To give an example, given the same background assumptions as before and assuming PH, if the incentive is set to 0, then the effect of the Best strategy is an approximate reduction in global efficiency from 70 to 60. However, if the incentive is raised to 20, the effect will be an approximate reduction from 77 to 67. Thus, the organization settles on a higher global efficiency in the latter case. The general point is that the Peter effect is offset by the fact that the initial efficiency is higher because workers become initially more encouraged by the fact that the organization employs the Best strategy.

## **5. Double standard promotion strategies**

The executives of an organization could, if they are shrewd, reason like this:

Suppose we were to announce that we promote on the basis of competence only, i.e. that we use the Best strategy. Then everyone will work harder which will lead to increased global efficiency. But we will also have a Peter effect: workers will tend to end up in places for which they have only average, and sometimes less-than-average, qualifications under the Peter hypothesis. In order to squeeze out the most of our workers, we shouldn’t therefore use the Best strategy in practice but rather one of the strategies which have been shown to offset the Peter effect, i.e., the Worse, Random or Alternate strategies. This means, to be sure, that we adopt a double standard, but if what we, and our stake holders, care about is global efficiency this may still be the rational thing to do.

The attraction of this line of strategic reasoning derives from its promise to deliver the “best of both worlds”: productive workers and no Peter effect. Well, does it?

In order to study the effect of double standards we extended our two models with double standard versions of the Worst, Random and Alternate strategies. The idea behind these new strategies is that they work just like the Worst, Random and Alternate strategies, except that they give rise to the same incentive as the Best strategy. This would be realistic if the Best strategy is the official promotion strategy but the *de facto* promotion strategy is one of the other strategies. The underlying assumption is that the employees are unable to tell the official promotion strategy from the *de facto* promotion strategy. We will discuss the tenability of this assumption in the discussion section below.

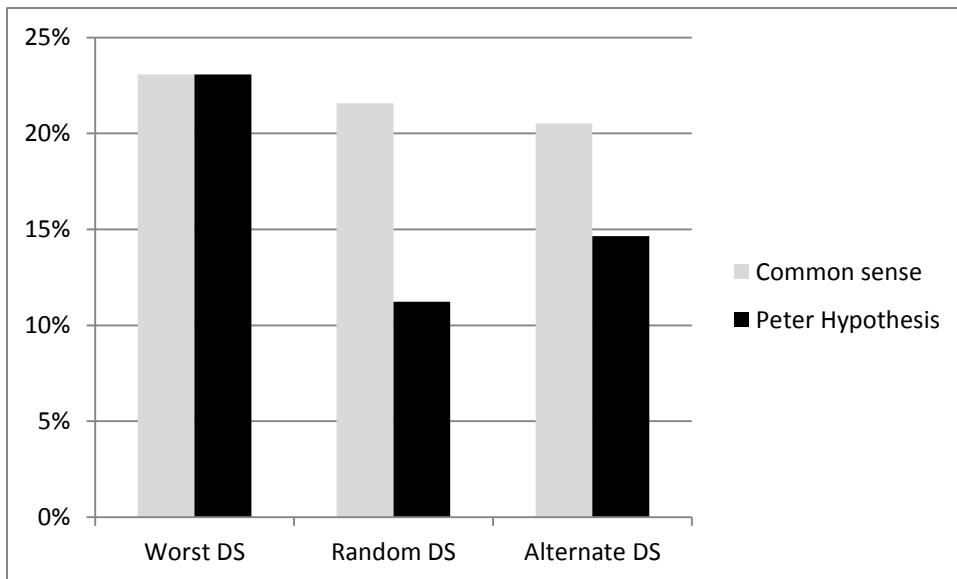


Figure 7: Effect on global efficiency of double standard promotion strategies under the common sense and Peter hypothesis, respectively, for dismissal threshold = 4 and incentive = 20.

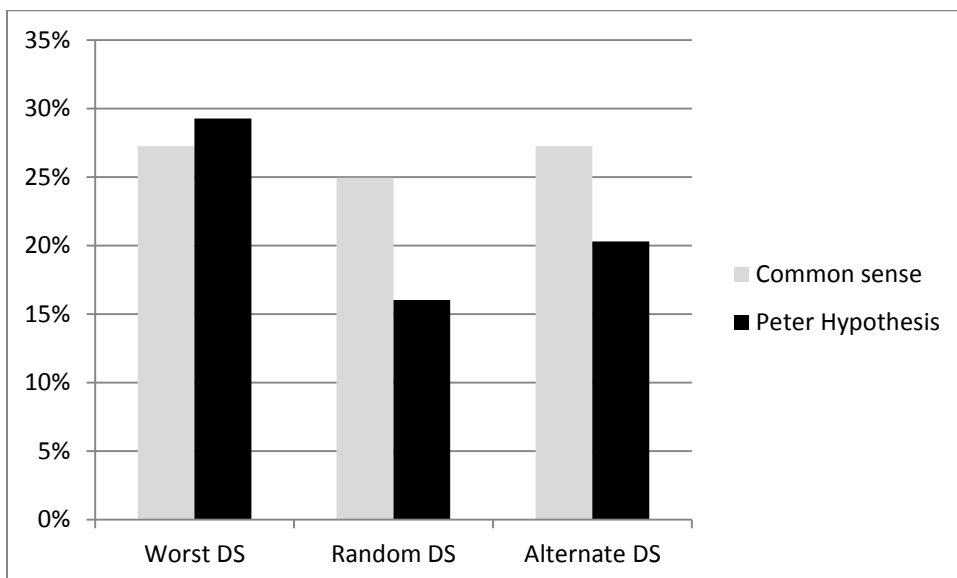


Figure 8: Effect on global efficiency of double promotion strategies under the common sense and Peter hypothesis, respectively, for dismissal threshold = 4 and incentive = 30.

A comparison between Figure 5 and Figure 7 reveals that the double standard strategies, as expected, give rise to a higher global efficiency than the corresponding “normal” strategies. As shown in figures 7 and 8, a stronger incentive leads to an even more pronounced effect in the same direction. In both scenarios, the Worst Double Standards strategy is optimal under PH. It is also optimal given uncertainty about the competence transmission mechanism, and this is so whether we use MEU or the maximin decision rule.<sup>7</sup>

<sup>7</sup> A related work is Gambetta and Origgi (2009) which studies the use of double standard promotion strategies in Italian academia and their decision-theoretic justification. While we focus on the (short term) performance-enhancing effect of double standard promotion, Gambetta and Origgi identify another purpose of advocating

## 6. Discussion

We have argued that, contrary to what Pluchino et al (2009) tacitly assume, (a) what promotion rule is used can in general influence employee productivity, and we verified, using an amended simulation model, that (b) if the incentive induced by the Best strategy is high enough, then that strategy will be optimal among the promotion strategies considered by Pluchino et al. As it stands this result is merely “existential” (in the logician’s sense): it states that there exists an incentive strength such that if the Best strategy manages to produce an incentive of that strength in workers then it will be optimal. A critic could complain that we still do not know whether the Best strategy will be able to produce an incentive of sufficient strength in practice.

However, we conjecture that if an organization satisfies certain realistic conditions, then there is a good chance that our assumptions will be at least approximately true so that the Best strategy will in the end be optimal. We have already noted that the positive incentive induced by the Best strategy depends on workers being able to control their own productivity (or, more generally, their competence). Apart from this, the incentive, for a given worker *S*, plausibly depends on (a) *S*’s subjective probability that *S* will be among the best and hence, in due time, be a candidate for promotion conditional on *S* increasing her effort and productivity, and (b) the attractiveness, for *S*, of being promoted in the first place.

Concerning (a): If there are a lot of workers at each layer, they may be discouraged by the sheer magnitude of the competition. Hence, everything else equal we would expect the positive incentive induced by the Best strategy to be inversely proportional to the number of workers at each level. Concerning (b): Everything else equal, we would expect the positive incentive induced by the Best strategy to be proportional to the relative attractiveness of higher level positions. Everything else equal it should also be proportional to the attractiveness of the promotion process, e.g. whether there is an attractive promotion ceremony or a one-time financial or other reward given to promotees.

Hence, our model is plausible, we believe, to the extent that the following conditions are satisfied:

- Workers can control their own productivity
- There are not too many workers at each level (or the competition is in other ways not too stiff)
- Higher level positions are distinctively attractive
- The promotion process is itself attractive

Presumably these conditions are often satisfied in practice, e.g. in a sales department.

The double standard strategies will generally beat the Best strategy, unless CS holds. Hence, if the Best strategy induces a positive incentive and PH holds, or there is uncertainty concerning the transmission mechanism, we should not be surprised to find that the employer uses a double standard promotion strategy. However, in many organizations there is a common perception among workers regarding who, at a given level, is the most competent employee. In such cases, workers will be able to tell whether or not the best worker was in fact promoted. If the perception is that some worker other than the best one was promoted, then this is likely to be perceived as a breach of psychological

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such standards: protecting a low-quality (academic) community from outside pressure to conform to high-quality standards.

contract which in turn is likely negatively to affect the work morale and productivity.<sup>8</sup> The bottom line is that an employer using double standards may thereby take an unacceptable risk even in the short to medium term. We plan to extend our model by taking into account the negative effect that a double standards strategy may eventually have on the efficiency of an organization. The real world offers a variety of alternative strategies to combat the Peter effect. One example is to introduce horizontal career paths where financial and other incentives are offered for competent individuals staying at their current function. In this way, professional and managerial career paths can be separated and the loss of competence through vertical advancement reduced. Another is to introduce tests for skills and competencies needed at the higher level before actual promotion takes place. These other measures are not without problems of their own. The first strategy may lead to internal tensions in the organization due to a professional-management divide. Moreover, a pre-promotion test may be viewed negatively by workers as an unnecessary (and time-consuming) hurdle to justified promotion. Both issues may lead to productivity loss. Future work includes examining and comparing these and other alternative anti-Peter strategies.<sup>9</sup>

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<sup>8</sup> For the concurrence of group ranking of individuals and the importance of group members' belief that the status hierarchy is equitable see Robbins et al (2010), p. 242. For the concept of a psychological contract between employer and employee see Rosseau (1989).

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