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Optimal Turnover Rates and Performance in Public Organizations: Theoretical Expectations.

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Abstract

This paper advances a theory of optimal turnover rates in public organizations. In doing so, we first illustrate how public labor market conditions would affect optimal turnover rates of public organizations. After that, we develop a decision-theoretic model of public managers to show when turnover incurs costs or benefits to organizations. We also propose a set of testable propositions for future scholars, which posit the turnover-performance relationships being conditioned on various individual, organizational, and environmental contextual factors. We provide suggestions for empirical applications of the theory.

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INTRODUCTION

High quality human capital is essential in all organizations (Cho and Park, 2011) regardless of sector or industry. Recent commentators point to a human capital crisis facing the US government with significant portions of the workforce eligible to retire and the need for potential replacements (Bordia and Cheesebrough 2002; Liebowitz 2012; Soni 2004). To acquire and sustain high quality human capital, organizations invest significant amounts of human and financial resources in recruiting, hiring, and training employees (Lee and Mitchell, 1994). These investments, however, become sunk costs. If the new employees then leave, the organization needs to allocate additional resources for recruiting, hiring, and training new replacement employees. Because turnover has significant costs, the public management literature generally focuses on generating low turnover rates in organizations (e.g., Crewson 1997; Kim 2002; Wright and Kim 2004; Langbein and Stazyk 2018). This view aligns with human and social capital theories, which suggest that employee turnover is negatively associated with organizational performance,[1] because turnover can 1) cause the loss of firm-specific capital and skills that have been acquired by employees over time and 2) destabilize network structures among employees within the organization (Dess and Shaw, 2001; Mowday 1984; Ongori 2007; Strober, 1990).

Minimizing turnover rates, however, is not always the best managerial practice since it can require resources be allocated to retain employees that might be better spent in investing in technology or in delivering services to clientele. Too great a concern with any single

[1] We recognize that the performance of public organizations is highly contested with different stakeholders emphasizing different aspect of performance (Brewer 2006). At the same time organizations need criteria to evaluate managerial actions and using organizationally defined outcomes is common. We therefore conceptualize organizational performance broadly the degree to which outcomes are achieved and criteria are met as defined by organizations.

organizational aspect, including employee retention, can lead to suboptimization. Abelson and Baysinger (1984) propose a theoretical cost-benefit framework to suggest an inverted U-shaped relationship between employee turnover and organizational performance, first positive and then negative. In a similar vein, public management scholars have developed theoretical explanations for a nonlinear relationship between turnover and performance, incorporating a classic public administration hypothesis first proposed by Mosher and Kingsley (1936). To illustrate, at low levels of turnover, new hires who replace former employees can bring new ideas that can lead to positive changes in organizations and can prevent organizational rigidity or inflexibility, all of which can positively affect organizational performance (Meier and Hicklin, 2008; Moon, 2017; Lee, 2018). If turnover occurs too frequently, however, the total turnover costs can outweigh the benefits, thereby detrimentally affecting organizational performance. There are two variables that need to be considered in managing turnover. First, how quickly can organizations can find replacements at a reasonable cost after the employee who is leaving announces her/his last day at work? Second, how does the average quality of new hires compare to the average quality of leavers? These labor market conditions need to be incorporated into managerial decisions on dealing with turnover in the organization.

This paper has three major objectives. First, it seeks to stimulate research on turnover as an *independent* variable in public organization research; the current literature focuses primarily on the determinants of turnover rather than the consequences of turnover. Second, it presents a series of precise and testable hypotheses that are general in nature and amenable to empirical verification by scholars. Third, it considers turnover both as an organizational-level phenomenon and as individual level behaviors and decisions made by managers and employees.

The emphasis is on how an organization's environment including being a public organization affects these factors.

This paper incorporates labor market conditions and the quality of labor into the cost-benefit theoretical framework to provide a better understanding of the turnover-performance link in the context of public organizations. The manuscript proceeds as follows. We first introduce the cost-benefit model of turnover developed by Abelson and Baysinger (1984) and argue that Optimal Turnover Rates (OTR) should differ in the public sector due to the different labor supply and demand curves. Second, we present how changes in labor market conditions (increases in labor supply/demand) affect OTR in public organizations. Third, we develop a set of parsimonious decision-theoretic models of the turnover-performance linkage focusing on the quality of individuals, both those who leave the organization and those who newly enter the organization. The models discuss how turnover affects organizational performance and how the relationships differ according to various organizational and environmental characteristics. In doing so, we provide cases on whether and how to manage turnover or to minimize turnover. After that, we conclude with discussions and implications.

AN OVERVIEW OF OPTIMAL TURNOVER RATES FROM COST-BENEIFT THEORIES

The motivation for cost-benefit theories of turnover is based on the idea that not all types of turnover are dysfunctional (Abelson and Baysinger, 1984; Meier and Hicklin, 2008); turnover should be evaluated based on the costs it imposes on an organization compared to any corresponding benefits. For instance, instead of spending massive retaining costs (more job

training, greater perquisites, additional support staff, etc.) to minimize turnover rates (regarding turnover as a bad thing), coping with a certain level of turnover can be a more cost-efficient way for an organization to manage performance (Dalton and Todor, 1979, 226). There can be an OTR for an organization, and an effort to match the turnover rate close to OTR is a more desirable practice than seeking to minimize the rate. If an OTR exists, any turnover rates that deviate from it suggests the organization is inefficient and probably less effective.[2] The goal of human resource management in any organization, therefore, is to achieve an OTR by balancing turnover costs (TC hereafter) and retention costs (RC hereafter). Abelson and Baysinger (1984) define TC as "the costs associated with the separation of incumbent employees plus the costs of searching for and training new employees" (333) and RC as costs that occur to decrease turnover rates in an organization using such tools as higher compensation, promotions, better working conditions, and inter-departmental transfers. Figure 1 depicts the basic economic model of optimal turnover originally proposed by Abelson and Baysinger (1984) and shows the optimal rate of turnover in an organization is where RC and TC meet (RC = TC).

[Figure 1 about here]

In figure 1, y- and x-axes represent all turnover related costs (y) and turnover rates (x), respectively. From the perspective of human resource management, low turnover rates can be the result of high RC, given that RC increase through attempts to reduce turnover rates by spending organizational resources to retain employees (Abelson and Baysinger, 1984: 333). If an

[2] Effectiveness and efficiency might respond to suboptimal turnover in different ways. Suboptimal turnover will always be inefficient; however, it is possible that if turnover is too low that the resulting "inefficiency" can be used to increase effectiveness through either slack or using the resources to develop additional human capital. The leanest organization in terms of efficiency is not necessarily the best organization in terms of effectiveness.

organization spends more on RC than the optimal point (such that RC > TC) where TC and RC cross over, TC will go down as the organization successfully retains the current employees. In this case, as illustrated in the figure, at any other point beside the optimal one, Total Turnover Costs (TTC), the sum of vertical lines of RC and TC, are higher, which indicates that the organization is functioning inefficiently. A key takeaway from this figure is that if RC is greater than TC, an organization can improve its performance by redesigning their retention policies. In other words, if the organization pays equally high compensation for both poorly performing employees as well as skilled ones, managers may want to correct this practice, thereby increasing the efficiency of the organization. In the opposite case where TC is higher than RC, unless organizations can increase the retention costs to reduce turnover rates, the occurrence of any turnover adds to organizational costs and thus hurts organizational performance. To summarize, the key three assumptions derived from the model are; first, when turnover rates increase and RC>TC, organizational performance is likely to increase; second, when turnover rates increase and RC<TC, organizational performance is likely to decrease; and third, when TC≠RC, an organization is functioning inefficiently.

OPTIMAL TURNOVER RATES AND LABOR MARKET CONDITIONS

The cost-benefit theory suggests that turnover rates and turnover costs play an important role in determining the effectiveness/efficiency of organizations. Previous studies that investigate the turnover-performance link show negative (e.g., Alexander, Bloom, and Nuchols, 1994; Cannella and Hambrick, 1993; Meier, Mastracci, and Wilson, 2006), positive (e.g., Keck, 1997; Virany, Tushman, and Romanelli, 1992), and nonlinear relationships (e.g., An, 2019; Meier and Hicklin,

2008; Moon, 2017; Wynen et. al. 2019) between the two. The mixed results on this topic call for a better theory that can explain the phenomena. We argue that to understand the link, labor market conditions need to be considered, since labor supply and demand are not exogenous to turnover rates and costs. In other words, changes in the labor supply and/or demand are likely to affect turnover costs and retention policies in organizations. An employee's decision to quit (or a manager's decision to fire an employee) can also be conditioned on labor market conditions (that is, an employee is more likely to quit if there are attractive jobs in the labor market; and a manager is more likely to fire a worker who can be easily replaced). We define the labor demand as "the number of positions for qualified individuals" that organizations advertise for at a certain level of compensation, and the labor supply as "the number of qualified individuals willing to take those positions at a given level of compensation" (Grissom, Viano, and Selin, 2016, 242). The following section describes how OTR would differ by sector and how public managers can respond to changes in labor supply and demand in managing human resources.[3]

Sectoral Differences in Optimal Turnover Rates

An exit of public employees generates transactional costs for a government organization related to searching, hiring, and bargaining. While conducting such activities to hire a new employee, a government agency participates in a labor market where bureaucrats are the suppliers of labor (supply curve) and the agency is a buyer (demand curve) (Teodoro, 2015). The conditions of the governmental labor market, such as the supply of labor, can substantially affect the agency's

[3] Although we investigate whether OTR would differ between sector (public vs. private), the argument is likely to hold between industries and between public organization with different characteristics (see below). All arguments should be interpreted as ceteris paribus, that is, when organizations perform similar functions.

efforts to find a replacement. From the perspective of job candidates, labor market entry selection – i.e. whether the candidates will work in a public or private organization – is not random (see Lewis and Ng 2013); job candidates select a labor market based on their preferences (e.g., salaries, work hours, location, task significance, social impact, ambition, etc.). The non-random labor market entry process can make each sector or industry labor market unique. For simplicity, we assume that the number of qualified individuals for governmental jobs will vary depending on skill requirements and salary, holding motivation and ambition within a sector constant.

A second assumption is that labor supply and demand curves *on average* in the public sector labor market are likely to differ from the ones in the private sector due to different levels of salary (Wilson, 1994), job security (Rainey, 2009), and hierarchy (Downs, 1967) (We later relax this assumption to show how our theory can explain differences within the public sector). The different labor market conditions in the public labor market will influence the TC and RC curves in the model of OTR. First, in general RC curves in the public sector labor market are less likely to shift in comparison to the ones in the private sector because public managers have fewer managerial tools and options to retain public employees; public managers usually are less able to offer higher salaries or provide promotions when a highly skilled bureaucrat wants to quit (Nigro, Nigro and Kellough 2012).

Second, skill requirements and lower salaries in the public sector should influence the TC curve. In certain governmental agencies, acquiring policy-oriented knowledge or agency-specific expertise is necessary (Bertelli and Lewis, 2012). For instance, in regulatory agencies, without knowing the regulatory laws and other detailed procedures as well as how they are applied to a specific industry, bureaucrats will have trouble being effective at their work. Regulating

chemical exposure limits or drug efficacy is highly technical work. Knowledge about red tape or other bureaucratic procedures is also required for a government employee. Public organizations, however, may not be able to provide sufficient (at least material) rewards to their employees for acquiring these specific knowledge and expertise.

This is also an issue when coupled with the public organization's salary system, which is often mostly determined based on previous experience and educational attainment; public employees' salaries, as a result, are not necessarily based on their performance. The salary system can create a potential problem in recruiting talented individuals, which can become even more severe over time. For instance, environmental regulatory requirements for operating a public water facility have become more complex and technical than they were thirty years ago, which imposes greater job requirements (or skill requirements) on the bureaucrats who were recently hired in such agencies compared to those employed before (Cheremisinoff 2018). Yet, due to an inflexible wage system in the public sector, salaries for senior employees are more likely to be higher than those for new employees who might possess better skills and technical expertise. Insufficient incentives to obtain agency-specific skills and knowledge, as well as a pay system that is not based on performance, can discourage potential job applicants away from the labor market for public organizations.

To sum up, we argue that on average the labor supply in the labor market for government agencies might be more scarce compared to the market for private firms.[4] In such cases, a public agency's costs of searching and hiring would be greater. If a talented job candidate receives multiple offers, bargaining costs increase as well. Furthermore, for some governmental agencies (e.g., FBI and CIA), hiring processes often take months due to background checks and

[4] This argument should be interpreted as with all other things being equal, that is, seeking the same type of skills. The labor supply of accountants, for example, should different in the public and private sectors.

specialized exams. For these reasons, we posit that turnover costs in a public labor market on average are greater than those in a private labor market, especially when public managers have fewer means to retain employees compared to the managers in their private counterparts.[5] Applying this logic to Figure 1, the public TC curve is more likely to move to the left due to higher turnover costs. Figure 2 depicts the new OTR in public organizations. Based on the logic, if all other things are equal (e.g., organizations are performing the same function, etc.) the first proposition is:

Proposition 1: *The optimal turnover rate is lower for a public organizations than a private organization.*

Empirical applications: Comparing turnover rates and the impact on performance across sectors requires that the organizations perform similar functions to control for the task, the skills needed, and other factors. Such comparisons could be made with public and private prisons (Camp and Gaes 2002), public and charter schools, and other areas where both public and private organizations operate (e.g., hospitals, nursing homes, trash collection, mental health provision, etc.).

[Figure 2 about here]

Some turnover is due to death, illness, or similar reasons; these natural types of turnover are simply unavoidable. If natural turnover rates in an organization are close to OTR, managers have less room for managing turnover. Because OTR in private organizations is more likely to be

[5] For simplicity, figure 2 assumes no differences in RC between public and private organizations. If private organizations spend higher RC, the gap of optimal turnover rates between public and private organizations is likely to be greater (since optimal turnover rates for private organizations will be determined at a higher point than is illustrated in figure 2).

at a higher point than in public organizations (assuming natural turnover rates are lower than those optimal turnover points), public organizations are more likely to observe the negative effects of turnover on organizational performance sooner than private organizations would experience them.[6]

Optimal Turnover Rates in Public Organizations Responding to Labor Market Conditions

OTR of public organizations can change in response to changes in labor market conditions. Two cases will illustrate how the OTR would change in public organizations when the labor supply or demand increases. First, suppose that the public labor market becomes more competitive due to an influx of labor supply. In such cases, public managers can spend fewer resources recruiting talented employees compared to before. In contrast, job seekers will need to invest more in cultivating their expertise to acquire a job in this more competitive labor market; or, they may need to be willing to accept a job with worse conditions, such as a lower salary or more working hours. From the perspective of an organization, this means that the organization can get an equally skilled and qualified worker at a lower cost. If a newly hired employee has already invested more resources in developing their skills to simply get through the job market, the organization can allocate some of the human and financial resources currently being spent on training new employees to other organizational activities. An increase of labor supply, therefore, will lower all turnover related costs (from TRC1 to TRC2) and shift TC curve to the right (lowering turnover costs). When this occurs, OTR will be at a higher point, as shown in figure 3.

[6] This argument holds true if natural turnover rates are randomly distributed across sector. If natural turnover rates are higher than OTR, this may indicate that organizations have a functional problem in recruiting employees. In this case, every turnover is more likely to hurt organizational performance. This also suggests that the probability of organizational survival in the long term is more likely to be low.

In figure 3, the optimal turnover rate in a public organization moves from OTR1 to OTR2 due to an increase of labor supply. In this case, the manager in the organization has more room to manage organizational turnover. In other words, if the public organization was functioning at OTR1 initially, once the labor supply increases, the manager can encourage turnover by OTR2-OTR1 to improve organizational performance.[7]

[Figure 3 about here]

Proposition 2: *When the labor supply increases, optimal turnover rates in a public organization will be higher.*

Empirical applications: Schools in states that allow an easier alternative teacher certification process will have a relatively larger labor pool and could be compared to schools in states with restrictive certification. Similar comparisons might be made between public organizations that give exams for custodial workers versus those that do not or health care organizations that are allowed to substitute licensed practical nurses for registered nurses.

Second, suppose that the demand for labor in public organizations increases, perhaps as the result of program expansion, a major increase in clientele, or significant demographic shifts. As opposed to the first case that describes a more competitive labor market, turnover costs in public organizations are more likely to be greater in this second case. To illustrate, when an employee leaves her/his organization when the demand for labor is high in the labor market, an organization would be less likely to find a replacement with similar levels of skills and

[7] The manager might not encourage turnover but rather spend less on discouraging it when the supply of labor is ample. Afterall, if a manager can replace a worker with someone better qualified, then rationally the manager should not spend resources on retaining the employee.

knowledge unless they offer higher compensation or better working conditions.[8] Due to less flexible human resources systems in public organizations in general, however, public organizations are limited in offering and adjusting salaries or working conditions to attract good/qualified candidates. In this regard, to overcome the challenge, public managers might emphasize potential task significance and social impact of the work of public organizations (Gailmard and Patty, 2007). Public organizations can also use their unique brands or reputations, if they have any, to attract future employees or retain current employees (Carpenter, 2002; Lee and Whitford, 2013; Teodoro and An, 2018). These managerial actions will raise turnover costs.

[Figure 4 about here]

Figure 4 illustrates when there is a high level of labor demand in the market, turnover related costs for a public organization will first increase from TRC1 to TRC2. Since the RC curve in the public organization is more likely to be fixed, the TC curve in the figure shifts to the left, which determines the OTR at a lower point. In this case, public managers are likely to have less room for managing organizational turnover by OTR1-OTR2 in Figure 4.

Proposition 3: *When the demand for labor increases, optimal turnover rates in public organizations will drop.*

Empirical applications: An influx of immigrant students will increase the demand for bilingual instructors or the start up of a major industry that will compete with government agencies for

[8] This is exacerbated by the fact that these conditions will also be more likely to entice an employee to leave an organization.

workers (e.g., a new Amazon headquarters) could increase demand for some public employees and optimal turnover rates could be assessed before and after.

WHEN TURNOVER MATTERS: DECISION-THEORETIC MODELS OF EMPLOYEE TURNOVER

In addition to the labor market conditions presented above, we now focus on incorporating the quality of the employee in the turnover-performance model. A key take-away from the theory thus far is that excessively low or high turnover can be harmful for organizational performance because organizations will spend more resources on either retention or turnover costs than necessary. Organizations can spend less (or more) resources on retaining employees to encourage (or discourage) turnover rates to maximize organizational performance. The logic, however, is less likely to be applicable to public organizations, given that public managers have fewer managerial tools due to the less flexible reward systems in the public sector. Public management scholars, therefore, focus more on the quality of employees when examining the relationship between turnover and performance in a public organization, and argue that turnover can be beneficial to the organization if the replacements of leavers are more likely to bring new ideas, expertise, and skills that can revitalize the current workforce. Such benefits need to be contrasted with the turnover costs which at some point could exceed the benefits (see, Lee, 2018; Meier and Hicklin, 2008; Moon, 2017). The assumption can be formally expressed as:

$$P_n - TC > P_l \quad (1)$$

where P_n indicates performance of a new recruit, P_l denotes performance of the leaver, and TC is turnover costs that include Costs of Recruitment (CR), Costs of Training new recruit (CT), and Costs of Learning about organization-specific skills and the culture of the organization (CL). Equation 1 suggests that if a new recruit performs better compared to the leaver when accounting for the total turnover costs (C), encouraging turnover can be a strategic action for public managers: $P_n - P_l - TC > 0$, which means that turnover can benefit the organization. To illustrate, if public employees are significantly underperforming, by laying off or letting them go, public managers can remedy an incorrect hiring decision and thereby improve organizational performance.[9] The following equation illustrates the opposite case when the new recruit's performance is equal to or less than the leaver's performance.

$$P_n - TC < P_l \quad (2)$$

In the case of equation 2, an occurrence of turnover is likely to hurt organizational performance. In this situation, the best managerial strategy for public managers would be retaining employees who intend to leave, especially if those employees are highly skilled and valued in the organization. A key assumption in equations 1 and 2 is that an organization can immediately find a replacement once an employee leaves. If the organization cannot find a replacement immediately, turnover costs become greater as organizations operate suboptimally for a period of time until they find a suitable replacement. Furthermore, comparing a new

[9] A classic case of encouraging turnover occurred in the Federal Trade Commission after a scathing report by the Nader organization that pointed out the agency preferred to hire law school graduates from the bottom third of Southern law schools. When Caspar Weinberger became chair of the FTC in 1970, he became known as "Cap the Knife" for his ability to push out FTC employees and replace them with new, more talented recruits (see Meier 1985).

recruit's performance to the leaver's might not be realistic since experience is one of the key factors that determines an individual's performance in the organization (Hunter and Thatcher, 2007; Juenke, 2005; Quińones, Ford, and Teachout, 1995). In other words, when a new employee is hired, due to the learning curve and time to adjust to the new environment, it is more likely that she/he might not perform as well as the leaver initially. Thus, when a manager is hiring a new employee, perhaps rather than a direct comparison of performance between the newcomer and leaver, she/he might consider potential qualities of candidates, which may appear only after some time has passed. Formally put,

$$\sum_{t=0}^{T}\left(P_{n,t} - TC_t\right) > T \cdot P_l, \text{ where } t\text{=time and } T\text{= the total length of time} \quad (3)$$

In equation 3, when $t = 0$, $P_{n,t}$ is more likely to be equal to zero, since it is likely that an organization may not be able to find her/his substitute at the moment of the leaver's departure. Until the organization finds a suitable candidate, the gap of performance between the leaver and a new hire and total turnover costs will increase. The total turnover costs, however, will decrease once the organization finds a substitute. For instance, the costs of recruiting (CR) will become zero after the organization hires a replacement of the leaver, since the organization does not need to spend their efforts and resources on recruiting a new employee. Note that $P_{n,t}$ is more likely to increase over time, assuming that the recruitment was successful. In this case, the costs of training (CT) and the costs of learning (CL) will also decrease due to the learning effect of the new employee.

Suppose that the benefits to the organization exceed the costs from the occurrence of turnover at t_3; the total length of time when a new recruit will perform better than the leaver is 3.

In this case, equation 3 can be rewritten as $P_{n,0} + P_{n,1} + P_{n,2} + P_{n,3} - (TC_0 + TC_1 + TC_2 + TC_3) - P_l \cdot 3 > 0$ (turnover benefits the organization). If *T* is shorter than 3 in this example, the effects of turnover remain negative. When it comes to a hiring decision, the realization of T for a public organization is more likely to depend on managerial patience (considering the long-term performance of a replacement of the leaver rather than short-term). Yet, regardless of levels of managerial patience, organizations would always prefer a shorter *T*, because while *T* increases, the costs associated with waiting for the new hires to perform well increases.[10,11] In addition, it is worth noting that public managers pay attention to the performance of the organization as a whole, rather than focusing on the performance of individual employees specifically. For instance, a manager's level of patience might be higher in an organization with many good performers, while the opposite is the case for a manager who works in an organization with low quality of workers.[12] In other words, organizational and environmental characteristics can also affect the relationship between turnover and performance. The following section explains four major factors that should be considered in the effect of turnover on performance in public organizations: the quality of employees in an organization, labor market conditions (the labor supply and demand), organizational size, and social capital in the organization.

Employee Quality in the Organization

[10] If *T* is always too long in organizations, this indicates that the organization may have a problem in their hiring process or attracting quality candidates from the labor market.

[11] If managerial patience is constant or if an organization has rules or policies that require a newcomer to show a certain level of performance in a certain period of time (that is, a probationary period), whether or not employee turnover improves organizational performance solely depends on various individual, organizational, and environmental characteristics, which can affect the length of *T*.

[12]The tradeoff might not be just between the leaver and the new hire. Managers might redistribute some of the leaver's functions among existing employees to make the newcomer's job easier. Alternatively, the manager might have another employee who can be promoted to fill the leaver's job with no loss in output and thus be able to replace the vacancy at a lower level of skill (and thus in a more favorable labor market).

Even if turnover rates are the same across organizations, the effects of organizational turnover would be different depending on the quality of leavers (Hausknecht and Holwerda, 2013), as well as the quality of employees who remain in the organization. Reflecting the notion of employee quality, recent public management scholars have distinguished between voluntary and involuntary turnover (e.g., An, 2019; Lee, 2018; Moon, 2017), as opposed to focusing on just the quantity of turnover using total turnover rates (e.g., Meier and Hicklin, 2008). The idea is that the distinct origins of each type of turnover would affect organizational performance differently (see An, 2019; Lee, 2018). For instance, voluntary turnover would more likely have a negative effect on organizational performance since capable employees with more alternatives are more likely to quit, while involuntary turnover would have an inverted-U shaped relationship due to the initial benefits of laying off low-performing employees up to a certain point (An, 2019).

Though the categorization of voluntary and involuntary turnover is useful to capture the quality of leavers, the previous studies only take the quality of leavers into account; they do not fully capture other dynamics such as the quality of the newcomers and remaining employees in the organization. Considering the quality of newcomers and remaining employees in the organizational workforce is equally important (Hausknecht and Holwerda, 2013), not only because the average quality of remaining employees is conditioned on the quality of leavers but also because managerial patience for new hires is more likely to be affected by the performance of leavers as well as by the remaining employees. More importantly, both the quality of newcomers and the remaining employees are more likely to affect organizational performance. To illustrate, if high-performing employees leave an organization, the effects of employee turnover are more likely to be negative on organizational performance (McEvoy and Cascio,

1987). The negative effects would become stronger if the rest of employees in the organization are relatively new (i.e. lack experience or have fewer skills) or the replacements of high-performing leavers have low levels of human capital (Hausknecht and Holwerda, 2013). In this regard, we present three propositions:

Proposition 4: *The turnover of high-performing employees has a more detrimental effect on organizational performance.*

Empirical applications. If one assumes that individuals who voluntarily leave the organization are higher performing than those who are terminated (see An, 2019), this could be tested with existing data sets that distinguish by reasons for turnover. Alternatively, one might measure high performance by school principal's school test scores or by how rapidly an employee had been promoted.

Proposition 5: *The effects of turnover are more detrimental when the replacements of leavers have lower levels of human capital.*

Empirical applications: Testing this proposition is dependent on the ability to assess both the skills of the labor pool and the skills of the exiting personnel. Perhaps this could be done for agencies employing scientists if a measure of research productivity was available.

Proposition 6: *If organizations are functioning with relatively inexperienced personnel, organizational turnover is more detrimental.*[13]

Empirical applications: Most public data bases that measure turnover also measure worker experience so there are many applications. One example is the interaction of turnover and

[13] The experience hypothesis is based on the relative need for experience in an organization; as fast food franchises and sales call centers demonstrate, in some organizations' jobs can be designed such that very little if any experience is necessary to perform a job. Many public organizations operate call centers, but we found little discussion in the public administration literature on them.

worker experience in child protective services.

Labor Market Conditions

Changes in labor supply and demand can affect turnover benefits or losses since labor market conditions affect total turnover costs. In other words, the turnover-performance link is likely to be contingent on labor market conditions. To illustrate how changes in a labor market conditions affect the turnover-performance link, we use cases from the context of K-12 education, which has a similar human resource management system and turnover rate as many other government organizations (Grissom, Viano, and Selin, 2016). Examples from other policy areas will also be included to support the generality of the theory.

Case 1: Changing a hiring standard

The labor supply can increase or decrease depending on a hiring standard in a labor market. In the K-12 education labor market, to apply for a teaching position in a public school in the US, applicants need to have a teacher certification. Although the requirements for the certification vary by states, in general one must have a bachelor's degree granted from an accredited college or university and should have passed tests for necessary knowledge and skills. Imagine a state passed a law that removes the requirement of teacher certification to overcome shortages of teachers for certain subjects (in many states, for example, charter schools are not restricted by teacher certification requirements). By lowering the standard, we would expect an increase of labor supply in the K-12 education labor market; individuals without a teacher certification can

now apply for a teaching position in K-12 schools.[14] In this case, TC costs will be reduced and/or turnover rates will be determined at a lower level. To illustrate, first, for an organization, the costs of searching are likely to decrease due to an increased labor supply. Once a teacher decides to leave, a school can find a replacement for the employee more easily. Second, from the perspective of teachers, since the labor market becomes more competitive due to an increase in the labor supply, employees are more likely to work harder to keep their current job and they will think about their exit options more carefully if they were originally planning to leave the school. In these cases, all turnover related costs are more likely to decrease from the perspective of the organization as a whole. By analogy, adding a new employment standard (e.g., all math teachers must have a master's degree in math) would have the opposite effect.

Proposition 7: *Turnover would be less (more) detrimental to organizational performance when the labor supply increases (decreases) in the labor market, holding the labor demand constant.*

Empirical applications. Labor supply for many government agencies means college graduates, and the rise and fall of such labor with state or local markets could be tracked based on new college graduates within various fields. Within specialist areas such as forestry, scholars could get relatively precise estimates of labor supply based on college degree production. Similarly, any set of jobs that currently requires certification (accountants, engineers, etc.) could increase the labor pool by allowing experience to substitute for certification.

Case 2: Environmental Turbulence and Labor Demand

[14] Whether this change in standards affects the performance of the organization will depend on whether or not the requirement is a bona fide occupational qualification.

The second case will illustrate how changes in the labor demand would affect optimal turnover rates in organizations. Here we provide an example of an occurrence of a natural shock: Hurricane Katrina. When Hurricane Katrina hit New Orleans, many Hurricane Katrina evacuees moved to neighboring states (e.g. Texas, Mississippi). Students from New Orleans enrolled in schools in neighboring states since many schools in their hometown were destroyed or closed for safety reasons. When the natural shock of student enrollments occurred, teachers in the neighboring state were burdened with higher workloads simply because they had to teach more students (and perhaps students who had lower levels of skills). If teachers leave the school due to the increased workloads, it would be more difficult for a school manager to find replacements unless the school offers higher wages that would reflect the increase in the demand for labor in the market; in this case, turnover would become more costly.

Proposition 8: *Turnover would be more detrimental to organizational performance when there is turbulence in the labor market, holding the labor supply constant.*

Empirical Applications. Additional cases can be gleaned relative to natural disasters. Hurricane Harvey led to the use of agricultural extension agents being used for disaster relief requiring a significant change in job descriptions.

Case 3. Considering Variation in Public Personnel Systems.

For purposes of argument, this paper assumed that public personnel systems are more restrictive than private personnel systems in terms of limits on managerial action, hiring processes, rewards and other factors. At the same time, it is important to recognize that public personnel systems

vary a great deal as traditional civil service systems have been eroded by efforts to give managers more discretion even to the application of the employment-at-will doctrine to public employees (Maynard 2013). Several US states including Georgia, Arizona, Florida, and Indiana have legislatively adopted the "employment at will doctrine" (Maynard 2013; Muhl 2001), a highly criticized private sector doctrine that permits dismissals without cause, or passed laws that eliminated other civil service protections (Hayes and Sowa 2006). Other governments such as Wisconsin have restricted the actions of public labor unions to remove job protections (Dau-Schmidt and Lin 2011) or contracted out public programs to avoid civil service restrictions on human resources management (Bel and Fageda 2007). Cross-nationally the variation in public personnel systems varies even more in terms of flexibility or lack thereof (Van der Meer, Raadschedulders, and Toonen 2015).

The consideration of the restrictiveness of the personnel system as a variable generalizes this theory so that it can deal with comparisons among public organizations such as similar agencies across nations, states or cities. The generalization also implies that the theory is applicable to the use of alternative organizational forms to implement public programs such as contracting, the use of non-profits, and the creation of networks. Contracting, in particular, can be used to circumvent restrictive personnel processes (Kramer and Grossman 1987). The two previous cases of changing a hiring standard or changes in environmental conditions, as a result, might be considered special cases of simply treating the restrictions on the management of public employment as a variable that affects the linkage between turnover and performance.

Case 4. Facing Multiple Labor Markets.

Although the theory focused on parsimony by treating public organizations as if they faced a single labor market, that is clearly not the case. Virtually all public organizations hire a wide range of personnel and operate in multiple labor markets simultaneously. A national organization such as the US Department of Agriculture competes in national labor markets for agronomists, entomologists, agricultural economists and other technical specialists, but at the same time faces a local labor market to staff clerical and other support personnel. Given the vast number of field offices of the Department, the agency also must complete in a variety of more narrow markets (e.g., soil conservation experts willing to live in West Texas, urban foresters, etc.). These multiple labor markets qualify many of the existing propositions. Logically, the propositions presented are more likely to apply to mission critical personnel rather than general support personnel such that the Forest Service and its performance is more reliant on turnover among foresters than among its clerical support staff. Similar to all theories, the propositions are posited in general terms but need to be adapted to the specific types of organizations that are being studied.

Organizational Size

The key idea of cost-benefit theory related to the turnover-performance link is to determine how to better use resources in organizations. If, for instance, organizations spend too much on retention costs, encouraging turnover can be a managerial strategy since they can spend saved resources on other core functions. If the key that determines the turnover-performance link is resource utilization, organizations with more resources are more likely to be in a better position to manage turnover.

Among organizations that perform the same tasks, that is, have similar personnel and face similar labor markets, organizational size becomes a factor. In a large organization, if turnover occurs, an immediate replacement of the leaver might not be necessary; a public manager may be more likely to find a substitute within the current workforce of the organization until they find a suitable candidate. Larger organizations also tend to accumulate and/or have more slack resources (Voss, Sirdeshmukh, and Voss 2008). If the resources used in a search for new employees are from those slack resources, the occurrence of turnover might not be very harmful (as opposed to recruiting new employees using resources from core functions). When it comes to human resource management practices, larger organizations tend to also have better systems and practices prepared for the occurrence of turnover, such as procedures and strategies for searching, hiring, and training new employees (Strohmeier and Kabst 2009). For instance, they might have a specialized human resources division that can efficiently recruit and train personnel. If a small organization does not invest in those managerial activities due to a small number of turnovers, recruitment and training processes might be less efficient and effective. Turnover costs, therefore, could be even greater when there is a sudden occurrence of turnover in a small organization.

Lastly, job candidates' decisions to apply for positions are not random. Large organizations are more likely to attract job candidates for various reasons such as higher reputations, brands, and greater job security (Barber et al., 1999; Carpenter, 2002; Lee and Whitford, 2013). Furthermore, if job candidates are more motivated to work in a public organization due to task significance and potential social impact, they would have more opportunities to have a larger impact on society as they move up the hierarchy in a large organization. Taken together, turnover costs in large organizations would be less costly than for

small organizations that perform the same function.

Proposition 9: *Turnover is less detrimental to organizational performance in a large organization.*

Empirical applications. Several examples from local social services could be cases. Child protective services, criminal justice probation supervision, and infant nutrition programs in the US are often organized at the county level resulting in some very large organizations and some with few employees. Turnover should matter more in the smaller agencies.

Organizational Social Capital

At the organization level, turnover costs are not only attributable to replacement, training, and learning costs but also related to the disruption of social networks and social capital in the workforce. Over time, employees not only develop skills and knowledge through their job and experience but also build trust and network with others in the organization (as applied to top management see Perry and Mankin 2007). A sudden departure of co-workers can, thus, have negative consequences for the organization's social capital, and thus hinder communications among employees as well as between employees and managers. This disruption can undermine trust among employees, deter cooperation among staff, and so forth. When a loss of human capital due to an occurrence of turnover combines with a loss of social capital, the effects of turnover can be much greater in an organization (Shaw et al., 1998).[15]

[15] Within an organization with a low level of social capital, the decrease of social capital due to an event of turnover would be minimal. Yet, if a low level of social capital attributes to high turnover rates in an organization, turnover could still be detrimental to organizational performance.

Proposition 10: *Turnover costs can be indirect through the disruption of networks with the end result of lower levels of organizational social capital that in turn affects performance.*

Empirical applications. Testing this proposition would require measures of individual networks before and after turnover. This might be best done by case studies of top managers or perhaps looking at non-profit boards and the diversity of their networks.

Minimizing Turnover: High Uncertainties in Hiring Processes

Thus far we have discussed the management of turnover, based on assumptions that turnover is not always bad and that the effects of turnover on organizational performance should be considered. Yet, there is a situation where turnover always brings out negative consequences for the organization and, therefore, should be minimized: when an organization faces a high level of uncertainty in hiring processes.

Managers often deal with uncertainties in hiring procedures due to information asymmetries between future employees and employers (Autor, 2001). The level of uncertainty could differ depending on the specific needs and skills required for certain government jobs; the average and standard deviation of labor quality of potential public employees can vary. In practice, to ensure the quality of employees, organizations often implement long screening processes. As an example, when a university hires a faculty member, they pay candidates to visit and interview each candidate for two to three days. If a job requires higher skills and knowledge, or deals with security issues, the hiring processes can take longer (e.g., FBI, CIA, and NASA), which in turn can impose significant costs to organizations. If turnover occurs in such cases (positions that require higher levels of skills and knowledge or necessitate extensive

examinations to select suitable candidates) and if the organization fails to replace the leaver in a timely manner, the costs of turnover become greater as the organization continues to operate suboptimally (An, 2019). If a public organization faces higher uncertainties in hiring a good quality public employee, therefore, the likelihood of hiring the inferior as the replacement of a leaver also increases. In such cases, managers should focus more on minimizing turnover rather than taking the risk of looking for the appropriate replacement.

The logic above also applies to political uncertainty. In the US, changes in the partisanship of top elected officials frequently results in job freezes or attempts to significantly alter the types of government services provided through the budget process. Public managers, as a result, might be more concerned with minimizing turnover simply because they are uncertain if any employees who leave can be replaced.

Proposition 11: *If organizations face higher uncertainties in hiring qualified employees, public managers are better off focusing on minimizing organizational turnover rather than managing it.*
Empirical applications. This proposition can be best tested within a single organization that employees many different types of employees. Some of these such as information technology people will be in a more uncertain labor pool than will clerical personnel.

DISCUSSION AND CONCLUSIONS

This paper presents a theoretical exposition on how optimal turnover rates change according to labor market conditions and the quality of employees, and how public organizations can better tackle changes in the supply and demand of labor in the market to make and sustain a well-

performing organization. It adds knowledge to the theory base on turnover and organizational performance in at least two main ways.

First, this study is among the first to take labor market conditions and employee quality into consideration to investigate the relationship between turnover and performance in public organizations. Previous studies on this topic generally regard turnover as a disruptive event that negatively affects the organizational performance. While several studies find that the effect of turnover may not simply be negative (An, 2019; Meier and Hicklin, 2008; Moon, 2017; Wynen et. al. 2019) in public organizations, they offer different mechanisms to explain the relationship between turnover and the performance of organization, which calls for a better theory on organizational turnover. Incorporating the supply and demand in the labor market and the quality of employees who leave and newly enter the organization, we not only examine the turnover-related costs at the individual level (i.e. employees and managers) using decision-theoretic models, but also explore the costs of turnover at the organizational level (propositions 4 to 11). By doing so, this study yields insights on how public organizations can better manage the occurrence of turnover to enhance the organizational performance.

Second, we develop testable propositions throughout the paper, which encompass the issues of sector differences in optimal turnover rates, the changes in the turnover-performance link according to labor market conditions and employee quality, and the differences in the effects of turnover on performance according to various organizational and environmental factors. These propositions merit further empirical investigation using different datasets and employing a variety of organizational contexts, including different types of public, private, and nonprofit organizations. Such efforts would advance our knowledge on how to deal with organizational

turnover, which is one of critical issues in human resources and performance management in organizations.

The current examples do not exhaust the applications of the model. The model could be applied to major human resource policy actions such as types of veteran's preference laws, e-verify, quota systems, or to the establishment of "employment at will" mandates. Interesting applications might exist to cases where there are segmented labor markets or major selection bias in professions (such as the gender preferences for nursing or teaching) which can dramatically affect the quality of available in the labor pool. The model can also be applied at the individual level to consider how decisions by employees and employers present strategic situations that enhance the bargaining power of either the employee (when labor is in short supply) or the manager (when labor is in oversupply).

Although the presentation here has been theoretical, empirical research using the theory has potential applications for the practice of human resource management and the efforts to maximize organizational productivity. The "human capital" crisis currently facing the US government calls for a more strategic approach to managing human resources and that includes paying greater attention to turnover (Bordia and Cheesebrough 2002; Liebowitz 2012 Soni 2004). Similarly, the New Public Management maxim to "do more with less" creates pressure for public managers to generate higher outputs with existing human resources as slack resources decline and labor supply shrinks. Public managers and public organizations can clearly benefit from paying attention to the benefits and costs of turnover in their efforts to improve government performance.

References

Abelson, Michael A, and Barry D Baysinger. 1984. "Optimal and dysfunctional turnover: Toward an organizational level model." *Academy of Management Review* 9 (2): 331–341.

Alexander, Jeffrey A, Joan R Bloom, and Beverly A. Nuchols. 1994. "Nursing Turnover and Hospital Efficiency: An Organization-Level Analysis." *Industrial Relations: A Journal of Economy and Society* 33 (4): 505–520.

An, Seung-Ho. 2019. "Employee Voluntary and Involuntary Turnover and Organizational Performance: Revisiting the Hypothesis from Classical Public Administration." *International Public Management Journal* doi/full/10.1080/10967494.2018.1549629

Autor, David H. 2001. "Wiring the labor market." *The Journal of Economic Perspectives* 15 (1): 25–40.

Barber, Alison E, Michael J Wesson, Quineita M Roberson, and M Susan Taylor. 1999. "A tale of two job markets: Organizational size and its effects on hiring practices and job search behavior." *Personnel Psychology* 52 (4): 841–868.

Bel, Germà, and Xavier Fageda. 2007. Why do local governments privatise public services? A survey of empirical studies. *Local Government Studies* 33 (4): 517-534.

Bertelli, Anthony M, and David E Lewis. 2012. "Policy influence, agency-specific expertise, and exit in the federal service." *Journal of Public Administration Research and Theory* 23 (2): 223–245.

Bordia, Anit and Tony Cheesebrough. 2002. *Insights on the Federal Government's Human Capital Crisis*. Cambridge: Kennedy School of Government. https://ourpublicservice.org/wp-content/uploads/2002/07/2e2fd83a502ed7231bc91e725331aad0-1414079558.pdf

Brewer, Gene A. 2006. "All measures of performance are subjective: More evidence on US federal agencies." in George A. Boyne, Kenneth J. Meier, Laurence J. O'Toole Jr, and Richard M. Walker, eds. *Public service performance: Perspectives on measurement and management.* Cambridge University Press, 35-54.

Camp, Scott D., and Gerald G. Gaes. 2002. "Growth and quality of US private prisons: Evidence from a national survey." *Criminology & Public Policy* 1 (3): 427-450.

Cannella, Albert A, and Donald C Hambrick. 1993. "Effects of executive departures on the performance of acquired firms." *Strategic Management Journal* 14 (S1): 137–152.

Carpenter, Daniel P. 2002. "Groups, the media, agency waiting costs, and FDA drug approval." *American Journal of Political Science* 46 (3): 490–505.

Cheremisinoff, Paul N. 2018. *Handbook of water and wastewater treatment technology*. New York: Routledge.

Cho, Yoon Jik, and Hanjun Park. 2011. "Exploring the relationships among trust, employee satisfaction, and organizational commitment." *Public Management Review* 13 (4): 551–573.

Dalton, Dan R, and William D Todor. 1979. "Turnover turned over: An expanded and positive perspective." *Academy of Management Review* 4 (2): 225–235.

Dau-Schmidt, K.G. and Lin, W. 2011. The great recession, the resulting budget shortfalls, the 2010 elections and the attack on public sector collective bargaining in the United States. *Hofstra Labor & Employment Law Journal* 29: 407-432.

Downs, Anthony. 1967. *Inside bureaucracy*. Boston: Little-Brown.

Gailmard, Sean, and John W Patty. 2007. "Slackers and zealots: Civil service, policy discretion, and bureaucratic expertise." *American Journal of Political Science* 51 (4): 873–889.

Grissom, Jason A, Samantha L Viano, and Jennifer L Selin. 2016. "Understanding Employee Turnover in the Public Sector: Insights from Research on Teacher Mobility." *Public Administration Review* 76 (2): 241–251.

Hausknecht, John P, and Jacob A Holwerda. 2013. "When does employee turnover matter? Dynamic member configurations, productive capacity, and collective performance." *Organization Science* 24 (1): 210–225.

Hays, Steven W., and Jessica E. Sowa. 2006. A broader look at the "accountability" movement: Some grim realities in state civil service systems. Review of Public Personnel Administration 26, (2): 102-117.

Hunter, Larry W, and Sherry MB Thatcher. 2007. "Feeling the heat: Effects of stress, commitment, and job experience on job performance." *Academy of Management Journal* 50 (4): 953–968.

Juenke, Eric Gonzalez. 2005. "Management tenure and network time: How experience affects bureaucratic dynamics." *Journal of Public Administration Research and Theory* 15 (1): 113–131.

Keck, Sara L. 1997. "Top management team structure: Differential effects by environmental context." *Organization Science* 8 (2): 143–156.

Kramer, Ralph M., and Bart Grossman. 1987. "Contracting for social services: Process management and resource dependencies." *Social Service Review* 61 (1): 32-55.

Langbein, Laura, and Edmund C. Stazyk. 2018. "The Anatomy of Retention in the US Federal Government: Exit, Voice, or Money?" *International Public Management Journal* 21 (1): 33-52.

Lee, Shinwoo. 2018. "Employee Turnover and Organizational Performance in US Federal Agencies." *The American Review of Public Administration.* 48 (6): 522-534.

Lee, Soo-Young, and Andrew B Whitford. 2013. "Assessing the Effects of Organizational Resources on Public Agency Performance: Evidence from the US Federal Government." *Journal of Public Administration Research & Theory* 23 (3): 687–712.

Lee, Thomas W, and Terence R Mitchell. 1994. "An alternative approach: The unfolding model of voluntary employee turnover." *Academy of Management Review* 19 (1): 51–89.

Lewis, Gregory B., and Eddy S. Ng. 2013. "Sexual orientation, work values, pay, and preference for public and nonprofit employment: Evidence from Canadian postsecondary students." *Canadian Public Administration* 56 (4): 542-564.

Liebowitz, Jay. 2012. *Addressing the Human Capital Crisis in the Federal Government*. New York: Routledge.

McEvoy, Glenn M, and Wayne F Cascio. 1987. "Do good or poor performers leave? A meta-analysis of the relationship between performance and turnover." *Academy of Management Journal* 30 (4): 744–762.

Maynard, Melissa. 2013. States Overhaul Civil Service Rules. USA Today (Aug. 27, 2013), https://www.usatoday.com/story/news/nation/2013/08/27/states-civil-service-government/2707519/ accessed January 26, 2019.

Meier, Kenneth J. 1985. *Regulation: Politics, Bureaucracy and Economics*. New York: St. Martin's Press.

Meier, Kenneth J, and Alisa Hicklin. 2008. "Employee turnover and organizational performance: Testing a hypothesis from classical public administration." *Journal of Public Administration Research and Theory* 18 (4): 573–590.

Meier, Kenneth J, Sharon H Mastracci, and Kristin Wilson. 2006. "Gender and emotional labor in public organizations: An empirical examination of the link to performance." *Public Administration Review* 66 (6): 899–909.

Moon, Kuk-Kyoung. 2017. "Voluntary turnover rates and organizational performance in the US federal government: the moderating role of high-commitment human resource practices." *Public Management Review.* 10 (10): 1480-1499.

Mosher, William Eugene, and John Donald Kingsley. 1936. *Public personnel administration*. Harper & Brothers.

Mowday, Richard T. 1984. "Strategies for adapting to high rates of employee turnover." *Human Resource Management* 23 (4): 365-380.

Muhl, Charles J. 2001. The employment-at-will doctrine: three major exceptions. *Monthly Labor Review*. 124: 3-11.

Nigro, Lloyd G., Felix A. Nigro, and J. Edward Kellough. 2012, *The new public personnel administration*. Thousand Oaks, CA: Cengage Learning.

Ongori, Henry. 2007. "A review of the literature on employee turnover." *African Journal of Business Management* 12 (16): 49-54.

Quińones, Miguel A, J Kevin Ford, and Mark S Teachout. 1995. "The relationship between work experience and job performance: A conceptual and meta-analytic review." *Personnel Psychology* 48 (4): 887–910.

Perry, Ronald W., and Lawrence D. Mankin. 2007. "Organizational trust, trust in the chief executive and work satisfaction." *Public Personnel Management* 36 (2): 165-179.

Rainey, Hal G. 2009. *Understanding and managing public organizations*. 4th ed. John Wiley & Sons.

Shaw, Jason D, John E Delery, G Douglas Jenkins, and Nina Gupta. 1998. "An organization-level analysis of voluntary and involuntary turnover." *Academy of Management Journal* 41 (5): 511–525.

Soni, Vidu. 2004. "From Crisis to Opportunity: Human Resource Challenges for the Public Sector in the Twenty-First Century." *Review of Policy Research* 21 (2): 157-178.

Strohmeier, Stefan, and Rüdiger Kabst. 2009. "Organizational adoption of e-HRM in Europe: An empirical exploration of major adoption factors." *Journal of Managerial Psychology* 24 (6): 482-501.

Teodoro, Manuel P. 2015. "Dress for the Job You Want: Bureaucratic Job Markets as Markets for Public Policy." Paper presented at the *Midwest Political Science Association*.

Teodoro, Manuel P, and Seung-Ho An. 2018. "Citizen-Based Brand Equity: A Model and Experimental Evaluation." *Journal of Public Administration Research and Theory*. 28 (3): 321-338.

Van der Meer, Frits M., Jos Raadschelders, and Theo Toonen, eds. 2015. Comparative civil service systems in the 21st century. London: Springer.

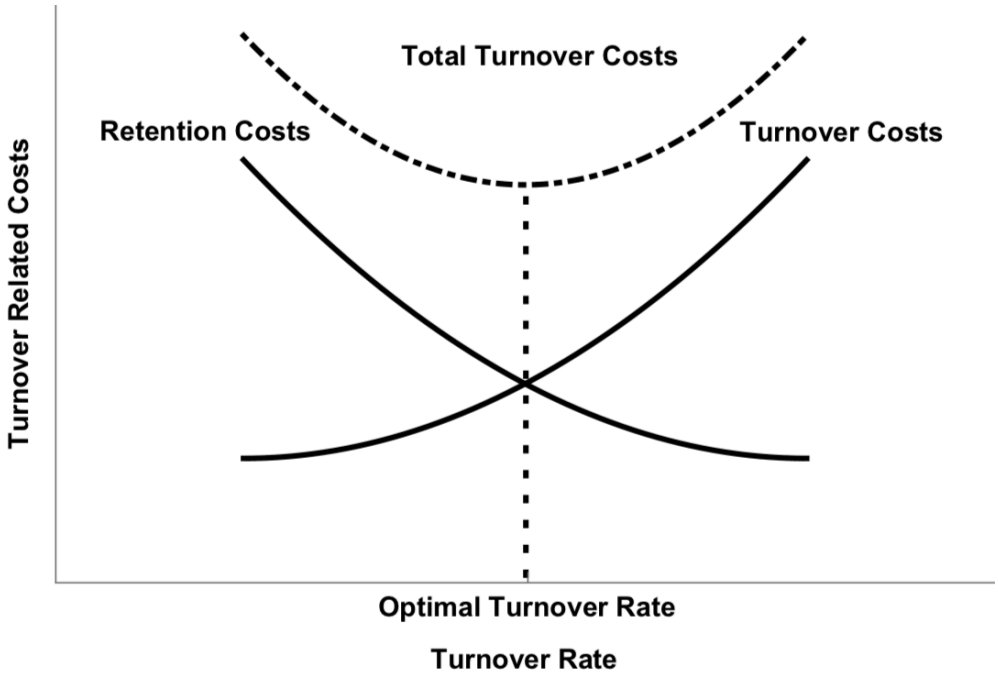
Virany, Beverly, Michael L Tushman, and Elaine Romanelli. 1992. "Executive succession and organization outcomes in turbulent environments: An organization learning approach." *Organization Science* 3 (1): 72–91.

Voss, Glenn B., Deepak Sirdeshmukh, and Zannie Giraud Voss. 2008. "The effects of slack resources and environmental threat on product exploration and exploitation." *Academy of Management Journal* 51 (1): 147-164.

Wilson, Patricia A. 1994. "Power, politics, and other reasons why senior executives leave the federal government." *Public Administration Review* 54 (1): 12–19.

Wynen, Jan, Wouter Van Dooren, Jan Mattijs, and Carl Deschamps. 2019. "Linking turnover to organizational performance: The role of process conformance." *Public Management Review* 21 (5): 669-685.

Figures



Source: Abelson and Baysinger (1984)

Figure 1: A model of optimal turnover rate

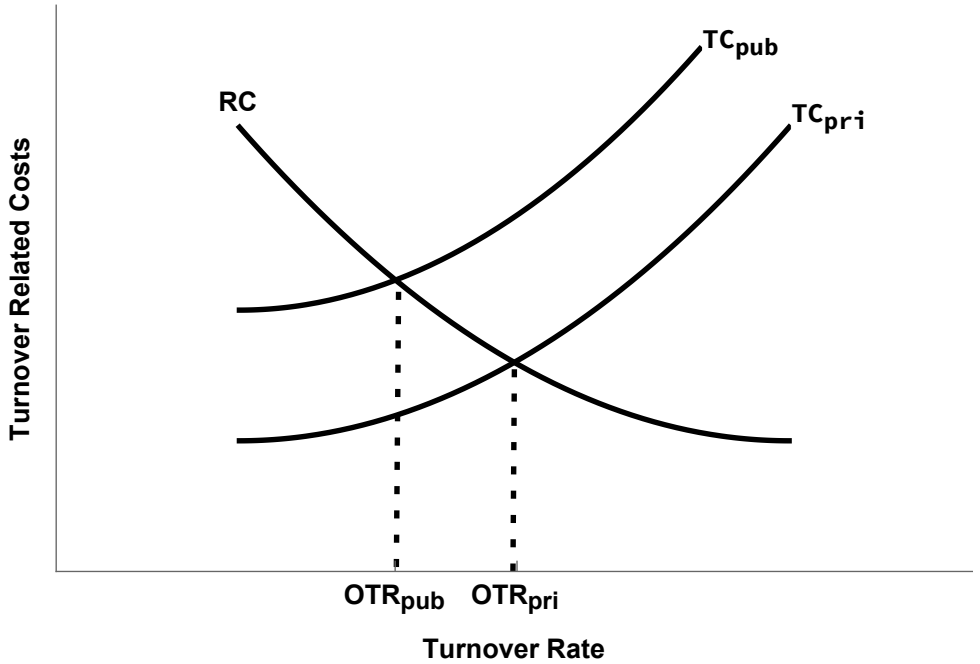


Figure 2: A model of optimal turnover rates in public organizations

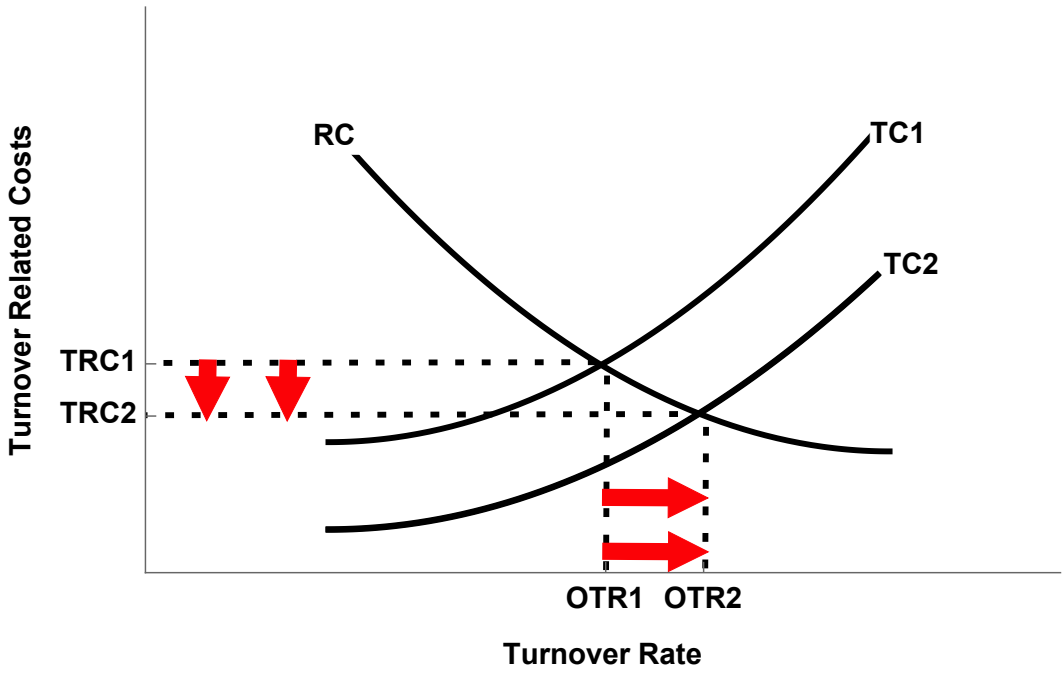


Figure 3: Optimal turnover rates responding to an increase in labor supply

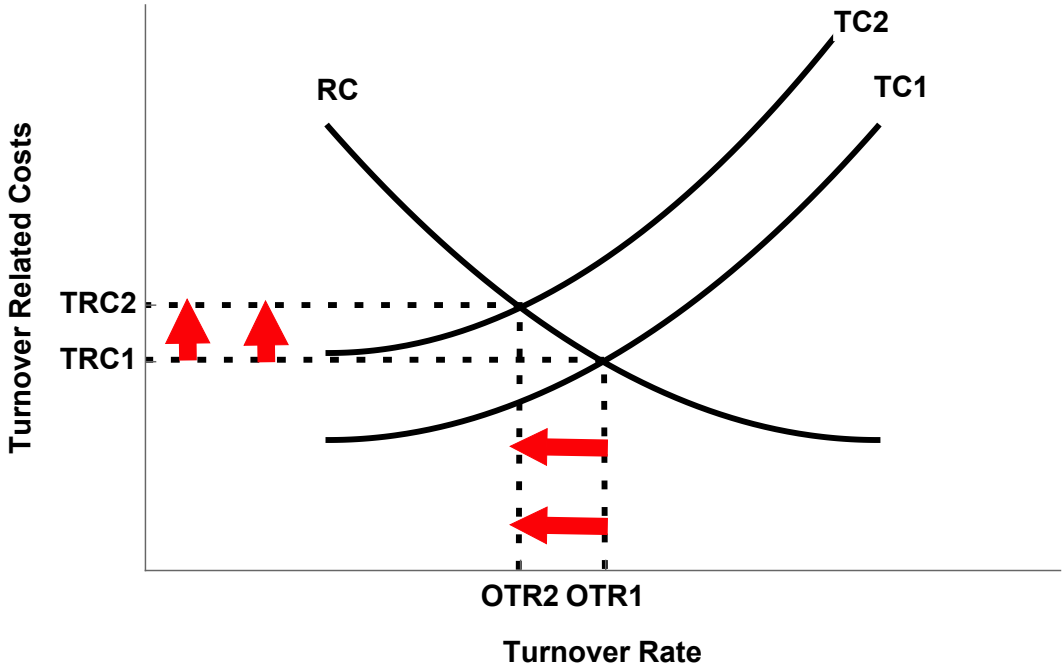


Figure 4: Optimal turnover rates responding to an increase in demand for labor