

The Baldrige Award's falling fortunes

David Cook and Weiyong Zhang

*Department of Information Technology and Decision Sciences,
College of Business and Public Administration,
Old Dominion University, Norfolk, Virginia, USA*

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Abstract

Purpose – The purpose of this paper is to explore two explanations for the Baldrige Award's decline. The management fashion literature suggests that it is a waning management fad, and the marketing choice literature suggests the likely presence of an ISO 9000 substitution effect.

Design/methodology/approach – This exploratory study utilizes data collected on Baldrige Award applications, publications, ISO 9000 certifications and economic indicators. These data are contrasted to explore patterns and trends, and correlation analyses conducted to reveal the plausibility of the fad and substitution effect explanations for the Baldrige Award's decline.

Findings – Data analysis confirms the Baldrige Award's prolonged decline and strongly suggests it is in the final stage of a management fashion life cycle with support provided for the presence of an ISO 9000 substitution effect.

Research limitations/implications – Many organizations have shifted their attention away from the Baldrige as a means to quality and performance excellence, and there is evidence that the ISO 9000 standards are a viable substitute.

Practical implications – The Baldrige Program has served its purpose with the Baldrige Award being the pinnacle of recognition for performance excellence achievement. However, the Award is in decline and the Baldrige Program is on a path to financial exigency. The Baldrige must be reframed to recover its role as the preeminent approach to performance excellence.

Originality/value – The paper satisfies the need to examine potential causes for the diminishing role of the Baldrige Award and challenges both academicians and practitioners to reexamine the Baldrige Program.

Keywords ISO 9000, Baldrige award, Correlation analysis, Substitution effect, Management fashion

Paper type Research paper

1. Introduction

The Malcolm Baldrige National Quality Award (MBNQA), widely referred to as the Baldrige Award is the national quality award that recognizes US organizations that have achieved performance excellence. The award is made annually to eligible organizations in six categories: manufacturing, service, small business, healthcare, education and non-profit. The Baldrige Performance Excellence Program (BPEP) offers a comprehensive framework for performance excellence, assessments, tools, training and a community for those dedicated to facilitating organizational improvement. The Baldrige Program's Excellence Framework has long been considered by many as the *de facto* standard for effective total quality management (TQM) (Meyer and Collier, 2001) and has helped many US businesses improve their quality and achieve performance excellence (Pannirselvam *et al.*, 1998; Meyer and Collier, 2001; Flynn and Saladin, 2001, 2006).

While there is little doubt that quality and performance improvement are highly important to performance excellence, the number of Baldrige Award applications has declined substantially from its 1991 peak. The Baldrige Award was initially met with great enthusiasm and was asserted to be responsible, in part, for the burgeoning interest by American executives in quality management and for providing a set of guidelines that could



serve as a “road map” to world-class quality (Reimann, 1989). Skepticism surrounding the Baldrige Award and the efficacy of TQM emerged rather quickly and by 1994 a decline in small business applications was already being discussed in the popular press (Marsh, 1994). Along with an overall reduction in the number of Baldrige applications, other issues have emerged. For example, in a study of blinded scoring data made available by the Baldrige Program for the period of 1990–2006, Evans (2010, p. 49) noted a decline in “performance relative to the Baldrige criteria within the for-profit sectors, suggesting a lack of sustained improvement or attention to the criteria changes.” Furthermore, a gap in performance was identified where small businesses were significantly outperformed by larger organizations; however, education and healthcare appeared to be making progress in their efforts relative to the Baldrige criteria. Clearly, the lack of progress in performance by small business and for-profits in general should raise concerns given their importance and potential impact on the economy.

The focus of this study is to address the apparent lack of progress, indeed, the declining presence of the Baldrige Award itself in the form of decreased application rates. This is potentially a strong negative signal regarding the impact of the BPEP and Baldrige Excellence Framework against which Baldrige Award applications are judged.

The underlying cause(s) for declining Baldrige application rates remain(s) largely unidentified. We offer two plausible explanations for this trend that find their roots in theories from the extant literature. The first explanation has its basis in the management fashion literature. It is essentially an explanation that suggests that the Baldrige Award has become decreasingly relevant, or attractive, to organizations in the USA. This does not necessarily indicate that quality management itself has become irrelevant in the USA, but it is possible that Baldrige, a specific approach and framework for quality management, has become less relevant. If so, the implications are that the Baldrige Award and its underlying framework must be rejuvenated for it to regain its stature. A second explanation is rooted in the marketing choice literature and involves what is known as the substitution effect. This explanation posits that other programs for, or approaches to, quality management have become more desirable when compared to the Baldrige Program. Hence, the attention of organizations has been directed away from pursuit of the Baldrige Award. After all, in environments characterized by a scarcity of resources, there is a limit with respect to which (and how many) quality-related efforts can be funded. Programs such as Six Sigma, Lean Six Sigma and ISO 9000 certification are obvious potential competitors to the Baldrige Award for organizational resources.

This paper first addresses the possibility that the Baldrige Award and, by extension, the BPEP is a management fad that is beyond its prime. Drawing upon the management fashion literature, we examine the Baldrige Award life cycle through the optics of application rates and the frequency with which the Baldrige Award has appeared in the literature. The evidence supports the suggestion that the Baldrige Award exhibits characteristics of a management fad. It must be pointed out, however, that this analysis alone does not explain the faddish behavior of the Baldrige Award. We posit that a plausible explanation for this faddish behavior is that managers have turned their attention toward ISO 9000 certification and away from the Baldrige Award. Drawing upon the literature on the substitution effect, we offer support for the assertion that ISO 9000 certification meets the requirements necessary for it to be considered a substitute for the pursuit of the Baldrige Award. Using available data for the number of Baldrige Award applications submitted and ISO 9000 certificates issued, we offer empirical evidence for the substitution effect’s existence.

The remainder of this paper is organized as follows. In the next section, we provide an overview of the MBNQA, its value and report evidence for the decline in Baldrige Award application rates. In Section 3, we examine the possibility that the Baldrige Award is a passing management fad. In Section 4, we explore whether ISO 9000 certification has

become a substitute for the pursuit of the Baldrige Award. Additionally, in this section, we raise the question of whether there is a relationship with Baldrige Award applications and ISO 9000 certification to competitive pressures and/or economic health. The paper concludes with a discussion of the results and their implications as well as the limitations of the current study and future directions for research.

2. Malcolm Baldrige National Quality Award

2.1 Background

The MBNQA was established by an act of Congress in 1987 with the stated objective of “encouraging American business and other organizations to practice effective quality control in the provision of their goods and services.” Not only was the award intended to recognize organizations that practice effective quality management, it was also established so that knowledge of successful strategies and programs could be broadly disseminated (Public Law 100–107, 1987).

The impetus to move forward with the creation of a national quality award was born of tragedy. In 1986, House Bill 5,321 (legislation to establish a National Quality Award) was never acted on by Congress. The legislation was reintroduced to Congress in 1987 with a similar measure being introduced to the Senate. The measure was passed by the House on June 8, 1987 and sent to the Senate where no action was taken for six weeks. While there was broad support for the establishment of a national quality award, lack of an agreement regarding the right approach for its implementation threatened the passage of the legislation required for its creation. Tragically, quality advocate and Secretary of Commerce Malcolm Baldrige died on July 25, 1987 following a rodeo accident. His death provided the rallying point needed to move forward with the creation of a national quality award. Three days following Mr. Baldrige’s death, the Senate passed the bill having renamed it, with House approval, in his honor. On August 20, President Reagan signed the Malcolm Baldrige National Quality Improvement Act of 1987 into law (Foundation, 2012).

The Baldrige Award was initially established to recognize businesses in three categories: manufacturing, service and small business (500 or fewer employees). A maximum of two awards could be made in any single category per year with no requirement that an award be made in a category if no qualifying application was received. Today, Baldrige Awards are made in six categories with a maximum of three awards allowed in any single category. Healthcare and education categories were added in 1999 and the non-profit (including government) category was added in 2007 (ASQ, 2017).

The process for managing the Baldrige Award program has been constructed to assure its integrity. Applying for the Baldrige Award is a two-step process. The first step involves the submission of an eligibility certification package that consists of a number of elements (NIST, 2010). The eligibility certification form collects basic information about the applying organization that assists in creating an organizational profile and that helps to avoid potential conflicts of interest when assigning examiners to the application. Additional elements of the package include an organization chart, a non-refundable fee, proof of the date the package was submitted and an optional nomination of a senior member of the organization to the Board of Examiners. In the second step, the applying organization submits the award application package comprised of: the award application form, copies of the application (both paper and electronic), appropriate fees and proof of the date the package was submitted.

Each application package is carefully reviewed by a team from the Board of Examiners which is composed of leading business scholars and industrial experts (e.g. recipients of past awards). Examiners first conduct individual reviews of the application against the criteria for performance excellence to identify areas of application strength and opportunities for improvement. The team, led by a Senior Examiner, is then convened to

reach a consensus on feedback and scores for the application. Based upon these reviews, the Judges' Panel determines which organizations should receive site visits.

Organizations selected for site visits provide application updates, and a team of examiners led by a Senior Examiner visits the organization. During the site visit, the team reviews pertinent records and conducts interviews for the purposes of verifying and clarifying the information contained in the application. The site visit team then submits a report to the Judges' Panel which conducts final reviews and recommends award recipients to the Director of the National Institute of Standards and Technology (NIST) who in turn passes the recommendations to the Secretary of Commerce. Together, the Director and Secretary determine whether the recommended award recipients are appropriate role models and should receive the award, and the Secretary of Commerce then selects recipients. An award ceremony is usually conducted in the spring and awards presented by the President of the USA or a designee.

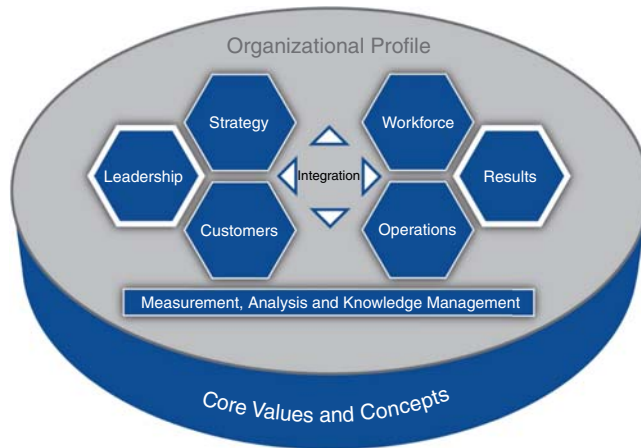
By design, only a few organizations can be recognized as Baldrige Award recipients, and it is reasonable to expect only organizations that have a chance to win will apply. Nonetheless, many organizations have participated despite knowing their prospects for winning were slim. The benefits of applying for the Baldrige Award extend well beyond the possibility of being recognized for performance excellence. All organizations, at the point at which they exit the process, receive detailed feedback reports that characterize their applications' areas of strength and opportunities for improvement. To limit applications from organizations considered to be less far along in their quality journeys, the program eligibility rules were revised in 2012.

The Baldrige Award application process has been promoted as one of self-discovery involving benchmarking and performance improvement. Prior to applying for the Baldrige Award, organizations can leverage all that the BPEP offers, including numerous tools for self-assessment and organizational learning. Throughout the journey, organizations gain a greater understanding of their quality management practices and performance levels. Benchmarking is incorporated into the process so that participating organizations know where improvement efforts are needed.

Numerous studies have been conducted that suggest there is tremendous value in the maintenance of an effective TQM program. Hendricks and Singhal (1997) found, using organizations that had won quality awards such as the Baldrige as proxies for firms that had successfully implemented TQM, that award winners had a 107 percent higher growth in operating income and 64 percent greater sales than their control sample counterparts. Zhang and Xia (2013), in a replication and extension of this study, provided further empirical evidence of the long-lasting effects of TQM on firm performance. Link and Scott (2011) estimated the financial benefits that accrued to organizations submitting Baldrige applications relative to the Baldrige Program's operating costs. In their study, the estimated benefit-to-cost ratio for 273 unique Baldrige Award applicants between 2007 and 2010 was 820 to 1. Other studies have sought to examine the impact on firm market value that results from winning the Baldrige Award. Jacob *et al.* (2012), in their evaluation of the literature, find that study results have been mixed, but that award winners do witness an increase in market value.

2.2 Baldrige excellence framework

The Baldrige Excellence Framework, against which Baldrige Award applications are judged, is published annually. The seven criteria of the framework are predicated upon a systems perspective of the management principles necessary for performance excellence (see Figure 1). Each criterion included in the framework is further divided into criterion items with these items containing areas to address. The areas to address are then characterized by item requirements that are expressed as questions or statements.



Source: NIST (2015)

Figure 1.
The Baldrige award
framework

For example, in the 2013–2014 Criteria for Performance Excellence (BPEP, 2013), the Leadership category was subdivided into Senior Leadership and Governance and Societal Responsibilities. The areas to address within Senior Leadership included: Vision, Values and Mission, and Communication and Organizational Performance. The Vision, Values and Mission area, in turn, was assessed using answers to ten questions.

The framework is built upon well-recognized quality management theories, and its effectiveness has been recognized by practitioners and in academic research (Flynn and Saladin, 2001, 2006; Meyer and Collier, 2001; Pannirselvam *et al.*, 1998). In academic research as well as practice, the Baldrige Award framework has, over time, been recognized as being synonymous with TQM, or more precisely, an actionable plan for the implementation of TQM (Meyer and Collier, 2001), and the Baldrige called a TQM model award (Mann and Voss, 2000). The Baldrige criteria and the Baldrige Excellence Framework have developed over time as a reflection of the ever-changing competitive landscape and “evolving concepts of quality” (Lee *et al.*, 2006). According to Evans and Lindsay (2014, p. 532), the criteria have “been streamlined and simplified to make them more easily understood and useful to organizations of all types and sizes, and its content revised to reflect the most relevant business practices and contemporary organizational thinking.”

2.3 Declining Baldrige Award application rates

The number of Baldrige Award applications is important because it is potentially reflective of the BPEP’s ongoing viability and its relative importance to organizations. This issue is particularly relevant given the elimination of federal funding for the program in 2012 and the concomitant erosion of Baldrige Foundation endowment funds. The Baldrige Award has witnessed an ongoing decline in total applications for many years, especially in the three original award categories. Data on the number of Baldrige applications by category have been made available for the period 1988–2015 (NIST, 2009). We reviewed these data to gain an overall view of, and insights regarding, year-over-year changes in Baldrige Award applications (Figure 2).

One can see an apparent decline in the number of applications over time accompanied by a precipitous drop beginning with the 2011 award cycle. Arguably, the magnitude of the overall decline has been somewhat masked by the expansion of the award categories in 1999 (education and healthcare) and 2007 (non-profit). Eliminating the applications that have been submitted in the new categories reveals a troubling trend in the original award

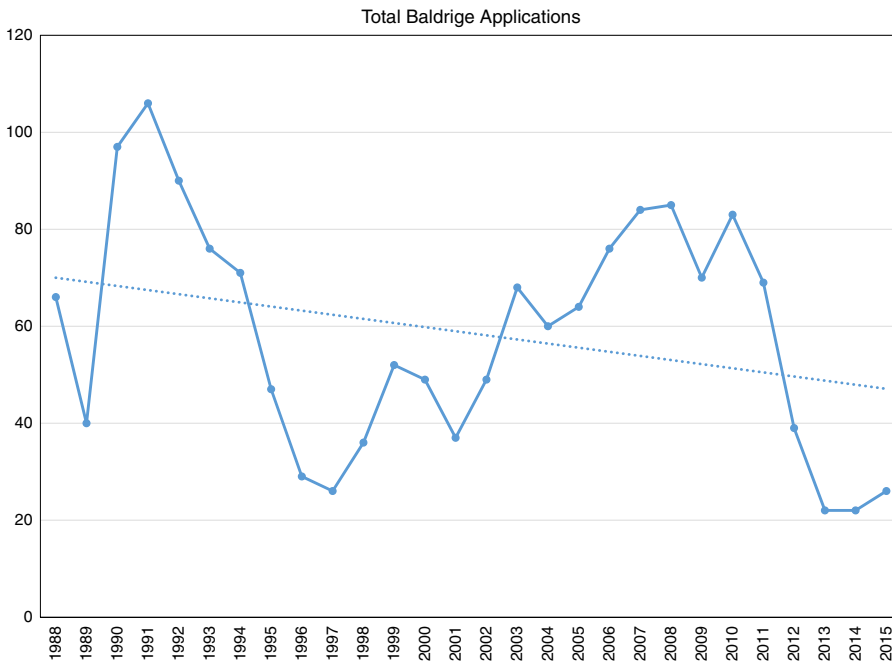


Figure 2.
Baldrige award applications 1988–2015

categories (Figure 3). As can be clearly seen, the number of applications in these areas has declined to the point where no manufacturing category applications were submitted between 2013 and 2015 and only two applications each in service and small business were received during the period.

While the data suggest that there has been a comparably robust application history in the healthcare, education and non-profit award categories (see Figure 4), the overall decline in applications is real. The healthcare category has been rather consistent with respect to the number of applications received. Since its inception as an award category, healthcare has accounted for nearly 48 percent of all Baldrige applications while education has accounted for approximately 19 percent of applications and the original categories combined have accounted for only about 26 percent of total applications. It is worth noting that when a new award category has been introduced, there has typically been an initial surge in applications followed by a general decline. In fact, in evaluating the data, only the number of healthcare category applications indicates a slight upward trend since its inception. Each of the other five categories indicates an overall downward trend in applications with the downward movement most severe in manufacturing, service and small business.

The declining trend identified in Figure 2 raises an important question: why are there fewer Baldrige Award applicants over time? A declining trend might reasonably be interpreted as a lack of interest in the award. Is it possible that the Baldrige Award is viewed as being less valuable than in the past? If so, its relevance in the current economic environment is subject to challenge and should potentially be stopped or revised to regain its stature, particularly among practitioners. However, before one can begin to realistically contemplate solutions to reversing the apparent decline in award applications, it is necessary to consider potential explanations for the observed trend. Based on a review of the literature, we identify two plausible explanations for the downward trend in Baldrige Award applications: it was a management fad and the substitution effect.

Figure 3.
Baldrige applications
in original categories

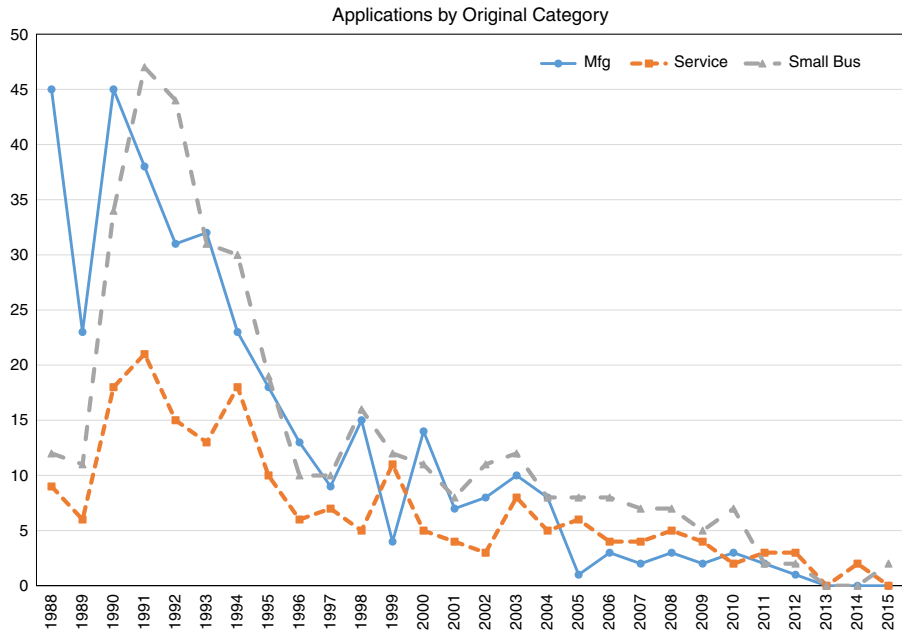
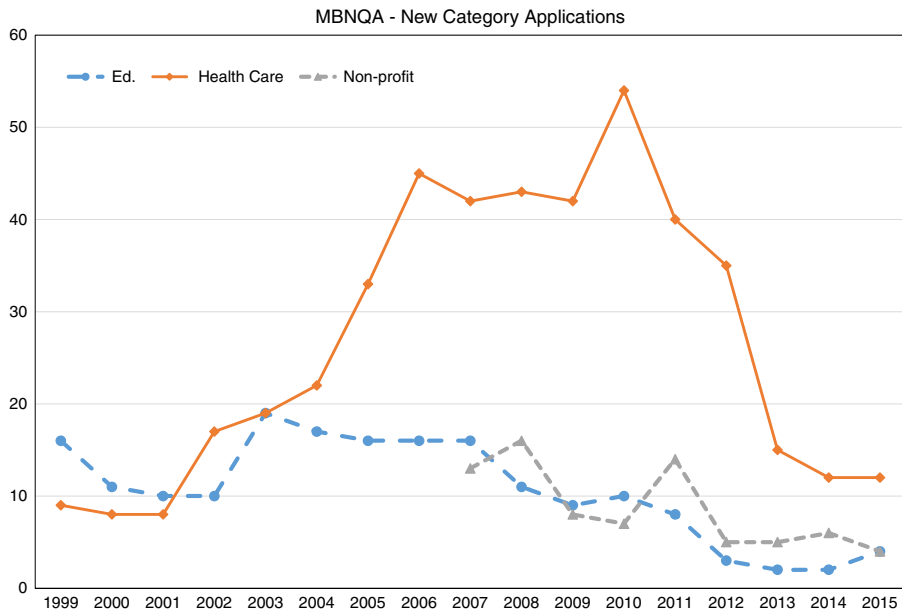


Figure 4.
New MBNQA award
category applications



3. Management Fad

The terms fad and fashion have frequently been used interchangeably to describe the diffusion of management innovations (Abrahamson, 1991). Management fashions have been characterized as transitory collective beliefs, pushed by management fashion setters, that a

particular management technique leads rational managerial progress (Abrahamson, 1996). More recently, management fads have been defined as “managerial interventions which appear to be innovative, rational and functional and are aimed at encouraging better organizational performance” (Carson *et al.*, 1999, p. 321). It is important to note that the terms fad and fashion are not intended to be pejorative since they can affect organizations in significant (positive or negative) ways (Miller and Hartwick, 2002).

Management fads are often said to explode upon the business scene, remain prominent for some period of time and then fade away as they are replaced by the next fashion. This suggests that management fads exhibit a life cycle. The life cycle of management fads has been variously characterized in the literature (e.g. Abrahamson, 1996; Ettorre, 1997; Carson *et al.*, 1999) with some suggestion that they often follow a bell-shaped curve. One particular incarnation of the management fad life cycle suggests that fads progress through five stages: discovery, wild acceptance, digestion, disillusionment and hard core (Ettorre, 1997). In the discovery phase, there is only marginal awareness of the fad. In effect, the fad being born has yet to begin its ascension. During wild acceptance, the management fad experiences a rapid rise in prominence and the associated intervention is widely adopted. During the digestion stage of the life cycle, the fad comes under close scrutiny by critics, especially when its expected, or promised, results are not fully realized. At this point, the possibility of fad adaptation often arises. Disillusionment occurs when the fad’s fallibility is widely recognized and many abandon it. Finally, in the hard core stage, the management fad is largely abandoned with only loyal adherents likely to remain.

Generally speaking, management fads within a particular niche can all but disappear into obscurity as they are rejected as being ineffective, be replaced by substitute fads, or evolve into the realm of established managerial practice. New management fads tend to follow a pattern where they emerge in the wake of a previous fad’s collapse or elimination, or on the tail of the previous fad being supplanted. Further, the new fad remains latent until the collapse of the previous fad at which point it surges in popularity (Abrahamson and Fairchild, 1999). At some point, the intervention associated with a management fad can become so ingrained and well-established, and the market so saturated that they become a permanent fixture and evolve into managerial practice (Carson *et al.*, 1999). Management fads are more likely to evolve into something more permanent if they meet certain conditions: they fit with the basic culture and values of society; they offer significant benefits; they are adaptable to the specific needs of an organization; they address the root cause of a problem as opposed to a symptom; they fit with other common interventions and programs in place; and they are supported by key stakeholders as well as by objective measures of effectiveness (Letscher, 1994).

3.1 *The Baldrige Award as a fad: what evidence?*

The existence of quality fads and their life cycles has been a topic of some study over the course of approximately the past 20 years (Abrahamson, 1996; Abrahamson and Fairchild, 1999; Carson *et al.*, 1999; Gibson and Tesone, 2001; Goeke, 2005; Näslund, 2008) with quality circles, TQM and Six Sigma being commonly considered. Gibson and Tesone (2001) suggest that both quality circles and TQM have progressed through the discovery, wild acceptance, digestion, disillusionment and hard core stages of the management fad life cycle. For the TQM life cycle, the hard core stage commenced in approximately 1996. Six Sigma, which bears a striking resemblance to TQM, emerged in its wake. Goeke (2005) noted a strong similarity in the early portions of their life cycles and utilized analogy forecasting to project the future of the Six Sigma life cycle. Carson *et al.* (1999) conducted a correlation study to relate publication frequencies for a variety of management fads to common economic indicators (balance of trade, consumer confidence, gross national product and unemployment). Their results showed significant relationships between balance of trade and consumer confidence with quality-related topic publication frequencies.

Given the evidence that supports the existence of management fad life cycles, and their applicability to quality, we use the same methodologies that have been commonly applied in the extant literature on the subject to examine whether the Baldrige Award is behaving in a similar manner. This would not be particularly surprising given that many consider the BPEP to be analogous with TQM. For the purposes of this analysis, we look at two possible life cycle measures: Baldrige publication frequencies and Baldrige applications. We assert that the total Baldrige publication frequency is reflective of the overall interest (both academic and practitioner) in the Baldrige Award. On the other hand, at the level of Baldrige Performance Excellence Framework implementation, the Baldrige Award application measure is, perhaps, a more direct reflection of the level of interest, and value placed, in the award by users.

To collect data on the publication frequency of the Baldrige Award, we utilized the ABI/INFORM database which is considered one of the most comprehensive business research databases available. We performed a search to identify citations where “Baldrige” appeared in the citation title or the subject. We also performed a search to identify publications where the terms TQM, “Total Quality Management,” or “Total Quality” appeared in the citation title or subject. Data were collected for the period 1974 through 2017. Figure 5 reveals a publication frequency that offers support that the Baldrige Award has exhibited faddish behavior, as described in the literature, similar to that of TQM. There was a period of brief awakening surrounding the Baldrige Award followed by a rapid increase in interest. A precipitous decline in publications regarding the Baldrige ensued; however, over the course of approximately the last 15 years there has been fairly steady, if not voluminous, attention paid to it. Figure 5 also shows the publication frequency for TQM compared to that of the Baldrige Award where TQM citations appear on the primary vertical axis and Baldrige Award citations are on the secondary axis. So, while the volume of TQM citations is significantly greater compared to the Baldrige Award, the resemblance of the two life cycles is striking with the movement of the Baldrige Award through the life cycle stages appearing to slightly lead those of TQM.

Further examination of Figure 2 reveals that the Baldrige Award life cycle appears to exhibit characteristics similar to those suggested in the literature for TQM. The number of Baldrige Award applications submitted rapidly reached a peak in 1991 with a total of 106 applications submitted. Shortly after the emergence of the Baldrige Award, its critics lodged three familiar complaints: it was considered to require significant up-front investment, the award was flawed because it was an inaccurate predictor of an organization’s financial success, and it did not honor superior product or service quality (Garvin, 1991). As the initial enthusiasm surrounding the Baldrige Award was dampened by reality, and criticisms of the award, the number of applications declined rather rapidly to a near-low 26 applications in 1997.

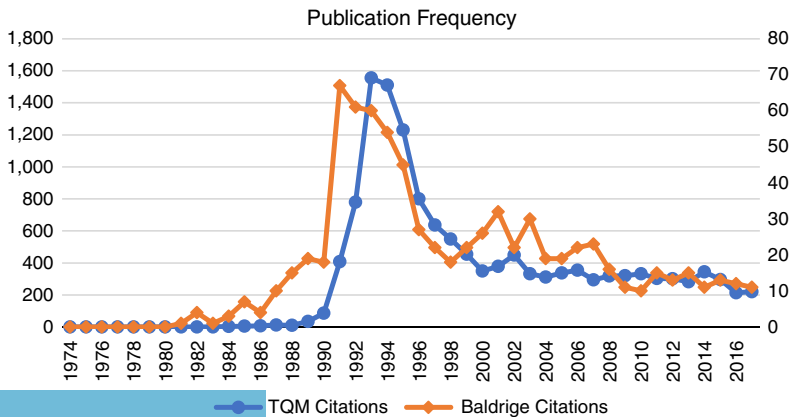


Figure 5. TQM and Baldrige citations

A modest resurgence in applications began shortly thereafter; however, by 2012 applications had once again subsided and reached their lowest levels in the award's history. It is worth noting that the eligibility requirements for the Baldrige Award were made more restrictive in 2012 in order to limit less organizationally mature applications; however, application rates were already in rapid decline prior to this change.

The distribution (see Figure 3) of Baldrige Award applications among the original categories (manufacturing, service and small business) reveals steadily declining application rates. The most robust numbers of applications initially occurred in the manufacturing and small business categories with the service category tending to attract relatively fewer applications. The introduction of the education and healthcare categories of the Baldrige Award were introduced in 1999 following an earlier pilot program. Figure 4 suggests the resurgence in the total number of Baldrige Award applications is largely attributable to those submitted in the healthcare category and to a lesser extent those received in education and, subsequently, non-profit. The data tend to suggest that the healthcare category of the Baldrige Award has exhibited a life cycle not dissimilar to the original Baldrige categories, though the build up to its peak number of applications and post-peak behavior are not as pronounced. Interestingly, the education and non-profit categories do not show the same type of faddish, or life cycle, behavior. Their behavior seems to mimic what was observed in the original Baldrige categories over the time frame. It is possible, perhaps, that the healthcare category possesses a life cycle independent from the rest of the Baldrige categories. This suggests that its life cycle may well be distinct from the TQM life cycle, and that it should be considered on its own merits.

If we accept the evidence that the Baldrige Award has experienced a life cycle similar to that of TQM, then it is apparent that for many years it has been languishing in what has been termed the hard core stage of the life cycle. So, what does this mean? Does it mean that TQM and, by extension, the Baldrige Award are no longer relevant? As a practical matter, it is possible that the Baldrige Award has lost its importance to organizations and/or organizations have gained interest in other quality-related programs. Or, is it possible that the principles and methods of the Baldrige have become institutionalized? As a consequence, it may be less necessary to consider such principles and methods as extensively in the literature. The question of the degree to which the Baldrige principles and methods have been embedded into organizational routines and processes is one that is difficult to gauge without obtaining firm-level data regarding their quality approaches and practices. As such the question is beyond the scope of the current research effort.

The lost relevance argument is one that bears some consideration. There is clearly a high overall level of interest in the subject of quality. Figure 6 shows the number of citations by year where the term "quality" appeared in the citation's subject in the ABI/INFORM database. Data are shown from 1987 to 2017 to coincide with the period since the establishment of the Baldrige Award. While growth in the number of citations with quality as the subject has not been without some fluctuations, there were over 9,200 such citations in 2017 compared to approximately 900 citations in 1987. So, though the issue of quality's relevance should not be called into question, it is fair to question how relevant the Baldrige Award is in today's business environment. Studies, as indicated earlier, provide support for the Baldrige Award's relevance through the lens of its impact on firm performance and value. The BPEP has been said to be the model for nearly 100 excellence programs internationally and more than 30 Baldrige-based state and regional award programs in the USA. Further, during the period 2010–2014, more than 4m copies of the Baldrige Criteria were distributed (NIST, 2016). Arguably, the BPEP should not yet be called irrelevant; however, its status is in a tenuous position. We now turn our attention to the issue of whether it is possible that a viable substitute has emerged for the Baldrige Award.

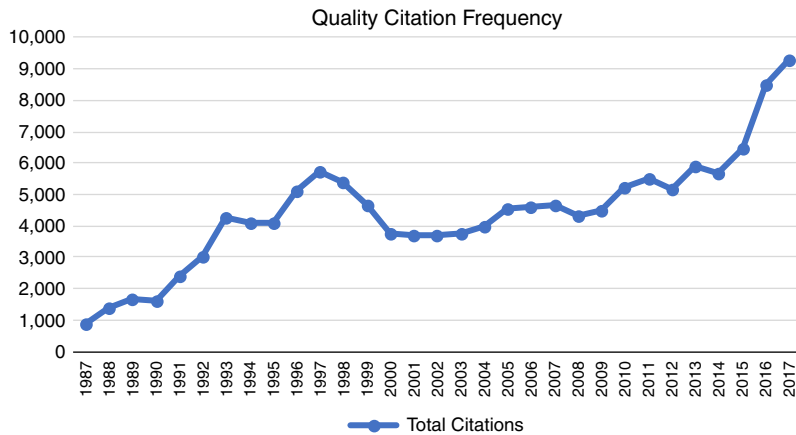


Figure 6.
Quality citations

4. The substitution effect

The selection of a replacement, or substitute, for a product or service that was initially desired is something consumers do on a regular basis. When a consumer deliberates between substitutes without being initially committed to any particular alternative, this is said to be a process of choice as opposed to substitution. On the other hand, when consumers become committed to a particular alternative, other choices become imperfect substitutes, and they may engage in substitution (Hamilton *et al.*, 2014). Perfect substitutes are those that can be used interchangeably for a common purpose whereas imperfect substitutes are those that are sometimes used interchangeably for a common purpose and, at other times, are used independently for separate and distinct purposes (Fraser and Bradford, 1983). In the marketing choice literature, Huber and Puto (1983) considered the effect of substitutability on the market share of similar items. Evidence suggests that when a new product is introduced to the market, it will take away a disproportionate market share from similar products. That is, the more similar the new product to existing products, the more negatively its introduction will affect the market share of existing products. If the new product possesses similar functionality and better performance, the substitution effect will be even stronger. This effect is known as the “similarity hypothesis” (Tversky, 1972). The long-term result, potentially, is that the new product will erode the sales revenue of existing products and eventually, replace them.

Three key drivers for substitution include opportunities, external restrictions and internal restrictions (Hamilton *et al.*, 2014). Opportunity exists when new alternatives become available, or new information about the utility of existing alternatives is made known, that permits the improvement of a consumer’s outcomes. For example, the alternative needs to offer superior performance. In the case of ISO 9000 certification vs the Baldrige Award, such outcomes might involve costs or perceived access to markets and sales. Externally imposed restrictions are a second category of driver for substitution decisions. A stockout at the grocery store for one brand of butter, for example, may force the consumer to substitute it with an alternative brand. Or, in the case of ISO 9000 certification vs the Baldrige Award, customers may demand ISO 9000 certification as a pre-requisite to doing business. Internal restrictions, such as current goals or desires, originate from within. Such restrictions may initiate the search for a substitute or alter the perceived substitutability of products. It is possible that the organization may seek a broadly recognized endorsement of quality that is perceived to have a higher likelihood of success (i.e. ISO certification) rather than pursue a potentially elusive competitive award (i.e. the Baldrige Award).

4.1 ISO 9000 certification: a plausible substitute

Assuming quality and the BPEP are still relevant in some manner, as the evidence appears to indicate, the substitution effect suggests that there may be better-suited initiatives for organizations to pursue than the Baldrige Award. Quality management has evolved over the past two to three decades. The early efforts were characterized as TQM; however, by the late 1990s, Six Sigma emerged as a popular “new” approach to quality management, particularly due to its successful deployment at General Electric. Other companies have adopted improvement programs such as lean manufacturing and later lean services. So, it is quite possible that many organizations have chosen to pursue other programs rather than the Baldrige Award. Based upon the criteria outlined above, potential substitutes are effectively limited to a few internationally recognized improvement programs, specifically, Six Sigma, Lean and ISO 9000 certification. We posit that, among them, achieving ISO 9000 certification is the most likely substitute.

Six Sigma is an improvement approach that gained broad acceptance during the 1990s and 2000s. Its success at General Electric led to its widespread application in a diverse set of organizations. However, it must be recognized that Six Sigma is commonly considered as an actionable approach to TQM and its content not appreciably different from the Baldrige (Schroeder *et al.*, 2008). Therefore, we do not consider its adoption as competition to the Baldrige Award. Instead, it increases an organization’s ability to win the award. For example, Welborn and Bullington (2013), found specific references to Six Sigma in applications from six of the 13 winners in the healthcare category of the Baldrige Award. In other words, Six Sigma is an unlikely substitute for the Baldrige Award.

Lean aims to achieve high levels of efficiency via waste reduction. The philosophy of lean is that by reducing waste problems will surface that must be addressed. Lean practices are not identical to TQM or Six Sigma, however, the philosophy can still be considered a comparable approach to quality management. Similar to Six Sigma, it is hard to successfully argue that an organization’s implementation of Lean would undermine its willingness to apply for the Baldrige Award.

On the other hand, ISO 9000 certification is sufficiently different from TQM, Six Sigma and similar quality approaches to differentiate it from what would be considered traditional quality management. Historically, the focus of ISO 9000 certification has been process compliance. ISO 9000 certification offers organizations a strongly practical value proposition. The diffusion of ISO 9000 began in Europe. In 1994, 78.7 percent of all ISO 9001 registrations were concentrated in Europe while North America, East Asia and the Pacific combined for 18 percent of all registrations. It has been argued that European companies pressured their global suppliers to become ISO 9000 certified and these suppliers, responding to the potential for non-ISO certification becoming a trade barrier capitulated (Sampaio *et al.*, 2009). Further, domestic diffusion of ISO certification is argued to have been fueled by competitive pressures and the demands of downstream customers in the global supply chain.

4.2 ISO 9000 standards

The ISO 9000 standards are a family of quality standards that were adopted by the International Organization for Standardization in 1987. These standards were developed to define levels of quality assurance, the basic elements of a comprehensive quality assurance program, and to provide users guidance on applying the appropriate level of quality assurance. The ISO 9000 approach to quality management is predicated on a quality system and the utilization of third-party assessment of prospective registrants (Timbers, 1992). Similar to the Baldrige criteria, the ISO 9000 standards have undergone revisions since their initial adoption in 1987; however, only four such revisions (1994, 2000, 2008 and 2015) have been made whereas modifications, both big and small, are made to the Baldrige criteria on an annual basis.

One of the early criticisms of the ISO 9000 standards (particularly, ISO 9000:1987 and ISO 9000:1994) was that they did not assure that their registrants actually produced a high-quality product. They only required that the “organization have a documented, verifiable process in place to ensure it consistently produces what it says it will produce” (Evans and Lindsay, 2014, p. 80). Further, the standards were said to not have a requirement for continuous improvement and gave little recognition to the importance of customer satisfaction or any non-production aspect of an organization’s business (Timbers, 1992). ISO 9000 was clearly not TQM. Rather, the criteria and approach could be argued as being a basic foundation to, or subset of, TQM (Bradley, 1994; Ćurkovic and Pagell, 1999; Sun, 2000). Reimann and Hertz (1994) argued that, overall, ISO 9000 registration encompassed a small portion of the Baldrige Criteria’s scope.

The ISO 9000:2000 series standards represented a seismic shift in structure from 20 required elements to eight quality principles (see Table I). These eight quality principles, notably, more closely aligned ISO 9000 with the Baldrige framework and the principles of TQM (e.g. Biazzo and Bernardi, 2003). Prior to the ISO 9000:2000 standards, core TQM principles such as continuous improvement and having a customer focus were conspicuously absent. The focus of the earlier standards was primarily oriented upon issues associated with the process assurance aspects of quality. Research has examined whether firms that achieved ISO 9001:2000 certification performed better along the key principles of TQM compared to firms that had achieved ISO 9001:1994 certification. While the evidence suggested that firms certified under the ISO 9001:2000 standards performed better along several TQM dimensions, the magnitude of the effects were modest (Martínez-Costa *et al.*, 2009). One can conclude that while the quality principles embedded in the post-1994 ISO 9000 standards more closely approximate the principles of TQM, evidence has not yet been revealed to suggest that ISO 9000 fully encompasses, and its users fully embrace, those principles in practice.

Considering the benefits that accrue to ISO 9000 certification is complicated by the change in its focus that was marked by the ISO 9000:2000 revision to the standards;

ISO 9001:1994 20 required elements	ISO 9001:2000 8 quality principles
1. Management responsibility	1. Customer focused organization
2. Quality system	2. Leadership
3. Contract review	3. Involvement of people
4. Design control	4. Process approach
5. Document and data control	5. System approach to management
6. Purchasing	6. Continual improvement
7. Control of customer-supplied products	7. Factual approach to decision making
8. Product identification and traceability	8. Mutually beneficial supplier relationships
9. Process control	
10. Inspection and testing	
11. Control of inspection, measuring and test equipment	
12. Control of non-conforming product	
13. Inspection and test status	
14. Corrective and preventive action	
15. Handling, storage, packaging, preservation and delivery	
16. Control of quality records	
17. Internal quality audits	
18. Training	
19. Servicing	
20. Statistical techniques	

Table I.
ISO 9000 – a shift
in focus

however, it is possible to broadly characterize its value in light of the many studies that have considered this issue. While the pre-ISO 9000:2000 standards were widely criticized for their omission of important TQM dimensions, numerous studies indicate an advantageous impact (e.g. Withers and Ebrahimpour, 2000; Quazi and Jacobs, 2004; Tzelepis *et al.*, 2006), with Leung *et al.* (1999) reporting that the majority of companies they surveyed believing their investment in ISO 9000 certification was worthwhile. Further, Curkovic and Pagell (1999) concluded that ISO 9000 certification cannot only help an organization improve quality, but also lead to competitive advantage in the marketplace. Other studies also indicate a positive relationship between ISO 9000 certification and financial performance (e.g. Corbett *et al.*, 2005; Sharma, 2005; Aba *et al.*, 2016).

4.3 Evidence of a substitution effect

To explore whether there is evidence that ISO 9000 certification may, indeed, be a substitute for the Baldrige Award, we first identified the number of ISO 9000 registrations by year covering the period from 1993 to 2015. This period was selected since the first available data for ISO 9000 certification was in 1993 and the latest year for which both Baldrige application rates and ISO 9000 certifications were available is 2015. Furthermore, we limit ourselves to the ISO 9000 certification data for the USA given that the Baldrige Award is only available to US organizations. These data are available through the ISO Survey of Certification to Management System Standards report (ISO, 2017).

Figure 7 shows the number of ISO 9000 certificates against the number of Baldrige Award applications for the period 1993–2015. While there has been an upward trend in the number of ISO 9000 certificates issued in the USA over the time period examined there has been a less definite decline in the number of Baldrige applications. This would not seem to suggest the presence of a significant substitution effect. To provide an preliminary empirical perspective to what is seen in the figure, we conducted a correlation analysis in a

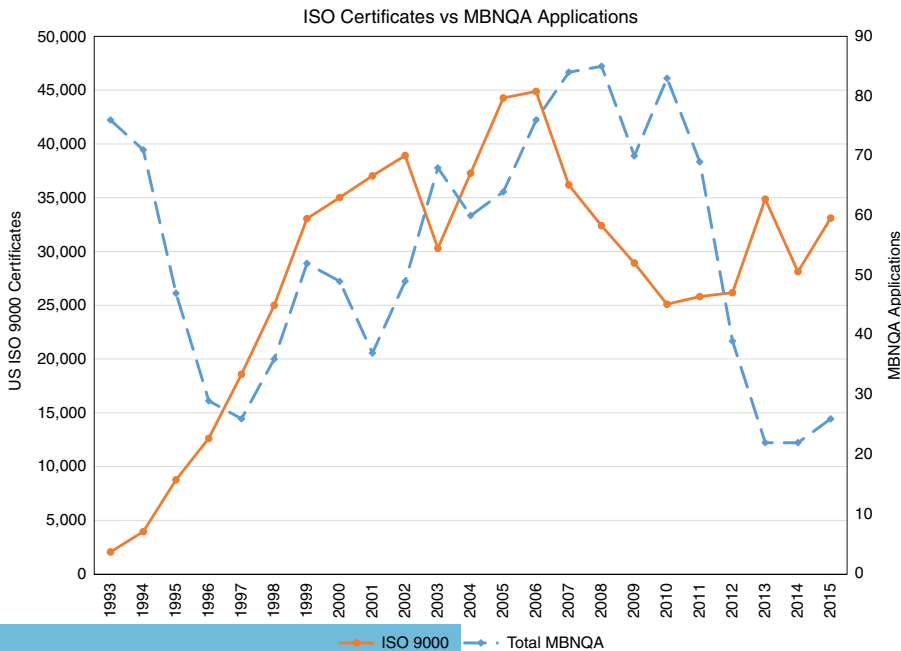


Figure 7. ISO 9000 certificates vs MBNQA applications

manner similar to that found in Carson *et al.* (1999). A common guideline for interpreting correlations is that correlations between 0.10 and 0.29 are considered small; between 0.30 and 0.49 medium; and 0.50 or higher large (Cohen, 1988). The correlation between the number of ISO 9000 certificates per year and the total number of Baldrige applications is a non-statistically significant 0.03 (see Table II).

On the other hand, if only applications in the original three Baldrige categories are considered, there appears to be a rather strong negative relationship with the number of ISO 9000 certificates per year (see Figure 8). In fact, there is a -0.723 correlation that is highly statistically significant. This offers strong support for the assertion that ISO 9000 certification may be a substitute for the Baldrige Award. Caution, however, should be exercised when interpreting such a correlation as definitive support for the presence of the substitution effect since it is not a causal measure and we are dealing with a relatively small number of years of data.

Not surprisingly, the highest correlation between Baldrige application rates and ISO 9000 certification occurs for manufacturing (-0.746) followed by small business (-0.671)

Correlations	ISO9000Cert
<i>Total MBNQA applications</i>	
Pearson correlation	0.030
Sig. (2-tailed)	0.891
<i>n</i>	23
<i>Original MBNQA category applications</i>	
Pearson correlation	-0.723^{**}
Sig. (2-tailed)	0.000
<i>n</i>	23
<i>Manufacturing</i>	
Pearson correlation	-0.746^{**}
Sig. (2-tailed)	0.000
<i>n</i>	23
<i>Service</i>	
Pearson correlation	-0.642^{**}
Sig. (2-tailed)	0.001
<i>n</i>	23
<i>Small Business</i>	
Pearson correlation	-0.671^{**}
Sig. (2-tailed)	0.000
<i>n</i>	23
<i>Education</i>	
Pearson correlation	0.477
Sig. (2-tailed)	0.053
<i>n</i>	17
<i>Healthcare</i>	
Pearson correlation	-0.154
Sig. (2-tailed)	0.554
<i>n</i>	17
<i>Non-profit</i>	
Pearson correlation	0.119
Sig. (2-tailed)	0.761
<i>n</i>	9

Table II.
Baldrige Award to
ISO 9000 certificate
correlations

Notes: ** Significant at 0.05 and 0.01 levels (two-tailed), respectively

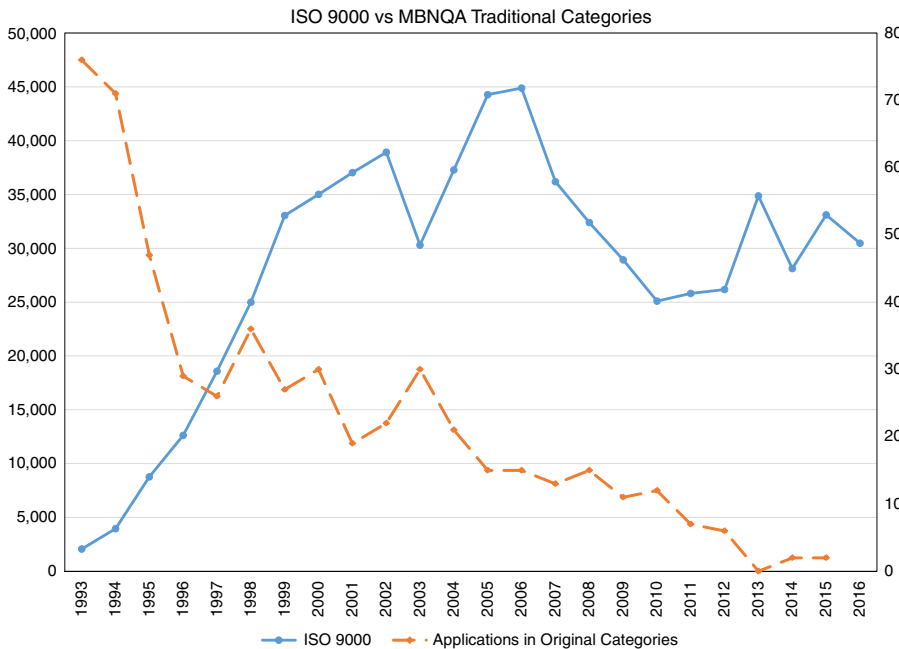


Figure 8.
ISO 9000 certificates vs traditional MBNQA award category applications

and service (-0.642). Each of these correlations is highly statistically significant. The presence of such strong negative correlations in these Baldrige Award categories raises the question of why the apparent substitution effect is present.

We speculate that a significant reason for pursuing ISO 9000 certification is to gain competitive advantage in the marketplace via a vehicle that is a widely recognized signal of quality and that, in many cases has essentially become a pre-requisite for doing business. It is well-known that ISO 9000 certification is emphasized in the European Union (EU) and that, in many instances, a business must be ISO 9000 certified before it can trade with European companies. We call this the EU effect. This is consistent with the argument posited by Sampaio *et al.* (2009) regarding the diffusion of ISO 9000 certification globally and within the USA. If our speculation is to be supported, we would expect to see evidence of not only the substitution effect (as above) in the Baldrige categories that would benefit most greatly from ISO 9000 certification but would also expect to see weak and non-statistically significant correlations in categories for which little competitive benefit (at least on a global stage) from certification is likely. Additionally, we would expect to see the EU effect manifested in relation to its economic influence. For the purpose of this analysis, we equate economic influence with the magnitude of the EU GDP.

As shown in Table II, there are no statistically significant correlations for the new Baldrige categories (education, healthcare and non-profit) with ISO 9000 certification. This lends support to the idea that the apparent substitution away from the Baldrige Award is driven, at least in part, by competitive pressures. The presence of an EU effect is supported by a medium-high, positive correlation (0.434) between ISO 9000 certifications and the EU GDP. So, as the EU GDP has grown, so has the number of ISO 9000 certificates issued. Further, there is a strong negative correlation (-0.786) between the number of Baldrige applications in the original categories and EU GDP. So, as the EU GDP has grown, the number of applications in the original Baldrige categories has declined.

4.4 Economic indicators

In this research, we have addressed possible reasons for the decline in applications for the Baldrige Award related to theories on management fads and the substitution effect. It is also worth examining, at a high level, whether there is any relationship between common economic indicators in the USA and Baldrige Award application rates. For this analysis, we consider the annualized manufacturing employment index, the real manufacturing output index, the balance of trade, unemployment rates and the consumer confidence index. All of these data are maintained and available through the Federal Reserve Economic Data (www.fred.stlouisfed.org) aggregated and maintained by the Federal Reserve Bank of St Louis.

Since ISO 9000 certification appears to be a plausible substitute for applications to the original Baldrige categories, we expect their correlations to the selected economic indicators to show opposite signs (i.e. when one is negative the other will be positive). This is consistent with the correlation analysis outcomes as shown in Table III. We hold no such expectations for the total number of Baldrige applications since these include categories for which the ISO 9000 certification does not appear to be a substitute. An interesting observation from Table III is that for the total number of Baldrige Award applications there is a strong negative correlation (-0.482) with the consumer confidence index. Given that this relationship is not observed for either ISO 9000 certification rates or application rates for the original Baldrige categories, it is likely attributable to application rates in the education, healthcare and/or non-profit categories. When consumer confidence is lower, more Baldrige applications are submitted in these areas. This is not an outcome that was expected and deserves future consideration. Additionally, ISO 9000 certification and Baldrige application rates do not appear to be related to unemployment rates.

During periods of higher manufacturing employment and with more favorable balance of trade accounts there are high correlations (0.708 and 0.730, respectively) with Baldrige applications in the original categories. This suggests that when the USA was a stronger global trading power (especially, in terms of manufacturing) there was a greater emphasis on the pursuit of the Baldrige Award. Similarly, this suggests that when the USA had smaller trade deficits, there was a lesser need to pursue ISO 9000 certification. Interestingly, there is also a very strong negative correlation (-0.882) between Baldrige applications in the original categories and the real manufacturing output index, meaning that when real manufacturing output was lower, there were more Baldrige applications in these categories. The reason for this strong negative relationship is not immediately obvious. At first blush, one might likely believe that manufacturing employment and real manufacturing output

		MFG employment	MFG real output	Balance of trade	Unemployment	Consumer confidence	EU GDP
ISO 9000 certifications	Pearson correlation	-0.390	0.891**	-0.800**	-0.206	-0.027	0.434*
	Sig. (2-tailed)	0.066	0.000	0.000	0.346	0.903	0.038
	<i>n</i>	23	23	23	23	23	23
Total MBNQA applications	Pearson correlation	0.064	-0.337	-0.215	0.254	-0.482**	0.165
	Sig. (2-tailed)	0.746	0.079	0.314	0.192	0.009	0.451
	<i>n</i>	28	28	24	28	28	23
Original MBNQA category applications	Pearson correlation	0.708**	-0.882**	0.730**	-0.075	0.052	-0.786**
	Sig. (2-tailed)	0.000	0.000	0.000	0.705	0.794	0.000
	<i>n</i>	28	28	24	28	28	23

Notes: **, *Significant at 0.05 and 0.01 levels (two-tailed), respectively

Table III. Economic indicator correlations

should show the same direction and approximate strength of relationship. However, real manufacturing output has increased over time but only with a decreasing proportion of GDP. Overall, the real manufacturing output index continues to rise, though it has risen at a rate much slower than the rate at which manufacturing employment has decreased. The implication is that as US manufacturing strength has diminished, the Baldrige application rate in the original categories has deteriorated.

5. Conclusions

This paper is concerned with the declining trend in number of Baldrige Award applications and attempts to gain insights into the potential causes for this phenomenon. Two plausible theory-based explanations, found in the management and marketing literatures, were considered. The first was that the Baldrige Award is a fad and the second was that ISO 9000 certification has emerged as a viable substitute for the Baldrige Award.

There is evidence that the Baldrige Award (and by extension the BPEP) has exhibited fad-like behaviors and that it is currently in what has been called the hard core stage of the management fashion life cycle where only those most dedicated to the BPEP are continuing to submit Baldrige Award applications. Interestingly, the healthcare category of the Baldrige Award appears to be following its own life cycle and not to be related to the other Baldrige categories. Nonetheless, it too has been attracting fewer applications than it did in the past. This calls into question whether the Baldrige Award, and by association the BPEP, has lost relevance. Proponents of the Baldrige Program point to the economic returns its adherents have generated, the number of Baldrige criteria packages distributed and the number of Baldrige-inspired award programs it has spawned as signals of its success. Unfortunately, in the tale of the tape, the Baldrige Award appears to be in a state of potentially irreversible decline despite its past glories and many organizations are unwilling to take a chance on only potentially winning the award. Between 1988 and 2016, under 22 percent of applications resulted in a Baldrige site visit and less than 7 percent of applications have resulted in winning a Baldrige Award (NIST, 2009). In a survey of manufacturing organizations, Bandyopadhyay and Leonard (2016) found that 69.2 percent of respondents agreed, or strongly agreed, that the award was not motivating enough for them to apply, 60.5 percent believed that winning the award would not shift market perceptions enough to make applying worthwhile and 50 percent did not believe the ROI indicated by studies is enough to warrant applying for the award. In short, the value proposition offered by the Baldrige Award is not sufficiently valued by manufacturers to the extent that they would apply for the award.

On the other hand, this does not necessarily mean that the BPEP, itself, is irrelevant as a path to quality and performance excellence. After all, millions of Baldrige criteria packages have been distributed and the criteria empirically validated in research studies. Organizations, however, have multiple potential paths to quality excellence that do not require adherence to the Baldrige Excellence Framework, making it arguably less likely that such organizations would apply for the Baldrige Award. Furthermore, quality certifications such as ISO 9000 emerged on the scene in the mid-1990s and became a customer requirement, potentially diverting organizations' attention away from the Baldrige Award. This perspective was examined through the lens of the substitution effect. The data did not support the existence of a substitution effect across all categories of the Baldrige; however, there appeared to be a strong relationship between the emergence and persistence of ISO 9000 certification and the declining number of Baldrige applications in the manufacturing, service and small business categories, suggesting that ISO 9000 certification may be a viable substitute for the Baldrige Award in these areas.

Our analysis reveals an EU effect where the adoption of ISO 9000 certificates is rather strongly positively correlated with the EU GDP, and the Baldrige Award application rates in

the original categories are highly negatively correlated. In major markets such as Europe, a supplier must often be ISO 9000 certified in order to be considered as a qualified vendor. In other words, there is a clear economic benefit associated with ISO 9000 certification which has greatly encouraged its growth. In contrast, application to the Baldrige Award is not demanded by customers and its economic benefits less directly visible. Hence, it is not surprising that many companies elect to achieve ISO 9000 certification rather than pursue the more elusive Baldrige Award. Along with the EU effect we also considered the potential effect of the strength of the US economy, and the manufacturing sector in particular, on Baldrige Award application rates. Our analysis suggests that interest in the manufacturing, service and small business categories of the Baldrige Award were higher (and need for ISO 9000 certification lower) when the USA had lower trade deficits (i.e. a stronger global trading power) and a stronger manufacturing base.

Based upon the existing literature, and the results of the current study, it is reasonable to make some assertions regarding the probable future of the Baldrige Program. The evidence shows that the Baldrige Program is less popular and visible in today's economic environment than it was upon its initial introduction in 1987. There has not been a Baldrige Award made in the manufacturing category since 2012 and few applications in manufacturing, service and small business have been made since that time. Overall, application rates have followed a downward trajectory, and in the absence of the healthcare category, there have been few bright spots in recent years. Further, the attention paid to the Baldrige Award, in both the academic and practitioner literature, has been flat for a number of years. The rise in prominence of certifications such as ISO 9000 also appear to be diverting the attention of potential applicants in the original categories away from the Baldrige Program. The trend seems to be its inexorable decline with little hope for a profound reversal in fortunes.

The long-term fiscal viability of the Baldrige Program must also be called into question. Federal funding for the program was truncated as of the 2012 budget as a result of sequestration. The loss of these dollars has placed a real financial hardship on the program. Expenses have outstripped Baldrige Program revenues since 2012 and the Baldrige Foundation has expended millions of its endowment dollars in support of the program since that time and its endowment has been reduced to less than one year remaining (Foundation, 2017). Without restoration of federal funding, attracting significant funds in the form of additional endowment monies, and/or sources of revenue the Baldrige Program may well slip into obscurity and potentially become a footnote in the quality history of the USA.

This study is descriptive and exploratory in nature and we cannot consider its results to be definitive confirmation that the Baldrige Award, and by extension the BPEP, to be irrelevant in today's economic environment. Nor do the results confirm that ISO 9000 has supplanted the Baldrige Program. The purpose of the current study was not to develop causal models, rather its purpose was to present plausible explanations for the deterioration in application rates to the Baldrige Award and to determine whether the available secondary data support the viability of those explanations. Our analysis suggests that it is reasonable to state that both the management fashion literature and marketing choice literatures can help to explain the decline in Baldrige Award application rates.

Future research should view the current study as a starting point for the application of more rigorous, confirmatory statistical techniques to study the management fashion life cycle of the Baldrige Award and those factors that have led to the diminishment of the Baldrige Award (e.g. the substitution effect and economic conditions). The available secondary data regarding publication frequencies, Baldrige Award applications and ISO 9000 certifications will be valuable to this purpose though it is important to note that these data may not be sufficiently granular to fully support such an analysis. For example, the ISO 9000 certification data provide the number of certifications by

country and the total number of certifications worldwide by industrial sector; however, the available data do not provide an accessible means to identify how many certifications have been issued by sector within a particular country.

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Further reading

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About the authors

David Cook is Assistant Dean for Graduate Studies and Associate Professor in the Department of Information Technology and Decision Sciences in the Strome College of Business at Old Dominion University. He holds PhD Degree in Production and Operations Management from the University of Kentucky. His primary research interests lie in the area of supply chain management. More particularly, his research has been directed at addressing relevant business issues in inventory management, quality management and electronic commerce. His research has been published in

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journals such as *Production and Operations Management*, *Production and Inventory Management*, *Journal of Computer Information Systems*, *Computers in Human Behavior*, *International Journal of Production Research* and *Transportation Research Part E*. David Cook is the corresponding author and can be contacted at: dcook@odu.edu

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Weiyong Zhang is Associate Professor in the Department of Information Technology and Decision Sciences, Strome College of Business, Old Dominion University. He holds both Bachelor's and Master's Degrees in Management Information Systems from Fudan University, China, and PhD Degree in Operations and Management Sciences from the University of Minnesota. He accumulated extensive industrial experiences while he worked as Consultant at Hewlett-Packard. His research interests include information systems, project management, process improvement, supply chain management and quantitative methods. His work has appeared in top tier research journals such as *Production and Inventory Management Journal*, *Operations Management Research*, *Project Management Journal*, *Quality Management Journal*, *Journal of Manufacturing Technology Management*, *Information Systems Frontier*, *Information Technology and Management*, *Internet Research*, *International Journal of Forecasting* and *International Journal of Information Management*.

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