

PAY AS A DETERMINATE OF VOLUNTARY TURNOVER AMONG U.S. OFFSHORE COMMERCIAL MARINERS

Tony Lewis*, Julie Simons

Faculty, California State University-Maritime, Vallejo, CA. 94590, U.S.

* tlewis@csum.edu

Abstract: Due to intense competition for employees with maritime expertise across multiple transportation-related industries, efforts to retain qualified seafarers in positions that require long-term travel at sea are a primary strategic concern for unions, shipping firms, and crewing service agencies. Pay represents the largest investment that these stakeholders make in their efforts at retention. Yet the relationship between pay and voluntary turnover is not well understood. Research in the maritime industry is sparse. Research across the management literature provides ambiguous or conflicting findings and their transferability to the maritime industry is questionable. In this paper, the authors attempt to better understand the relationship between pay and turnover in the maritime industry. The authors take a unique approach by surveying mariners who have actually left the industry. Findings of the study do not suggest a strong link between pay and turnover. Results indicate that other components like the employee's benefits package, or factors relating to job satisfaction other than pay may play a larger role in offshore mariners' decision to quit or stay.

Keywords: Mariner retention, pay satisfaction, voluntary turnover

Introduction

In organizations, managers use pay as a tool to attract qualified applicants, to maximize the performance of employees, and to retain high performers in the face of competing economic opportunities (Heneman & Judge, 2000). This effort represents one of the largest investments that employers make. Employee pay makes up as much as 57% of the total value of all U.S. production of goods and services (Williams, McDaniel & Nguyen, 2006). In this paper, we

report findings on a survey of mariners who left positions that required long, repeated, uninterrupted voyages at sea (who we term offshore mariners) for positions that do not require long-term travel at sea. The goal of our research is to better understand how employees' feelings about their pay influence their decision to quit or remain in offshore mariner positions.

Several aspects of this project are unique. Because of the particularly hazardous challenges of retaining seafarers who must be away from friends and family for long periods of time, we focus our analysis exclusively on offshore mariners. Moreover, our survey is limited to people who have already left positions as offshore mariners. This allows us to inquire about the positions they took after leaving and to ascertain their feelings about their time as an offshore mariner in retrospect. Additionally, this approach enables us to operationalize turnover as occurring when one actually leaves an offshore mariner position, rather than as their quit intention, the latter being a much less precise, but frequently used variable. Lastly, when operationalizing turnover, we focus on offshore mariners who leave the occupation (*i.e.*, occupational commitment) rather than on movement between firms (*i.e.*, organizational commitment). Prior research on turnover tends to focus on organizational commitment, which is a construct that is not particularly relevant in the U.S. maritime industry where commitment to a single firm is not a widespread norm, especially among unionized employees.

We begin our analysis by introducing prior research in the management literature about the relationship between pay and voluntary turnover. We then focus on turnover research that is specific to the maritime industry. Our methodological approach is outlined next, followed by a summary of the results of our survey. We close by discussing some of the implications of our research findings.

The relationship between pay and voluntary turnover

The relationship between pay and voluntary employee turnover is a complex one and research findings are somewhat ambiguous. Scholars who explore this link generally find that higher satisfaction with pay leads to lower turnover (*e.g.*, Currall, *et al.*, 2005; Cotton & Tuttle, 1986; DeConinck & Stilwell, 2004; Lum *et al.*, 1998; Vandenberghe & Tremblay, 2008; Williams, McDaniel & Nguyen, 2006). Yet some scholars report a relatively strong or important connection (*e.g.*, Cotton & Tuttle, 1986; Currall, *et al.*, 2005; DeConinck & Stilwell, 2004; Lum *et al.*, 1998), while others find a relatively weak relationship (*e.g.*, Singh & Loncar, 2010;

Williams, McDaniel & Nguyen, 2006; Vandenberghe & Tremblay, 2008). Leonard (1987) finds that, while pay increases may have a negative effect on turnover, the effect is too small to justify the cost of the increased pay.

Prior research on job satisfaction also has implications that conflict with scholarly work that suggests a strong link between pay satisfaction and turnover. Aside from self-reported quit intentions, satisfaction is the employee cognition that is thought to be the strongest predictor of voluntary turnover (Tett & Meyer, 1993). Yet among the five types of satisfaction thought to primarily contribute to an employee's overall sense of job satisfaction (pay, promotion, supervisor, coworker, and the work itself), pay has been found to have the weakest influence (Ironson *et al.*, 1989; Russell *et al.*, 2004).

Pay and turnover in the maritime industry

Given the ambiguous findings of prior research on the pay-turnover link and the particularly unique characteristics of the maritime industry, managers and other stakeholders in the industry receive little guidance from the management literature when trying to determine how increases in pay may influence mariners' decision to quit or stay. But because of their high level of skill and the significant challenges associated with retaining them, efforts to extend the tenure of offshore mariners are critical to the competitive advantage of shipping firms and to the vitality of the U.S. shipping industry as a whole (Lewis, Rao & Kamdar, 2015).

These efforts are complicated by the fact that among mariners there is generally not a professional norm of high organizational commitment. Seafarers tend to shift employment among shipping firms at a comparatively high rate (Fei, Chen & Chen, 2009). This is partly due to the fact that many U.S. mariners are unionized and even though they may have a preference for a particular shipping firm, they often have a relatively narrow range of assignments available through their union.

A culture of high occupational commitment is also not a norm among U.S. offshore mariners. One of the primary challenges that shipping firms and maritime unions face in retaining qualified mariners is the availability and attractiveness of shore positions (Caesar, Cahoon & Fei, 2013; Fei, Chen & Chen, 2009). Movement to shore side positions is thought to be one of the main contributing factors driving the worldwide shortage of seafarers (Caesar, Cahoon & Fei, 2015). Research suggests that the availability of desirable economic alternatives may moderate the negative relationship between pay satisfaction and turnover (*e.g.*, Shore & Martin, 1989) such

that as offshore mariners perceive a greater market demand for their skills, satisfaction with pay in their current position may be less likely to cause them to stay.

Yet shipping firms and maritime unions invest enormous sums of money in the hopes of attracting and retaining qualified mariners. A 2017 study of mid-career degree holders found that the average income of graduates of the State University of New York (SUNY) Maritime, whose 2017 student body was comprised of 70% license-track cadets (students training to work aboard a merchant marine vessel), was \$144,000, besting both M.I.T. and Princeton University (Stern, 2017). Based on survey responses from mariners, it seems reasonable to conclude that these investments pay off in longer tenures. 62% of respondents to the 2012 Shiptalk Life at Sea Survey¹ said that increased pay would be likely to keep them at sea for longer. But while increased mariner pay may lead to greater occupational commitment, the positive effect on commitment to a particular shipping firm may be short-lived (Hult & Snoberg, 2013).

Method

The focus of this research is to determine if any insights can be gained about voluntary turnover among offshore mariners in the U.S. commercial shipping industry by surveying seafarers who have moved into positions that do not require long-term travel at sea. Hence, we limited survey respondents to people who met the following criteria:

- Were employed with a commercial shipping firm in a job that required long-term travel at sea (travel for most of the year where each trip averaged more than a week in length)
- Worked for at least one year in a position that required long-term travel aboard a U.S. flagged vessel
- Left a position that required long-term sea travel for a position that does not.

To conduct our survey, we emailed an online survey to 1,110 cadets who graduated from the California State University Maritime Academy with degrees in either maritime transportation or marine engineering technology between the years 1995-2015. We received 70 responses to our survey. Respondents' level of agreement with statements presented in the survey was determined using a 5-point Likert scale. 1 indicated strongly agree, 2 agree, 3 disagree, 4 strongly disagree, and 5 undecided.

¹ The Life At Sea survey is a multinational assessment of registered user of Shiptalk Recruitment about their experiences as seafarers. The 2012 survey had 488 respondents, making it one of the most comprehensive maritime employee surveys. Respondents from English-speaking countries are disproportionately represented (40%).

When assessing the link between pay and turnover, scholars frequently use self-reported quit intentions as the dependent variable, rather than actual turnover (*e.g.*, DeConinck & Stilwell, 2004; Lum *et al.*, 1998; Singh & Loncar, 2010; Vandenberghe & Tremblay, 2008). The advantage of this is that quit intentions can be more easily ascertained through survey data than can actual turnover. Gathering data from employees who have left an organization can be challenging. Despite the data gathering advantages of operationalizing turnover as quit intention, there are significant methodological concerns. While self-reported quit intentions are the strongest known predictor of actual turnover, the two are only correlated at a 0.38 level (Griffeth, Hom & Gaertner, 2000). To increase the validity of their turnover measure, some scholars instead use the variable tenure (*e.g.*, Bedeian & Ferris, 1992; Motowidlo, 1983).

When management scholars assess turnover, they tend to focus on movement between firms. However, in the U.S. maritime industry, it is often erroneous to conceptualize turnover at the organizational level (*i.e.*, how long a mariner remained with a particular shipping firm). Because many offshore mariners in the U.S. are unionized, they tend to move fluidly between shipping firms based on availability of union job postings. Hence, we calculate tenure as the number of years respondents report having worked as offshore mariners. We refer to our dependent variable as occupational tenure.

We also asked survey respondents a range of questions relating to the five facets of satisfaction that Ironson *et al.* (1989) claim primarily contribute to overall job satisfaction (pay, promotion, coworker, supervisor, and the work itself). Given its strong link to turnover (Allen, Shore & Griffeth, 2003; Eisenberger, Stinglhamber & Vandenberghe, 2002), we also asked a range of questions relating to former offshore mariners' sense of perceived organizational support including: availability of training opportunities; access to communications equipment to stay in touch with loved ones; availability of rest time; safety concerns; the attractiveness of the benefits package; and living conditions aboard ship. Lastly, we asked respondents how their income, and income growth potential, in the position they took after leaving their career as an offshore mariner compared with the pay they received in their prior seafaring position.

To test the significance of observed statistical differences in occupational tenure compared to levels of agreement to questions about job satisfaction, we performed the one-way ANOVA test. Thus, if the ANOVA test resulted in a statistically significant p-value, respondents in each category (strongly agree, agree, etc.) demonstrated appreciable statistical differences in mean

occupational tenure. We also used the two-sample, one-tailed t-test to determine whether there were statistical differences between genders and crewing service experience.

Results

Respondents were overwhelmingly satisfied with the amount they were paid while working as an offshore mariner: 32% strongly agreed that they were satisfied; 56% agreed; only 8% disagreed; and no respondents reported that they strongly disagreed. Women were significantly more satisfied with pay than their male counterparts ($p=0.034$). When asked what factors most strongly contributed to their decision to leave a career as an offshore mariner, only 19% of respondents cited the amount of pay. More frequently cited contributors included; personal factors unrelated to the position aboard ship (60%)², poor communications with friends and family on shore (34%), and availability of promotion opportunities (24%). The nature of the work itself came in just behind the amount of pay with slightly under 19% reporting it as one of the factors that most contributed to their decision to leave. It is interesting that 57% of respondents who cited pay as a factor that most strongly contributed to their decision to leave also either agreed or strongly agreed that they were satisfied with the amount they were paid.

The average occupational tenure of mariners in our sample was 6.7 years. When asked how long they planned to remain in their offshore mariner position when they started their seafaring career, the average response was 17 years. 28.6% of our sample spent more years training to sail than they spent in a career as an offshore mariner.³ We performed a one-sided ANOVA test of all survey response categories (strongly agree, agree, etc.) with our dependent variable, occupational tenure. Satisfaction with pay was not significantly associated with occupational tenure. Satisfaction with benefits was significantly associated with occupational tenure ($p=0.045$) such that the more satisfied an offshore mariner was with their benefits package, the longer their occupational tenure tended to be. Consistent with prior research on the link between turnover and job satisfaction, three of the five facets thought to contribute to overall satisfaction had at least a moderately significant association with occupational tenure. Satisfaction with the nature of the work itself ($p=0.059$), satisfaction with the likability of managers ($p=0.067$), and

² The percentage of respondents who cite personal factors as a primary factor contributing to their decision to leave may be an underestimate. We allowed respondents to choose an open-ended "other" response to this question and many wrote in responses that would fit this category.

³ This number is likely an underestimate. All respondents were graduates of California State University Maritime Academy. We asked respondents to tell us how many years they spent in training to be a mariner. Some said zero, or less than three, indicating that they did not perceive their time at university as training.

satisfaction with the availability of promotion opportunities ($p=0.099$) were all positively associated with occupational tenure.

With regard to the position respondents took after leaving their career as an offshore mariner, pay did not appear to be a strong motivator. 47% of respondents strongly disagreed, and 25% disagreed, that the pay they received in the first job they accepted after leaving a career as an offshore mariner was higher than their previous income. Respondents were a bit more optimistic about future income growth in the position they took after leaving. 17% strongly agreed, and 34% agreed that the prospects for income growth were better in the position they took after leaving their career as an offshore mariner. Still, 27% disagreed and 14% strongly disagreed.

20% of respondents agreed that there was bias with regard to decisions about the amount they and their colleagues were paid. No one strongly agreed, 31% disagreed, 15% strongly disagreed, and 31% were undecided. Mariners who worked for crewing service agencies were significantly more likely to perceive bias than mariners who did not ($p=0.043$).

Discussion and conclusion

Prior research on the relationship between pay and turnover in the maritime industry is thin and consists mainly of currently employed mariners' self-reported projections about the effect that changes in pay might have on their likelihood of quitting or staying. We take a different approach. This may explain why our findings about how much pay may contribute to offshore mariners' decisions to quit are partly inconsistent with previous scholarly work. Only 19% of our survey respondents cited pay as a primary factor contributing to their decision to leave. Yet 62% of respondents to the 2012 Shiptalk Life at Sea Survey cited pay as a factor that would likely keep them on the job longer. We see two possible explanations for this disparity. First, many of the 2012 Shiptalk Life at Sea Survey respondents may be advocating for better pay. The lower percentage of mariners in our survey who cited pay as a retention issue may be in part a result of the decreased motivation to advocate for better pay since they have already quit. The large proportion of our respondents who cited pay as a primary reason for leaving, but also said that they were satisfied with pay may provide additional evidence for our advocacy hypothesis.

A second possible explanation for the disparity in results about the effect of pay on turnover is that mariners projecting into the future may fail to account for the diminishing returns that Worley, Bowen, and Lawler III (1992) find may occur when equivalent percentage increases in pay become relatively less attractive as the recipient's existing level of pay increases. Thus,

mariners imagining pay raises in the future may overestimate the positive effect that these will have on their overall well-being. Mariners who have actually received the pay raises that others are imagining may have adjusted for the diminishing returns described by Worley, Bowen, and Lawler III (1992) and may therefore give less weight to increases in pay as a motivator to stay. Even if we assume that a negative relationship between pay and turnover exists, the decision to use pay to decrease turnover is a complex one. Managers must ask themselves if resources aimed at turnover reduction are better spent elsewhere (*e.g.*, training, benefits, encouraging interpersonal ties among coworkers, improved working conditions). Our findings suggest that investing in employees' benefits package may have a significant negative effect on turnover, while we see no significance associated with pay increases. We speculate that the reason for this difference is because when employers invest in meaningful benefits, it improves employees' sense of perceived organizational support (POS). While improvements to employees' benefits packages advantages them financially, it also demonstrates that managers understand employees' needs and care enough to respond to them, a central prerequisite to facilitating POS. This view is supported by the findings of Vandenberghe & Tremblay (2008) who suggest that the negative relationship between pay satisfaction and turnover may be moderated by affective commitment (an employee's positive emotional attachment to a company). After controlling for affective commitment, the relationship between pay satisfaction and turnover significantly weakens (Vandenberghe & Tremblay, 2008), suggesting that the negative effect that pay can have on turnover may be largely explained by what pay communicates to the employee about how much company managers understand employees' needs and care about fulfilling them.

An employees' sense POS may be more efficiently and meaningfully communicated using methods other than pay (Rhoades & Eisenberger, 2002). In addition to providing benefits, there are some other ways in which shipping firms and maritime unions can improve employees' sense of POS. A particularly attractive piece of low-hanging fruit would be to invest in modern communications equipment. We interviewed Jeremy Hope, an agent with Pacific Ports, a major U.S. mariner union. He estimates that only slightly over half of U.S. flagged offshore vessels have modern communications equipment that would allow mariners to reliably stay in contact with friends and family at home (Jeremy Hope, personal communication, July 26, 2017). We find this astounding given the consistency with which separation from loved ones is reported as the main challenge of a life at sea (*e.g.*, Kantharia, 2017; Shiptalk Recruitment, 2012). 44% of

respondents to our survey said that they either disagreed or strongly disagreed that they were satisfied with company efforts to keep them in touch with loved ones while they were at sea. Lewis, Rao & Kamdar (2015) find that a negligible decrease in the turnover rate of no more than 3% would more than pay for the installation and operating costs of a VSAT system that would reliably keep mariners connected to the internet.

Other uncertainties about using pay to decrease turnover make this a complex decision. For example, some mariners may actually leave earlier as a result of having reached their financial goals. Also, increasing labor costs relative to competitors may result in decreased turnover costs on one hand, but may lead to other significant cost disadvantages on the other. Additionally, pay satisfaction is a complex term with a wide range of contributing factors, including: personal and job inputs; monetary and non-monetary outcomes; pay policies and administration; and feelings of equity (or lack thereof) when referencing one's own pay with that of comparison others (Lum *et al.*, 1998). Hence, among other potential problems, an increase in pay for one employee or class of employees may result in equity distress in others, thereby causing a decrease in overall job satisfaction and potentially increasing the likelihood that some employees will quit.

The fact that mariners employed with crewing service agencies were more likely to perceive bias relating to the amount they were paid is consistent with research suggesting that employees' perception of fairness about pay may be significantly affected by the existence of procedural justice (belief that the process of determining pay is open and fair) and distributive justice (belief that the actual awarding of pay is equitable) (*e.g.*, Folger & Konovsky, 1989). Mariners who work for U.S. crewing service agencies are highly unlikely to be unionized (Jeremy Hope, personal communication, July 26, 2017). The difference in perceptions about bias relating to pay between crewing agency employees and those who do not work for crewing agencies suggests that the openness of the union collective bargaining system and the bureaucratized process of awarding raises may significantly contribute to employees' perceptions of fairness. Shipping firms who manage non-union labor may benefit from following the union approach to making and communicating decisions about pay.

Our findings that women are more satisfied with pay than men raise some concern since it is unlikely that women are being paid more than men, or working less. Our results are consistent with the findings of numerous previous scholars who have looked at gender differences in pay satisfaction (*e.g.*, Clark, 1997; Lambert, Hogan & Barton, 2001; Williams, McDaniel & Nguyen,

2006). Two main explanations have been put forward for this discrepancy. The first is that women may be more satisfied with their jobs in general due to having lower expectations than men about the utility they are likely to gain from employment (Clark, 1997; Williams, McDaniel & Nguyen, 2006). This argument supposes that, relative to men, women have disproportionately high exposure to negative experiences in the workplace, and therefore, tend to have lower expectations with regard to future job satisfaction. Clark (1997) supports this argument by demonstrating that this effect significantly diminishes when women have less cause to underestimate expected employment utility (*e.g.*, when employees are generally young or highly skilled). We see some evidence that this effect may be happening in that men in our sample are more optimistic about their opportunities for future income growth after leaving their position as an offshore mariner than are women, but the significance of this effect is weak ($p=0.089$).

The second possible explanation for the differential rates in male and female pay satisfaction we observe may have to do with the different ways in which men and women are socialized. Specifically, men may be more inclined to stay in a job that gives them low satisfaction because they are more likely to be socialized to view themselves as the primary breadwinner (Lambert, Hogan & Barton, 2001). Conversely, women are more likely to be socialized to prioritize family issues other than income generation (Lambert, Hogan & Barton, 2001).

Being an offshore mariner is a challenging career. While shipping firms and unions could always do more to improve working conditions, there are certain aspects that many mariners may find undesirable that are simply inherent in the field, like separation from loved ones. This leads many industry experts focused on improving retention to emphasize the reward structure (*i.e.*, adding carrots as opposed to removing sticks). Our research suggests that in some ways, this mentality may have merit. However, we also find that the type of reward matters.

Lastly, it is important to note that, while the effect of pay on retention may be overestimated, competitive pay is, of course, an important part of human resource management strategy in the U.S. maritime industry. For example, pay does appear to be important to attracting talented people to start careers as mariners. Certain reward structures may also be useful to motivate higher performance. For example, many U.S. shipping firms provide bonuses to encourage adherence to important safety standards. While competitive pay rates likely play an important role in fulfilling some important human resource management goals, our research suggests that other factors may play a more important role in improving retention. We also caution human

resource management professionals in the U.S. shipping industry against a disproportionate focus on rewards. Respondents to our survey cited issues with the work itself as frequently as they did pay as a factor that primarily contributed to their decision to leave. We find that, with regard to responding to these concerns, there may be some low-hanging fruit yet to be plucked.

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