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Understanding Employee Turnover Patterns in Mexican *Maquiladoras*

by

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Abstract

Thousands of manufacturing jobs have left the United States for Mexico because of lower labor costs in relatively close proximity to the United States. Despite lower labor costs, high employee turnover can be a major problem for *maquiladoras,* particularly for firms focusing on quality and high value services and products. We used quantitative and qualitative data to explore turnover patterns and seek an explanation for the high turnover in *maquiladoras.* Analysis of exit data from 2,714 line workers over a 4-year period revealed two major yearly peaks in turnover. Additionally, results from interviews of current hourly wage personnel and management revealed several major causes of turnover. Overall, we provide an explanation for yearly patterns in turnover and other reasons for turnover that are not found in other papers about this issue. Methods are suggested to reduce turnover, and ideas for future research are discussed.

Keywords: turnover, maquiladoras, mexico

Why *Maquiladoras* Matter

Companies from the United States and other countries have relocated numerous manufacturing-related jobs to *maquiladoras* in Mexico. *Maquiladoras* are facilities involved in labor-intensive activities such as assembly, sorting, and, more recently, manufacturing. These facilities rely on unskilled labor to realize a cost advantage compared to similar facilities in the United States or other developed countries (Romero, 2004). Close proximity to the United States is another major benefit of establishing or contracting *maquiladoras*, particularly if facilities are located in the numerous Mexican cities along the U.S. border (Segrest, Romero, & Domke-Damonte, 2003). Most plants are located very close to the U.S. border, but the North American Free Trade Agreement (NAFTA) has now made operations possible within the interior of Mexico (Howell, Romero, Dorfman, Paul, & Bautista, 2003). In the past, *maquiladoras* typically exported their output to the United States and other countries. However, output can now be sold in the Mexican market (Sargent & Matthews, 2003), which means that *maquiladoras* can service U.S., Mexican, and other markets. Additionally, due to extensive quality assurance programs, goods produced or assembled in Mexico are often of equal or higher quality compared to items produced in fully industrialized countries (Solis, Raghy-Nathan, & Rao, 2000).

The Mexican *maquiladoras* suffered a severe downturn in the 2001-2003 period. A quarter million jobs were lost and over 500 *maquiladoras* closed (Smith, 2004). Two

main factors contributed to this downturn: the U.S. recession in 2001 and China's increasing role in manufacturing (Hendricks, 2005). Manufacturers of products with high labor content, such as apparel firms, moved much of their production to China and India. In 2005, China was expected to increase its share of U.S. apparel imports from 16% to 50%, giving it a commanding lead, while India was expected to assume second place by increasing its United States-bound apparel production from 4% to 15%. Conversely, Mexico's clothing exports to the United States could decline by as much as 70%, leaving it with 3% of total U.S. apparel imports ("Losing their Shirts," 2004).

Nonetheless, *maquiladoras* are still important in world production and enjoying a resurgence. While some firms abandoned Mexico for lower labor costs in other countries, many companies producing high-value, bulky, and more complex products that must be delivered quickly elected to retain their *maquiladoras* (Hoffman, 2005). For such firms, the cost of logistics associated with moving to China would have exceeded potential savings in labor expense (Smith, 2004). During the downturn of 2001–2003, *maquiladoras* concentrated on improving quality and adding more value to products. *Maquiladoras* producing televisions are likely to have benefited from duties increased by up to 78.45% on Chinese-made television sets to offset dumping (Smith, 2004).

Recent data seem to indicate that *maquiladoras* are recovering. After several years of job losses, *maquiladoras* reported a 7.1% gain in employment for the first time since 2000. For example, in 2004, the total number of *maquiladora* plants rose to 2,825 employing 1.1 million workers. While this figure is still below the highest levels of 2000, future growth predictions are encouraging. Employment is projected to grow steadily at the rate of 3.15% per year. By 2010, total *maquiladora* employment is expected to reach 1.44 million workers, rising 11.5% above the 2000 benchmark (Christman, 2004). In addition, the value-added production strategy and increase in quality (Hoffman, 2005) have resulted in $97.2 billion gross production value, representing an increase of 14.6% over the 2000 figure, with projected growth of up to $141 billion by 2010 (Christman, 2004). During 2004, $68.9 billion of imported raw materials and components, coupled with $22.8 billion of *maquiladora* value-added manufacturing, represented a new record high in those areas. The implications are that the *maquiladoras* are more productive and efficient than in previous years, thereby enhancing their competitive position in global markets (Hendricks, 2004).

Turnover Problems

Despite their resurgence, one of the major problems associated with operating *maquiladoras* is that production employees commonly leave their jobs after a short time, often after a few months only. Prior research indicates that turnover is lowest in automobile (2 years) and electronics (9 months) companies while it is much higher in textile (3 months) and chemical (2 months) firms (Peña, 2000). In other words, workers in the textile industry stay on the job for only 3 months, on average, before leaving the company. One might ask, "How can an organization function with such high turnover?" First, if workers are hired to perform uncomplicated processes associated with unskilled work, *maquiladora* training is often short and straightforward (English, Williams, & Ibarreche, 1989). Second, replacement workers are usually plentiful (Brouthers, McCray, & Wilkinson, 1999). Finally, turnover costs (separation, replacement, and training costs) per employee are not overly burdensome for many jobs (Lucker, 1987).

Nevertheless, turnover causes significant problems overall when all these factors interact and negatively affect production. For example, while replacement costs can be low per employee, high turnover rates, such as 80%-100%, can considerably increase total replacement expense. In addition, although new unskilled workers are often plentiful, the shift towards quality manufacturing requires skilled and educated workers (Romero, 2004; Solis, Raghy-Nathan, & Rao, 2000) who are often in short supply. Consequently, turnover makes it difficult to maintain a qualified workforce that can consistently produce quality products (Tamimi & Sebastianelli, 1998).

Research studies have provided several reasons for *maquiladora* worker turnover including cultural differences between expatriate managers and Mexican workers (Stephens & Greer, 1995) and ineffective recruitment practices, training, and reward systems (Teagarden, Butler, & von Glinow, 1992). Informal conversations the authors had with *maquiladora* managers hinted at the possibility of yearly turnover patterns. However, no studies have investigated the relationship between turnover and particular periods. Therefore, we sought to investigate turnover patterns in *maquiladoras*.

Research Site

To research the dynamic nature of turnover in Mexican *maquiladoras*, we selected a large U.S. manufacturer with a *maquiladora* in Mexico. The plant employs 650 workers and accounts for approximately 8% of the company's total production. Operations began in 1985 in an effort to avoid high labor costs in the United States. The factory has always been held to the same production and quality standards as its U.S. counterparts. Production methods, pay systems, and organizational structure either are exact replicas of the U.S. factories or have been slightly modified.

One of the major differences between this factory and its domestic counterparts is that employee turnover is much higher: whereas annual turnover rates ranged from less than 10% to a high of 25% in any one of the original 17 domestic factories, the Mexican plant has experienced 80% to 120% turnover every year since its inception. This excessively high turnover rate has had several negative effects on

the factory and, subsequently, the parent company. A period of at least 8 weeks is needed to fill a position, from the interview and selection process and employee training to the stage when the worker reaches the benchmark of 80% of quota with quality work. Additionally, the company's Human Resource department has estimated the cost of hiring and training a worker to be 24,400 pesos or about $2,400.

Analysis Approach

To search for turnover patterns at the plant, we obtained over 4 years of turnover, tenure, and exit interview data from the company records for 2,714 former employees. Conducting interviews with personnel before they leave the firm is standard operating procedure at this facility. These exit interviews provide data such as date of separation, reason for leaving, length of employment, and last position held. The Human Resource Department used these data not only to measure the turnover rate but also to gain insight into the reasons why so many hourly workers were leaving the organization.

After examining the data, we suspected that the voluntary reasons reported in the exit interviews and involuntary reasons reported by the company did not provide a full picture of the turnover problem. The questionnaire used for the exit interviews had been drawn up by personnel at the company's U.S. corporate office and has been the standard in all factories. The literature suggests that the underlying reasons for turnover in Mexico may be different from those in the United States due to contextual factors such as local norms and labor force characteristics (Miller, Hom, & Gomez-Mejia, 2001). Therefore, we conducted interviews with company employees at all levels to discover the core causes of the turnover problem. All personnel were asked the same set of questions, which is provided in the Appendix. The interviews revealed new information beyond that provided by the voluntary and involuntary turnover data collected by the Human Resource Department.

The first interviewees were nine production workers who had 3 to 11 years of experience with the company and had participated in at least one corrective action team dealing with turnover. Workers who have served on such a problem-solving team are more likely to have heard opinions from their peers regarding quitting. The second round of interviews was conducted with five line supervisors and subsequently with all three production managers and the industrial engineer who is in charge of employee training. Each person was interviewed separately and asked the same questions, in the same order.

Analysis Results

Qualitative Data

Qualitative data gathered from the interviewees provided substantial insights into the high employee turnover. The data yielded information regarding three main problems that workers were encountering: organizational culture shock and the inability to adjust to work, dealing with family and economic issues, and pay differentials resulting in a violation of procedural justice.

Organizational culture shock

The employees explained that most of the new hires are young women just out of high school who, up until then, have led a sheltered life at home while helping with their family's domestic duties. The factory environment consists of a high-density physical layout where people and their machines are within arms reach. The noise level is so high that workers must wear hearing protection and shout to communicate with each other. Apart from two breaks and a lunch period totaling 60 minutes, employees are stationed at their machines, usually sitting, for the 10-hour shift. The attitude of the supervisors and managers is businesslike rather than motherly when pressing their employees to achieve higher levels of output, resulting in the employees' feeling duress. These factors highlight the environmental differences between the workers' previous life and the new work surroundings, resulting in job dissatisfaction. These findings are consistent with Oberg's (1960) explanation of culture shock whereby anxiety results from losing familiar signs and symbols of social interaction. The inability to achieve socialization in the local environment has been linked to stress and psychological withdrawal resulting in low levels of commitment and job satisfaction (Anderzen & Arnetz, 1999).

Dealing with family and economic issues

When production is behind schedule, frequently scheduled overtime keeps employees from their families and the second job that many employees keep to supplement their household income. These jobs are generally in the informal economy, and workers are usually paid in cash, which enables the workers to avoid paying any taxes on that income. The interviews revealed that overtime rates are either equal to or below the pay level from the second job, which causes workers' absence during scheduled overtime and eventual dissatisfaction with the job and the company.

Pay differentials

The pay system is a copy of the pay-for-performance system used in the domestic facilities. Pay is calculated using a multiplier, derived from production and quality, against a base rate. The interviewees explained that when pay rates decline due to model changes, described in detail in the next section, employees become dissatisfied. Because workers are more familiar with and favor a seniority-based system, a violation of procedural justice

occurs when a senior worker earns less than junior workers do. Daileyl and Kirk (1992) suggest that this violation can result in job dissatisfaction.

The inability to adjust to new surroundings coupled with violations of cultural norms and procedural justice all lead to worker dissatisfaction and, ultimately, intent to leave the company (Black, 1988; Daileyl & Kirk, 1992; Tung, 1988). Following the intention to search for alternatives is the evaluation of alternatives. When the evaluation process leads to the perception of greater benefit in jobs elsewhere, and there are other job opportunities, the worker will develop the intention to quit (Mobley, Griffeth, & Meglino, 1979). Interviewees reported that there are numerous factory jobs available in the area, and those who leave the company can usually find another job quickly.

In summary, the data gathered from the interviews suggest that three distinct conditions exist that contribute to turnover: organizational culture shock and the inability to adjust to work, dealing with family and economic issues, and pay differentials resulting in a violation of procedural justice. Combining the three conditions simultaneously exacerbates negative feelings, thereby contributing significantly to employee turnover.

Quantitative Data

The data graphically represented in Figure 1 indicate that there are consistent turnover patterns represented by two major peaks. First, January is historically and consistently the month during which most people leave the company. The second significant period of separation is the July–August period.

January turnover

The graph shown in Figure 1 indicates that the pre-Christmas vacation period has the lowest monthly employee turnover, and the specific figures provided in Table 1 show that the December average turnover is 23%, which is by far the lowest rate for the entire year, with November being second lowest at 49%. In contrast, the January average of 160%, seven times higher than that of December, clearly signals the significance of this peak in turnover.

The interviews revealed that workers plan when they will leave the company: many workers who intend to quit decide to stay on the job until December 31 so that they qualify for the Christmas bonus. Mexican labor law requires that all employees receive a Christmas bonus, which is issued if they have worked with the company until the end of the calendar year. When the plant reopens soon after January 1, many workers collect their pay and inform Human Resource personnel that they are quitting immediately. Many others collect their checks without comment and never come back to work. Interviewees at all levels (production worker, supervisor, and production manager) unanimously agreed that it is common for workers to wait until after December 31 to quit. However, although the Christmas bonus can explain the high turnover in January, it does not explain the July–August peak.

July-August turnover

The interviewees explained that there were several issues with pay, perceived as unfair, which provided workers with a motive to leave. During the month of July, the factory receives most of its production model changes.

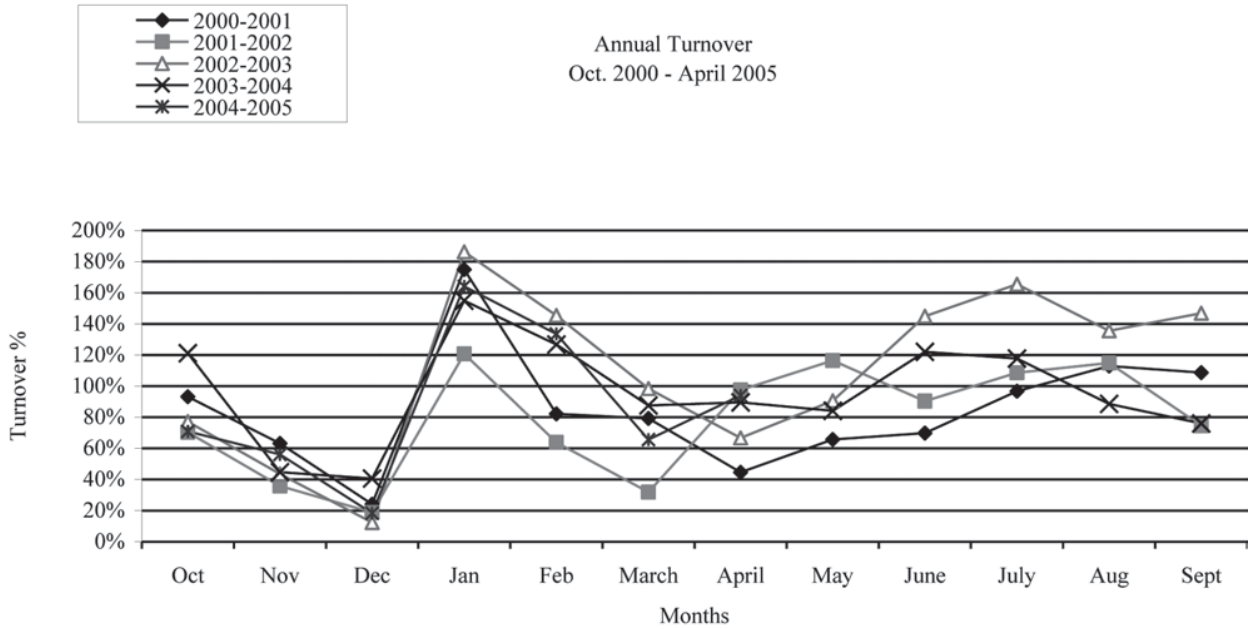

Figure 1: Annual Turnover from October 2000 to April 2005.

Table 1
Annual Turnover Percentage by Month and Year from October 2000 to April 2005

Fiscal year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
2000 - 2001	93%	63%	24%	175%	82%	79%	45%	66%	70%	97%	113%	109%
2001 - 2002	70%	36%	19%	121%	64%	32%	98%	116%	90%	109%	115%	75%
2002 - 2003	77%	44%	12%	186%	145%	98%	67%	91%	145%	165%	136%	147%
2003 - 2004	121%	45%	41%	155%	127%	88%	90%	84%	122%	118%	89%	76%
2004 - 2005	71%	56%	18%	164%	134%	66%	94%	-	-	-	-	-
Average	87%	49%	23%	160%	110%	73%	78%	89%	107%	122%	113%	102%

This change process usually calls for new manufacturing techniques, different equipment, and the reconfiguration of the assembly line. These changes always result in a drop in production for a minimum of 6 to 8 weeks. This production decline also results in lower employee pay because production and pay are directly linked. According to the interviewees, employees felt that although they had performed well, they were penalized instead of being rewarded. Although the pay system is designed to compensate for planned production slow-downs, the allowances appear to be insufficient to nullify the negative effects of the reduced production volume. Hence, the lower-than-normal pay motivates many employees to leave the firm.

Furthermore, there are differences between assembly lines: employees who work on an assembly line that is assigned a difficult model change suffer a decrease in pay until their proficiency increases whereas workers on other assembly lines may not receive a model change at that time, or if they do, it may be a minor change only. Therefore, people who have been with the company for a longer period in a low-paying area make less money than newer people in another assembly line with a minor or no model change. Employees at the lower pay rate perceive this outcome as unfair; consequently, some employees who resent the perceived pay discrimination leave the firm.

Additional Reasons for Turnover

Exit interview data and employee interviews revealed additional reasons for quitting beyond those explaining

Table 2
Reasons for Turnover from October 2000 to April 2005

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Total	%
Voluntary reasons														
Pay	13	8	0	36	29	12	13	6	17	11	6	9	160	5.9%
Other Job	21	6	3	58	32	21	19	26	18	26	18	16	264	9.7%
Treatment	1	0	0	0	1	0	0	0	1	0	0	0	3	0.1%
Work cond.	13	5	2	6	7	10	18	7	19	21	9	8	125	4.6%
Moved	10	13	3	34	19	8	12	9	16	7	22	14	167	6.2%
Study	4	0	1	6	3	3	2	5	8	8	20	3	63	2.3%
Sickness	21	9	4	23	19	14	15	18	17	22	17	13	192	7.1%
Marriage	3	1	0	18	10	3	4	8	8	7	6	5	73	2.7%
Maternity	17	10	3	42	24	18	24	30	20	13	32	23	256	9.4%
Involuntary reasons														
Production	45	41	19	64	56	54	51	45	49	79	66	67	636	23.4%
Discipline	24	7	2	9	18	9	8	2	14	13	15	21	142	5.2%
Absenteeism	27	13	7	48	31	19	25	17	21	37	8	18	271	10.0%
No Notice	28	17	18	84	45	23	23	21	27	24	25	21	356	13.1%
Theft	4	0	0	0	0	0	0	0	1	0	0	1	6	0.2%
Total	231	130	62	428	294	194	214	194	236	268	244	219	2,714	100.0%*

*difference due to rounding

the turnover patterns. These reasons concern the distinction between voluntary and involuntary separation, the workers' experience level, and the issue of overtime.

Voluntary and Involuntary Separation

Table 2 shows that the reasons for leaving are divided into two categories: voluntary and involuntary separation. Voluntary separation accounts for 48% of the total employees' reasons for leaving the company. Leaving for another job is the top reason (10.76%) for voluntarily leaving the firm, and maternity is the second highest reason (8.78%). The company defines involuntary separation as the collective decision by management and the Human Resource Department to terminate an employee. The top involuntary reason (23.60%) for leaving the company is termination due to inability to achieve production goals. Involuntary turnover accounts for 52% of total employee loss. However, this number is somewhat misleading because it includes employees who stop coming to work or have left the company without notice and who account for over 22% of the total turnover during the period measured. If these two reasons were recategorized into voluntary separation, the latter would account for 70% of turnover. We argue that such a recategorization is reasonable because the employee has essentially quit, but without providing proper notice.

Inexperienced Workers

All line employees asserted that they were working under extreme duress. They perceived supervisors and managers as continually pushing workers to meet production and quality goals. Personnel spoke about how hard it was to endure the initial year under such stressful conditions. Workers explained that they were able to pull through the adjustment period because they could deal with the stress, but that the majority of the young people cannot make the adjustment.

This information is congruent with the data shown in Table 3, which indicates the number of people who left the company between October 2000 and April 2005 in terms of seniority. About 78% of these individuals were employed for less than 1 year. They are typically young, just out of high school, and easily discouraged by the loud and fast-paced environment in a high volume factory. According to the human resource manager, most of these employees leave within the first 8 weeks because they cannot meet production and quality requirements. This figure is congruent with the turnover data discussed earlier. Almost 57% of the people who leave do so for the following four reasons: lack of production, absenteeism, lack of notice, and leaving for another job/industry. The interviews revealed that all of these reasons are prototypical of young new hires.

Overtime versus Outside Work

Because of high turnover, the plant is often behind in its production goals, which leads to scheduled overtime. The normal workweek is 10 hours per day from Monday through Thursday and 5 hours on Friday. Overtime is usually scheduled for an additional 5 hours on Friday and often for an additional 5 hours on Saturday. The in-

Table 3
Turnover by Seniority from October 2000 to April 2005

Seniority (Years)	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>=16	Total
Oct.	203	7	4	6	2	4	1	1	2	1	0	0	0	0	0	0	0	231
Nov.	106	9	5	3	2	0	0	1	0	1	0	1	0	1	0	1	0	130
Dec.	54	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	62
Jan.	252	78	35	9	17	14	2	4	9	1	2	1	1	0	1	1	2	429
Feb.	220	34	15	8	8	2	3	2	0	0	1	0	0	0	0	0	1	294
Mar.	159	22	6	3	2	0	0	0	0	0	0	0	0	0	0	1	0	193
Apr.	161	22	14	6	2	4	1	1	1	0	1	1	0	0	0	0	0	214
May	155	15	10	2	1	2	2	1	1	1	1	0	1	1	0	0	1	194
Jun.	183	28	4	5	5	0	5	1	0	0	1	0	1	0	1	0	0	234
Jul.	219	22	13	3	2	2	1	2	0	0	1	1	0	0	0	1	1	268
Aug.	204	23	7	1	3	1	2	1	1	1	0	1	0	0	0	0	0	245
Sept.	192	12	5	4	1	2	1	0	0	1	0	4	0	0	0	0	0	222
Total	2,108	277	119	51	45	31	18	14	14	6	7	9	3	2	2	4	6	2,716
% to Total	77.7	10.2	4.4	1.9	1.7	1.1	0.7	0.5	0.6	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.2	100%

terviewees revealed that some supervisors and managers berate employees when they fail to come for scheduled overtime. The point is that many of the plant workers have weekend jobs that pay more on a daily basis than their production jobs; therefore, coming to work, even at overtime rates, would result in a loss of income. The conflict between working overtime and working outside the firm causes some personnel to quit.

Discussion

Given the continued interest in *maquiladoras*, this study contributes to the literature by providing new information about turnover patterns and reasons for turnover. We expect that other *maquiladoras* experience the same January turnover peak because all Mexican firms are required by law to provide a Christmas bonus. Managers should create incentives to encourage employees to stay and thereby offset the Christmas bonus exodus. A pattern similar to the July-August pattern may be evident in other companies that experience retooling interruptions. However, we believe that there will be significant variance concerning the timing of the second peak depending on when the production changes are made at other companies. Moreover, *maquiladoras* may experience more peaks if they undergo other types of changes that affect production-based pay.

The results of this study can be used in conjunction with results from other studies to design effective turnover reduction strategies. Specifically in *maquiladoras*, many researchers have investigated the effectiveness of turnover-reduction methods, which we categorize as successful and unsuccessful techniques.

Successful Turnover-Reduction Techniques

A number of methods can reduce turnover in *maquiladoras*. One method involves choosing personnel who are likely to stay with the company. For example, research indicates that workers from Mexico's interior tend to stay with their companies longer than workers from the border region (Peña, 2000). Additionally, family separation can increase the likelihood of workers' leaving the firm (Maertz, 1999). The findings of this study indicate that a company can reduce maternity as a source of turnover by having a more balanced gender distribution in the workforce. Although the majority of *maquiladora* workers are traditionally women, research indicates that gender balance is becoming more common (MacLachlan & Aguilar, 1998). Nevertheless, women still constitute a significant portion of the *maquiladora* population. Given the problems associated with hiring people who are young and new to working, selection becomes especially important in reducing turnover; the selection of older workers who have some work experience would likely reduce turnover.

Testing potential *maquiladora* employees for achievement is an effective method of finding employees who are likely to stay with the firm. Employees who are likely to remain on the job tend to be less competitive, are willing to follow directions, and have a high need for certainty and security. Using these criteria, researchers in one study were able to predict 82% of the workers who remained on the job (Lucker & Alvarez, 1985). Two subsequent studies yielded similar results. Pelled and Hill (1997a) found that individuals who were interested in advancement were less committed to their companies and more likely to leave. Linnehan and Blau (2003) discovered that personnel who actively search for jobs are more likely to leave. These researchers suggest that employers ask applicants how often they have sought work in the past year to screen out applicants who are more likely to leave shortly after being hired.

Chinen and Enomoto (2004) found that personnel with a higher education level were more committed to their companies. They suggest that selecting individuals with a higher education level will reduce turnover since they are likely to be committed to the firm. Therefore, focused interviewing and prehire testing are effective at reducing turnover by helping companies select employees who are more inclined to stay with the firm.

Once employees are hired, several factors can aid in retention. Unsurprisingly, above average compensation, savings matching programs, and profit sharing have been found to reduce turnover (Lawrence & Yeh, 1995; Miller, Hom, & Gomez-Mejia, 2001). In particular, women are inclined to remain on the job when they are paid higher wages (Tiano, 1994). As the results from our study indicate that a confusing and inequitable pay system is a major reason for quitting, management should simplify pay systems to avoid turnover. Finally, prior studies indicate that a free and open work environment, participative management, and thorough training are effective at reducing turnover in *maquiladoras* (Lawrence & Yeh, 1995; Pelled & Hill, 1997b).

Unsuccessful Turnover-Reduction Techniques

Miller et al. (2001) identified several human resource practices that are ineffective at lowering turnover. They found that Christmas bonuses, high fixed pay, seniority, and attendance rewards do not significantly help to reduce turnover; neither do food subsidies and vacation benefits. These practices are ineffective because they are used by most *maquiladoras*. Since these factors are so common, they do not differentiate firms or encourage workers to stay with one particular company.

Limitations and Future Research

Several limitations precluded a deeper analysis into the issues raised in this paper. The company under study granted very limited access to interviewees. However, al-

though there were few interviews, there was almost complete congruence among all three levels of interviewees. This high level of consistency suggests that additional interviews would likely have provided similar responses. This company asked that its name, industry, and specific plant location not be included in this paper. Although such information may have enhanced the results, we have respected the company's request for complete anonymity.

Future research studies could be designed to build on the results presented here, and, for example, could aim to answer the following questions: Are similar turnover patterns evident in other developing countries such as China and India? What is the relationship between culturally based attitudes towards work and turnover? Anecdotal evidence from expatriates indicates that some firms have reduced turnover by providing ample training and pay rates that are equivalent throughout the industrial sector of a particular region. This conclusion seems reasonable because these two factors are positively related to job satisfaction, which is negatively related to worker turnover (Rosse & Hulin, 1985). Therefore, future studies may address types of training and pay methods that enhance job satisfaction as well as pay methods that do not cause turnover.

Conclusion

As *maquiladoras* continue to experience increased manufacturing orders and to expand in number, companies that have abandoned Mexico in search of lower costs elsewhere may be tempted to return to Mexico due to its close proximity to the United States. Awareness of predictable turnover patterns will be useful for those companies that are considering initiating new operations in Mexico as well as for those firms that have ongoing operations. When the results from this study are used in conjunction with those of other studies, *maquiladora* managers may be in a better position to understand and reduce turnover. Pre-emptive methods to reduce turnover should enable managers to lower cost per unit, promote efficiency, enhance on-time deliveries, and bolster quality levels.

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Appendix

Interview Questions

	Employees	Supervisors	Managers
Why do so many people leave the company?			
1. Factory environment "culture shock"	√	√	√
2. Working under extreme duress	√		
3. Scheduled overtime - family conflicts	√	√	
4. Scheduled overtime - *comercio informal*	√	√	
5. Pay inequity	√	√	
Why do so many leave in January?			
1. High income period - five weeks in one pay period:			
a. *Aguinaldo* (two weeks)	√	√	√
b. Christmas vacation pay (two weeks)	√	√	√
c. Production pay (one week)	√	√	√
Why do many people leave during July and August?			
1. Increased model changes	√	√	
Where do people go after they leave the company?			
1. Women:			
a. *comercio informal*	√	√	
b. other factories	√	√	√
2. Men - working in the US (legally or illegally)	√	√	