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MODELLING PERSONAL FINANCIAL WELLBEING ON EMPLOYEE COST IN THE SOUTH AFRICAN MANUFACTURING SECTOR

Fanus Jansen van Vuren
North-West University, South Africa
jfanus10@gmail.com

Prof Jaco Fouché
North-West University, South Africa
jaco.fouche@nwu.ac.za

Jaco Barnard
North-West University, South Africa
jaco.barnard@nwu.ac.za

Dr Leon de Beer
North-West University, South Africa
Debeer.leon@nwu.ac.za

─Abstract ─

With increased competitiveness and rivalry among employers, profitability and productive employees are critical factors to increase the financial performance and results of a company. Previous research found that the levels of personal financial wellbeing have an impact on the profitability of an employer.

This study focused on the effect of employees' levels of personal financial wellbeing on their employers, with specific reference to productivity and absenteeism (two elements of total employee cost) in the South African manufacturing industry. For this purpose, a sample of 872 employees from this industry was used and a quantitative, cross-sectional design was followed. The proposed hypotheses were investigated by means of structural equation modelling techniques with a categorical estimator. Mediation analyses were also conducted to determine whether there were any significant indirect relationships between financial wellbeing, productivity and absenteeism due to financial interference.

Results indicate a statistically significant negative relationship between financial wellbeing, financial interference and absenteeism. The relationship between financial wellbeing and productivity was, however, found to be positive.

This study adds value in that it creates awareness for entities on the importance of personal financial wellbeing for the employer and what impact this could have on

an entity's overall performance in the South African manufacturing environment. It also recommends that employers assist employees in managing their personal finances better, as this will also benefit the employer.

Key Words: *Personal financial wellbeing, Financial interference, Productivity, Absenteeism, Employee cost, Manufacturing environment*

JEL Classification: G00

1. INTRODUCTION

Low trading volumes and simple financial decision-making were qualities that were associated with the early to mid-twentieth century (Taft, Hosein, Mehrizi & Roshan, 2013). The start of the Industrial Revolution, together with higher demands for products and a wider assortment of products, however, led to an surge of trading among countries from all over the world. Subsequently, financial decision-making for both entities and individuals has become far more complex and put tremendous pressure on entities that want to remain profitable (Van Vuren, 2015). The most valuable asset of every organisation for future financial survival is employees' brainpower; yet, "employees" are not listed as an asset on the balance sheet (Crager, 2002). These employees often struggle financially themselves because of not saving enough for unexpected expenses (PWC, 2014; Lorgat, (2003)) or saving too little for retirement (Kane-Berman & Tempest, 2007; PWC, 2014). These concerns not only contribute towards decreased physical health as well as psychological health, but cause a lack of interest and lowered productivity within the working environment. Lower financial wellbeing among employees increases absenteeism (Taft et al., 2013) and causes disruptions in concentration levels among employees (Godfrey, 2006; Van Praag, Frijters & Ferrer-i-Carbonel, 2003). In South Africa, the lack of financial knowledge and skills adds to the already disrupted levels of financial wellbeing of citizens (Kotzé & Smit, 2008).

Zimmerman (1995:18) posits that "financial wellbeing is the state of being healthy, happy and free from worry". Williams (1983), on the other hand, recognises financial wellbeing as "a function of material and spiritual aspects of one's financial status", whereas Hayhoe (1990) perceives financial wellbeing as the state of being satisfied with one's financial status. Previous research has indicated the importance of employee financial wellbeing to the employer (Joo, 1998) as it will ultimately have an impact on any business (Joo & Garman, 1998).

There is, therefore, an increased need for the incorporation of wellness activities within organisations to assist employees (Hillier, Fewell, Cann & Shephard., 2005). This will also be beneficial towards the employer (Schabracq & Cooper, 2000).

According to the authors' knowledge, the current study is the first to use structural equation modelling (SEM) to investigate the effect of personal financial wellbeing on employee cost elements, specifically productivity and absenteeism. It is also the first study on this topic in South Africa.

2. FINANCIAL WELLBEING AND PRODUCTIVITY

According to Van Praag *et al.* (2003:30) "wellbeing is provided by individual satisfaction in six areas: business, finance, home, leisure, health and environmental". Taft *et al.* (2013) regard financial wellbeing as one's feeling of satisfaction with one's financial status. In this study financial wellbeing is defined as people's perception of their view of financial knowledge and the way in which they control their money and monetary value (Van Vuren, 2015).

There are a variety of stressors that affect a person's wellbeing, including financial stressors. Financial stressors come from three sources and include personal, family and financial situations. Personal stress consists of two categories namely job-related events and other. Job-related events include job change, decrease in wage, job loss and retirement (Joo, 1998). Job-related events, such as those mentioned above, contribute the most to the increased levels of financial stress (Varcoe, 1990). Other personal stressors include items such as loss of investments, injuries and permanent disability, chronic illness and wage deductions (Garman, Leech & Grable, 1996). Financially stressful situations include relocating, necessary and expensive home repairs, key automotive repairs, loss of a vehicle due to non-payment, mortgage foreclosure, legal problems, increased medical expenses and also too much debt of previous situations (Joo, 1998). These personal problems have an impact on job performance and according to Masi (1992), 20% of employees were already affected by this in 1992. It is estimated by other researchers that 10-15% of employees could have financial problems and that ultimately these financial problems will contribute to lower levels of productivity (Brown, 1993; Garman *et al*., 1996). The impact of financial stress could therefore contribute to the level of productivity and absenteeism and employee experience.

Financial literacy and financial wellbeing

Anthes (2004) explains that financial literacy refers to the level of financial knowledge in order to control and manage one's personal financial situation. That in turn has an impact on the material wellbeing of an individual. A definition of financial literacy as set by the US Financial Literacy and Education Commission (Basu, 2005) refers to the ability to raise knowledgeable opinions towards one's financial situation and also to take necessary steps to improve management of finances. Research by Kim (2000) and Joo (1998) reveals that adults on an international basis have a lack of financial literacy and therefore struggle to make knowledgeable and skilful financial decisions (Kim, 2000). Poor financial literacy skills are also taking a toll on the South African entrepreneurial environment (Kotzé & Smit, 2008). In the workplace, higher levels of financial literacy could lead to improved efficiency and productivity, which means that employees could concentrate less on financial concerns and related problems (Taft *et al*., 2013) and employees with improved financial literacy could indeed be more focused (Kim, 2000). Financial education could also lead to a long-term return on investment of at least 3:1 for the employer if workplace education is provided (Joo & Garman, 1998).

Productivity

One of the factors affected by financial wellbeing and a lack of financial literacy is productivity. Productivity is defined as the ratio of output to the inputs required for a specific production state (Ailabouni, Gidado & Painting, 2007). The output is influenced by determinants such as financial stress, financial wellness and financial behaviour (Delafrooz, Laily, Mohd & Jariah, 2010). Previous research has identified a relationship between personal financial wellbeing and the productivity of employees (Kotzé & Smit, 2008). Research in the USA has indicated that, on average, poor financial literacy contributes to increased stress levels that have an influence on productivity levels of 15% of employees (Garman *et al.*, 1996). The total magnitude of the cost to employers in this regard has, however, not yet been determined (Garman *et al*, 1996). Researchers have also estimated that 15-20% of workers in the USA have financial concerns that decrease their productivity (Kim & Garman, 2004).

Absenteeism

Absenteeism can be described as an employee's non-attendance of scheduled work (Langenhoff, 2011). Absenteeism is a variable that is usually influenced by factors such as "job satisfaction, stress, job performance, the employment environment, demographic characteristics of employees, job characteristics, commitment to employer, absence norm, and the managerial strategies of employers" (Joo & Garman, 1998). Stress about personal finances has been indicated as one of the most influential sources of psychosocial stress, because many basic life activities are associated with personal financial resources and their management (Peirce, Frone, Russel & Cooper, 1996). Similarly, Joo (1998) has found that a higher level of financial wellness was associated with less absenteeism. It is clear that stress and financially-related stress are common causes of financial interference, which causes absenteeism.

Financial interference

Not much research has been conducted specifically on the phenomenon interference, but it can be interpreted as the level of disruption or the prevention of a process from flowing fluently (Van Vuren, 2015). The relationship between personal employee problems and problems experienced at work implies that this will interfere on an employee's organisational performance (Forthofer, Markman, Cox, Stanley & Kessler, 1996). The effect of poor financial wellbeing does not only have a direct impact on productivity but also absenteeism. Kim *et al.* (2003) introduced the term "financial interference" when they explained the reasons for people's lack of financial literacy. Wallace (1997) also advocates support for employees in order to reduce financial interference at work. Poor financial wellbeing can cause interference at work and lead to high absenteeism and low productivity.

Problem statement

Several international studies have been conducted on the influence of personal financial wellbeing on employee cost (including productivity and absenteeism). Many of them support a positive relationship between personal financial wellbeing and productivity (Taft *et al.*, 2013). However, this topic is highly under-researched in South Africa. This study aims to contribute to the literature by following a large sample, quantitative, non-experimental cross-sectional design to investigate the influence of personal financial wellbeing on productivity and absenteeism in the South African manufacturing environment. In line with the objectives, the following hypotheses were tested (see Figure 1):

H_1: There is a relationship between personal financial wellbeing and the level of personal financial interference that an employee experiences at work.
H_2: Employees' productivity self-ratings in South Africa are influenced by their personal financial wellbeing.
H_3: Employees' levels of absenteeism from work in South Africa are influenced by their personal financial wellbeing.
H_{4a}: Personal financial interference has an impact on productivity.
H_{4b}: Personal financial interference has an impact on absenteeism.

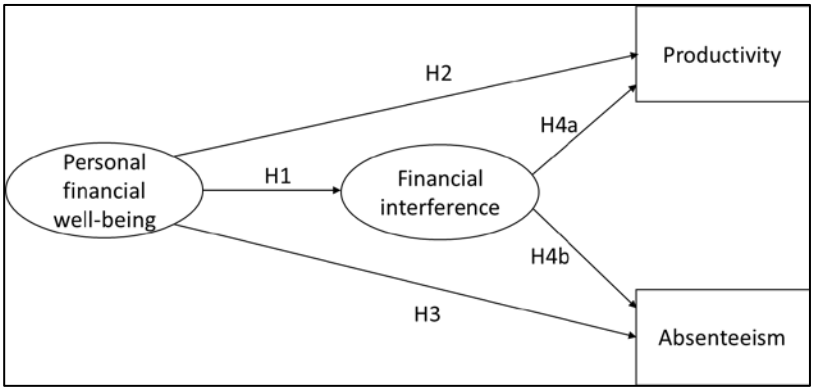

Figure 1: Structural model

Once the impact of financial wellbeing on productivity and absenteeism in a South African context has been determined, proper interventions to benefit employees and employers can be motivated.

3. METHODOLOGY

3.1 Research approach and sampling

This study was conducted within the context of the positivist paradigm. A quantitative, non-experimental, cross-sectional design was followed. Quantifiable data was used and variables were manipulated. A sample of 872 employees from South African manufacturing industry was used.

3.2 Instrument and data collection

The data were collected by means of the South African Employee Health and Wellness Survey (SAEHWS) (Rothmann & Rothmann, 2007) on a secure website

from sampled employees in the South African manufacturing sector. Factor scores were determined in a confirmatory way. For example, the items representing the factors were grouped together. The alpha coefficients for all the constructs were found to be acceptable ($\alpha \geq 0.70$). The following subscales of the SAEHWS were measured for this study:

- General financial wellbeing: (α=0.80) by means of four items (e.g. "I am satisfied with my personal financial situation"), and
- Financial interference: (α=0.71) by means of three items (e.g. "Personal money matters that interfere with my work-related activities").

The items for general financial wellbeing and financial interference were all measured on a four-point Likert scale ranging from "Never" (1) to "Always" (4). Productivity was measured by "Over the last 3 months, roughly how productive have you felt in your job?" with options in percentages for participants to choose from. Absenteeism was measured by "Over the last 3 months, how many working days in total have you been off work due to illness?" A standardised sliding questionnaire was used to ensure that participants answered the questions thoroughly and remain focused. As managerial consent and information regarding the purpose of the questionnaire were provided beforehand, employees were aware of the survey's relevance. These aspects contributed towards the validity of the questionnaire.

3.3 Data analysis

Structural equation modelling (SEM) methods, as applied by Mplus 7.11 (Muthen & Muthen, 2010), were used to investigate the hypotheses. Latent variable models attempt to explain complex relationships between several variables by using simple relationships between the variables and an underlying unobservable (Lauritzen, 1996). The mean and variance-adjusted weighted least-squares method is the default estimator for models that contain ordinal categorical items in Mplus (Muthen, Du Toit, & Spisic, 1997). Comparative Fit Index (CFI), Tucker-Lewis Index (TLI) and the Root Mean Square Error of Approximation (RMSEA) were considered. Owing to the nature of the hypothesised model, an investigation of potential indirect effects with a mediation model was performed and implemented in this study. The mediator variable serves to explain the nature of the relationship between the independent and dependent variables more clearly (Baron & Kenny, 1986). Bootstrapping resampling was implemented with the model indirect function of Mplus, requesting 95% confidence intervals for the potential indirect effects from 5 000 resampling draws (Hayes, 2009). The correlation between the

variables was also determined. The two-tailed p-value was used to indicate the statistical significance of the estimates. When the p-values are less than 0.05, the estimates will be significant and one can conclude that there is evidence for a relationship between the measured variables (Crudeck & Browne, 1993).

3.4 Ethical considerations

Authorisation was given by each organisation to perform the study and to use the data anonymously. No vulnerable group of people is included in the sample. Participation in the study was voluntary and the questionnaire was completed anonymously. No results of a single individual are made available and responses of individuals were treated as confidential.

4. RESULTS

Data were gathered from a random sample of individuals (n=872) in the manufacturing sector. The majority of the participants were men (n=729; 83.6%). With regard to race, the majority of the participants were white (n=430; 49.3%), followed by black participants (n=318; 36.5%). The most prevalent language spoken was Afrikaans with 420 participants (48.2%), then English with 146 (16.7%), followed by isiZulu with 100 (11.5%). Most of the participants (n= 631; 72.4%) were married. The majority of the participants, that is 426 (48.9%), had a Grade 12 education or equivalent, and 108 (12.4%) participants had a higher education qualification. With regard to age groups, most participants, namely 180 (20.6%), were 46-51 years of age. The majority of the participants, which is 706 (81%), were from Mpumalanga and the second most from the Free State (n=141; 16.2%).

The SEM was divided into two parts. The measurement model is the part that relates measured indicators to latent variables in confirmatory factor analysis. The structural model is the part that determines the relationship of the latent variables towards each other (Wuensch, 2009) by adding regressions to the measurement model. Table 1 displays the results of the SEM.

Table 1: Results of the structural equation modelling (n=872)

Description	CFI	TLI	RMSEA
Measurement model	0.991	0.987	0.041
Structural model	0.989	0.984	0.042
Note: CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA= Root Mean Square Error of Approximation			

The indicator variables (items) mentioned in the hypotheses were set as categorical in Mplus (Muthen & Muthen, 2010) and, according to the results, the measurement model was found to fit the data acceptably. The TLI, also known as the Non-Normed Fit Index (NNFI), was created to rectify the issue with the NFI. The major disadvantage of the NFI is that this index is sensitive to sample size and can, therefore, underestimate the fit of a model for a specific study (Hooper, Coughlan & Mullen, 2008:55). The CFI (0.989) and the TLI (0.984) comply with the acceptable fit criterion, which is a minimum of 0.90 for a good model fit (Hoyle, 1995). Also, the RMSEA value of 0.042 for this particular study is below the parameter guideline of 0.06, which confirms an acceptable model fit (Hu & Bentler, 1999). Table 2 illustrates the structural correlation statistics of the variables in the sample.

Table 2: Results of standardised regression

Structural regression path specified	Standardised estimate	Standard error	Two-tailed p-value
General financial wellbeing → Financial interference	−0.733	0.022	0.001
Financial interference → Productivity	0.224	0.070	0.001
Financial wellbeing → Productivity	0.134	0.066	0.042
Financial interference → Absenteeism	0.084	0.084	0.316
Financial wellbeing → Absenteeism	−0.156	0.080	0.049*

*Note: *Would be 0.05 when rounded*

It is clear that general financial wellbeing predicted financial interference negatively (β=−0.73; p=0.001), which confirmed H_1. Financial interference, in turn, showed a small positive predictive relationship to productivity (β=0.22; p=0.001), which confirmed $H4_a$. Furthermore, the relationship between financial wellbeing and productivity proved significant (β=0.13; p=0.042), which

confirmed H_2. However, the relationship between financial interference and absenteeism was not significant ($p=0.316$); therefore, H_{4b} was not accepted. Finally, financial wellbeing negatively predicted absenteeism ($\beta=-0.16$; $p=0.049$), which confirmed H_3. The bootstrapping resampling revealed no significant mediating effect between general financial wellbeing and absenteeism through interference as $p>0.05$. However, the indirect effect for general financial wellbeing on productivity was shown to be −0.16 (95% CI [−0.29; −0.04]; $p=0.01$). The κ^2 value for this mediating effect of financial interference between general wellbeing and productivity was calculated to be $\kappa^2=0.145$, which indicated a medium effect.

5. DISCUSSION

The model that is suggested by the various hypotheses provides a good fit for investigating the impact of personal financial wellbeing on productivity, absenteeism and the median effect of financial interference on productivity and absenteeism (Table 2). H_1 stated that there is a relationship between personal financial wellbeing and the level of personal financial interference that an employee experiences at work. A robust negative relationship between general financial wellbeing and financial interference ($\beta=-0.733$) was observed. The relationship was statistically significant ($p<0.05$). This indicates that, as employees' financial wellbeing increases, the level of financial interference decrease. If employees are satisfied with their personal financial wellbeing, there is less financial interference at work. H_1 is supported by the findings of the study, which concur with those of Forthofer *et al.* (1996) and Kim *et al.* (2003). The implication of better financial wellbeing of employees for the employer is less interference and more focused and productive employees.

H_2 stated that employees' productivity self-ratings in South Africa are influenced by their personal financial wellbeing. A positive relationship was found between general financial wellbeing and productivity and it was statistically significant ($\beta=0.134$; $p<0.05$). Accordingly, an increase in financial wellbeing would result in an increase in productivity. H_2 is supported by the findings and agree with Kotzé and Smit (2008) who determined that there was a relationship between personal financial wellbeing and worker productivity and Williams (1996) who found that employees who face financial wellness problems are more costly to employers. Evidently, a positive relationship between financial wellbeing and productivity is beneficial to the employer, because an increase in general wellbeing would see an increase in productivity.

H_3 stated that the levels of absenteeism of South African employees are affected by their personal financial wellbeing. The correlation matrix indicated a negative correlation between personal financial wellbeing and absenteeism ($\beta=-0.156$; $p<0.05$). As financial wellbeing increases, levels of absenteeism decrease. An increase in financial wellbeing could result in an increase in productivity due to lower levels of absenteeism. H_3 is therefore supported. This finding is supported by research by Joo and Garman (1998) indicate an association between a higher level of financial wellbeing and less absenteeism and Bagwell (2000) and Garman *et al.* (1999) found an increase in absenteeism was correlated to deprived levels of personal financial management. It would be beneficial for the employer to increase levels of financial wellbeing as it goes hand in hand with a decrease in absenteeism and therefore increased productivity and profitability.

H_{4a} stated that personal financial interference has an impact on productivity. A positive relationship was found between financial interference and productivity, which was statistically significant ($\beta=0.224$; $p<0.001$). Increased levels of financial interference have a positive impact on productivity. H_{4a} is therefore supported in accordance with findings of Forthofer *et al.* (1996) contending that the interface between work and personal financial problems could affect job performance. The results were, however, opposite to what was expected in the current study: One would have expected that an increase in interference would have decreased productivity. Nevertheless, from the study sample, it seems that financial interference could indeed increase productivity to some extent. A possible explanation is that, because of the interference, employees need to concentrate harder when they are productive, or they fear losing their job, which causes them to compensate by increased productivity. This phenomenon needs more investigation.

H_{4b} stated that personal financial interference has an impact on absenteeism. A positive relationship was found ($\beta=0.084$), but the regression was not statistically significant (at $p>0.316$). Employees need to attend work, whether an employee experiences financial interference or not. Therefore this may be the reason why the data are not significant.

6. CONCLUSION

A noticeable concern for employees is the issue of their personal financial difficulties. Previous research indicated that productivity is influenced by these financial difficulties and that this also leads to increased absenteeism and not

perform to their full potential. The study set out to investigate the impact of personal financial wellbeing on total employee cost items, viz. productivity and absenteeism in the South African manufacturing context. The hypotheses were investigated by means of a structural equation modelling analysis. This particular model was found to be a proper and effective fit for the sample data. A model was derived to show the impact of financial wellbeing and the relationship between financial wellbeing, productivity and absenteeism. The model further indicates financial interference as the mediator, and the impact of financial wellbeing on productivity and absenteeism. This proposed model in itself, therefore, contributes to providing a suitable model for further studies on the phenomenon. A statistically significant negative relationship was found between financial wellbeing, financial interference and absenteeism. The relationship between financial wellbeing and productivity was positive. The mediating effect between financial wellbeing and absenteeism was not significant, but a medium effect was derived between financial wellbeing and productivity.

This study provides useful information to various companies in the South African manufacturing industry since local research on the topic is limited. The study could initiate change within the economic environment by offering insight to South African companies regarding the personal financial wellbeing of their employees and related matters. Valid contributions for the employer would be the provision of assistance with regard to personal financial wellbeing for employees seeing that this will increase productivity and decrease absenteeism and, ultimately, make an organisation much more profitable and competitive.

7. RECOMMENDATIONS

It is recommended that researchers, employees and managers take note of the findings of this study in order to increase productivity of and reduce absenteeism by the most important asset of a company, the employee. A survey conducted by Aon Consulting (1998) indicates that there had been an increase in absenteeism among employees due to various factors such as stress and personal problems. The survey concluded that personal reasons and sickness increased absenteeism and that on average it amounted to 6% of their pay rate that was almost as much as the time taken for holidays. Therefore, companies need to consider the importance of their employees' financial wellbeing in order for them to be more profitable. Financial literacy programmes can be developed, guidance on management of financial wellbeing could be provided, and workshops could be held for employers on improved financial management of personal finances.

Owing to the limited amount of literature on this topic in South Africa, more attention needs to be paid to local studies.

8. LIMITATIONS AND IMPLICATIONS FOR FURTHER RESEARCH

This study was administered only in the manufacturing industry. The study also only investigated personal financial wellbeing and its impact on financial interference, productivity and absenteeism. Considering the limitations (focussing on one industry and only three variable) more research should be conducted within other industries and including more variables. The reason for the positive relationship between financial interference and productivity also warrants further investigation.

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